shall be deducted from the pay of any officer or soldier in whose care or use the said arms, equipments or implements were when the said damages occurred: Provided, the damage was occasioned by the abuse or negligence of said officer or soldier. Every officer commanding a regiment, corps, garrison, or detachment, to make once every two months, or oftener if required, a written report to the colonel of ordnance stating all damages to arms so belonging to his command, and naming the officers and soldiers by whose negligence or abuse the damages were occasioned; (*Act* Feb. 8, 1815.)

DEAD ANGLE OR (DEAD GROUND)—is any angle or piece of ground which cannot be seen, and which therefore cannot be defended from behind the parapet of the fortification.

DEATH. Sentence of death may be rendered by a general court-martial for the following crimes only: 1. Beginning, exciting, causing or joining in, any mutiny or sedition in any troop or company in the service of the United States, or in any party, post, detachment, or guard; (ART. 7.) 2. Being present at any mutiny or sedition and not using the utmost endeavors to suppress the same, or coming to the knowledge of any intended mutiny and not giving without delay information to the commanding officer; (ART. 8.) 3. Striking his superior officer, or drawing or lifting up any weapon, or offering any violence against him, he being in the execution of his office, on any pretence whatsoever; or disobeying any lawful command of his superior officer; (ART. 9.) 4. Desertion in time of war; (ART. 20 modified by *Act* May 28, 1830.) 5. Advising or persuading an officer or soldier to desert the service; (ART. 23.) 6. Any sentinel found sleeping on his post, or leaving it before being regularly relieved; (ART. 46.) 7. Any officer occasioning false alarms in camp, garrison, or quarters, by discharging fire-arms, drawing of swords, beating of drums, or by any other means whatsoever; (ART. 49.) 8. Doing violence to any person who brings provisions or other necessaries to the camp, garrison, or quarters of the forces of the United States employed in any parts out of the said States; (ART. 51.) 9. Misbehavior before the enemy, running away or shameful abandonment of any fort, post, or guard, which he may be commanded to defend, or speaking words inducing others to do the like; or casting away arms and ammunition, or quitting his post or colors to plunder and pillage; (ART. 52.) 10. Making known the watch-word to any person not entitled to receive it, or giving a parole or watch-word different from that received; (ART. 53.) 11. Forcing a safe-guard in foreign parts; (ART. 55.) 12. Relieving the enemy with money, victuals or ammunition; or knowingly harboring or protecting an enemy; (ART.

56.) 13. Holding correspondence with, or giving intelligence to the enemy, either directly or indirectly; (ART. 57.) 14. Compelling their commanding officer to give up to the enemy or abandon any garrison, fortress, or post; (ART. 59.) Every sentence of death in time of peace (in time of war it may be carried into execution by the officer ordering the court, or by the commanding officer) must, before being carried into execution, be laid before the President of the United States for his confirmation or disapproval and orders in the case; and no one can be sentenced to suffer death, except by the concurrence of two-thirds of the members of the court-martial, nor except in cases expressly mentioned; (ARTS. 65 and 87.)

DEBLAI—is the quantity of earth excavated from the ditch to form the remblai. Under ordinary circumstances the one is equal to the other, but not always; as, from the nature of the soil, earth may have to be brought to supply the remblai.

DEBT. All non-commissioned officers, artificers, privates, and musicians enlisted in the actual service of the United States are exempted, during their term of service, from all personal arrests for any debt or contract; (*Act* March 3, 1799.) No non-commissioned officer, musician, or private shall be arrested or subject to arrest, or be taken in execution for any debt under the sum of twenty dollars, contracted before enlistment, nor for any debt contracted after enlistment; (*Act* March 16, 1802.)

DECEASED OFFICERS AND SOLDIERS. The major of the regiment or, in his absence, the second in command, secures the effects of an officer, and transmits an inventory to the department of war, that his executor or administrators may receive the same; (ART. 94.) In the case of a soldier, the commanding officer of the troop or company, in presence of two other officers, takes an account of the effects he died possessed of, and transmits the same to the department of war, which said effects are to be accounted for and paid to the representatives of such deceased non-commissioned officer or soldier; (ART. 95.)

DECISIONS. On courts-martial the majority of votes decides all questions as to the admission or rejection of evidence, and on other points involving law or custom. If equally divided, the doubt is in favor of the prisoner; (HOUGH'S *Military Law Authorities.*)

DEFAULTERS. If any officer employed or who has heretofore been employed in the civil, military, or naval departments of the Government, to disburse the public money appropriated for the service of those departments respectively, shall fail to render his account or pay over, in the manner and in the times required by law, or the regulations of

the department to which he is accountable, any sum of money remaining in the hands of such officer, the 1st or 2d comptroller of the treasury, as the case may be, shall cause to be stated and certify the account of such delinquent officer to the solicitor of the treasury, who shall immediately proceed to issue a warrant of distress against such delinquent officer and his sureties, directed to the marshal or marshals of the district or districts where they reside; and the marshal shall proceed to levy and collect the sum remaining due by distress and sale of goods and chattels of such delinquent officer; and, if the goods are not sufficient, the same may be levied upon the person of such officer, who may be committed to prison, there to remain until discharged by due course of law. But the solicitor of the treasury, with the approbation of the secretary of the treasury, may postpone for a reasonable time such proceedings where, in his opinion, the public interest will sustain no injury by such postponement. If any person shall consider himself aggrieved by any warrant issued as above, he may prefer a bill of complaint to any district judge of the United States, and thereupon the judge may, if in his opinion the case requires it, grant an injunction to stay proceedings. If any person shall consider himself aggrieved by the decision of such judge either in refusing to issue the injunction, or, if granted, on its dissolution, such person may lay a copy of the proceedings had before the district judge, before a judge of the supreme court, who may either grant the injunction, or permit an appeal, as the case may be, if, in his opinion, the equity of the case requires it; (*Act* May 15, 1820.) The judgment on a warrant of distress under this act, and the proceedings under the judgment, are a bar to any subsequent action for the same cause. U. S. *v.* Nourse, 9 Peters 8. (*See* DELINQUENT.) No money hereafter appropriated shall be paid to any person for his compensation, who is in arrears to the U. S., until such person shall have accounted for and paid into the treasury, all sums for which he may be liable; provided, that nothing herein contained shall be construed to extend to balances arising solely from depreciation of treasury notes received by such person, to be expended in the public service; but in all cases where the pay or salary of any person is withheld, in pursuance of this act, it shall be the duty of the accounting officers, if demanded by the party, his agent or attorney, to report, forthwith, to the agent of the treasury department the balance due; and it shall be the duty of the said agent, within sixty days thereafter, to order suit to be commenced against such delinquent and his sureties; (*Act* January 25, 1828.) (*See* REMEDY; STOPPAGE OF PAY.)

DEFENCE (COAST). Possible causes and objects of attack may be

conquest or the destruction of commercial ports of more or less value; the possession of depots; the destruction of naval docks; or taking advantage of the weakness or absence of troops, to levy contributions. The parapets of all coast and harbor defences should be constructed of earth, where favorable sites can be found; but for low sites that can be approached within grape-shot range, such batteries must give place to masonry defences, and where masonry-casemated castles with three tiers of guns in casemates, and with guns and mortars on the roofs are resorted to, embrasures of wrought iron, like the model embrasures of Fort Richmond, New York harbor, will be found applicable. With such batteries well constructed, the direct fire of ships has little effect. Movable columns of troops in numbers, depending on the probable object of the enemy, must be held in some central position. If railroads are to convey the troops, a central point within a radius of sixty miles will be within good supporting distance. If railroads are not relied on, the distance should not be greater than fifteen miles. The columns should be at least seven-tenths infantry, one-tenth cavalry, and two-tenths field artillery. The latter being useful to oppose the debarcation of troops. The French charge both the fleet and the army with the movable defence of coasts. Steamers and flotillas, armed with howitzers, are particularly suited to that object. Corps of troops assembled at some central position are held ready to be thrown upon a threatened point. Batteries of howitzers give their aid to these corps. Concerted signals are arranged.

The ordinance of Jan. 3, 1843, directs that in military ports the naval forces shall be specially charged, under the orders of the commanding officer of the land forces, with the armament, service, and guard of the batteries looking *directly* upon the harbors, and upon interior roadsteads adjacent to these harbors, as well as upon the passes conducting to these interior roadsteads. Whenever the works to which those batteries belong do not form a principal part of the system of defence on the land side of the place and its dependencies, the *personnel* of the permanent batteries intrusted to the land forces is furnished from the artillery, by other troops, by the national guard, by revenue service men, or by ancient cannoneers taken from the coast population, at the rate of five men to a gun, one of whom must be an experienced gunner. The permanent works for defence are divided into three classes, according to their importance: *1st Class.* Works for the defence of military harbors, large commercial harbors, and the principal points of islands. These fortifications are composed of exterior forts, capable of resisting regular attacks, obstructing bombard-

ments, &c. *2d Class.* Works which protect anchorages and channels suited to ships of war. They consist of a system of forts or batteries tying them to the place. *3d Class.* Works defending small commercial ports, anchorages suited to merchantmen, places of refuge for coasting vessels. These consist of batteries with redoubts.

This classification regulates the supply of the batteries, but does not determine absolutely their armament. This must be regulated by various circumstances, as must also the relative strength of the redoubts. The armament of batteries is regulated by the strength of the ships they may have to repel, and the latter depend upon the nature of the coast, and principally upon the depth of water. 32-pounder guns and 8-inch howitzers are employed against ships at a distance of 2,600 yards. Guns begin the fire with round shot; the fire is continued with hollow shot. 13-inch mortars, whose range extends to 4,300 yards, are reserved for the ships at anchor. Experience has proved that a battery of four pieces of heavy calibre has the advantage of a ship of 120 guns. Projectiles *ricochet* better upon the water than upon the land, and lose less of their force; they can, after having *ricoched* at 1,300 yards, pass through the sides of a three-decked ship. Hollow projectiles penetrate the sides underneath the water line, and open large water holes by their explosion.

The number of 24 and 32-pound shot that timber ships have received in their sides without being disabled, ought perhaps to have caused their relinquishment in the armament of coast batteries in Europe. With James' projectile (*See* RIFLED ORDNANCE) such guns, when rifled, will again play an important part in defence. In the United States, such guns have been replaced by larger guns. Even the 42-pounder, retained of late years only as a hot-shot gun, may soon give way to 8 and 10-inch columbiads capable of being used as shell or shot guns; adding also, when necessary, Rodman's 15-inch columbiad, which, with shells of from 305 to 410 lbs., might with a single missile disable, if not entirely destroy the vessel at which it was directed with 6° elevation, when 2,000 yards distant. In many trials at that distance the lateral deviations were only from 1 to 5 yards, and the time of flight 6½ to 7 seconds. With 28° 35′ elevation, and a charge of 40 lbs., the range of the shell is from 5,435 to 5,730 yards, and time of flight 27 seconds.

The height to be given the battery above the level of the sea is from 11 to 16 yards. To fire at point blank: if the aim is a little lower the ricochet brings it upon the ship. Red-hot shot may be fired from columbiads. If engaged with many ships, direct all the

pieces of the battery upon that one most in range. Learn exactly the distances of all the most remarkable points, and post the information in the store-room and guard-room, in order that the distance of vessels may be easily determined. Observe the ricochets upon the water. Fire round shot upon disembarkations. Guard carefully against surprises. Observe every thing going on at sea and on land. Be attentive to all signals. Watch over the preservation of material with care; air the magazine in dry weather; move the gun carriages every day. It is important that a battery should have the elevation above given. With that elevation it will not be exposed to ricochet shot from ships, but the ricochets from the battery, losing but little of their force upon the water, will enable even 24-pounder shots, fired under four degrees, to pierce the side of a vessel, however strong it may be, at a distance of 640 yards and more. It is important to direct a heavy fire on ships before anchoring, especially upon the rigging, as the loss of a spar and a few ropes may oblige them to anchor where it is not intended, and thus derange the other ships. In the formation of batteries, regard should be had to the probable number of men that may be obtained to serve them. In the defence of coasts, booms are essential either to bar access to a harbor or river, or to cut off the retreat of the enemy if an entrance has been effected by surprise. Booms should be immediately under the fire of a battery, and are usually made of heavy chains floated by logs. It is unsafe to trust to a single line of booms in the main channel. Booms need not extend entirely across an entrance. Shallow or otherwise inaccessible parts may be omitted, and in order not to impede navigation unnecessarily, 100 yards of boom may be withdrawn from the channel, but always kept ready for replacing; (*Aide Memoire a l'Usage d'Artillerie, &c.*)

DEFENCE, BEFORE A COURT-MARTIAL. In point both of law and reason, a court-martial has as much power over the evidence introduced by the prisoner as over that of the prosecutor, and can reject the witnesses of the one as well as the other, or any part of such witnesses' testimony. Courts-martial are particularly guarded in adhering to the custom which obtains, of resisting every attempt on the part of counsel to address them; but cases have occurred, in which professional gentlemen in attendance have been permitted to read the defence prepared for the prisoner. A court will prevent a prisoner from adverting to parties not before the court, or only alluded to in evidence, further than may be actually necessary. All coarse and insulting language should be avoided, in any part of the defence; (HOUGH'S *Law Authorities.*)

DEFENCE, (NATIONAL.) This subject is much associated, in

the popular mind, with ships, forts, and the preparation and proper distribution of all munitions of war; but important as they are, it is not here proposed to discuss those questions. It is not necessary to combat an idea which all history controverts, that a large naval force will ever be able, by cruising in front of our extended coast, to prevent a hostile expedition from landing on our shores.* The reluctant admission of the historian Alison may be accepted, that in the face of greatly superior maritime forces, Ireland was, for sixteen days, in 1796, at the mercy of Hoche's expedition of 25,000 men, and neither the skill of English sailors, nor the valor of English armies, but the fury of the elements, saved them from the danger. "While these considerations," continues Alison, "are fitted to abate confidence in invasion, they are, at the same time, calculated to weaken an overweening confidence in naval superiority, and to demonstrate that the only base on which certain reliance can be placed, even by an insular power, *is a well-disciplined army and the patriotism of its own subjects.*

Nor is it necessary to waste argument on the exploded idea that ships can contend with forts.† The results of such contests in our country, at Fort Moultrie, Mobile Point, Stonington, and Fort M'Henry, abundantly show that our sea-board defences, if completed under the supervision of our able engineers, *and properly garrisoned*, will resist, successfully, any merely naval aggressions, and it has been well said that in the British and French naval attack on Sebastopol, (Oct. 17, 1854,) the final experiment of wooden ships against granite and earthen walls was made, never we believe again to be repeated, until iron clad-ships range up in line of battle; (*See* IRON PLATES.) But the Crimean war did show with what facility large armies are transported by water, and it conclusively proves that the great maritime powers will look to their armies to accomplish in future wars what it would be idle to expect from a navy alone, and that by the organization of forces "fitted to bring into action the physical strength of the country with a competent knowledge of their duty and just ideas of discipline and subordination,"‡ such armies must be met. The means here proposed to accomplish this great object will leave unchanged the present militia laws of the Union, but an effort will be made to show in what manner

* For a sketch of the principal maritime expeditions, see Jomini's Art of War, translated by Major Winship and Lieut. McLain. See also the report of a board of officers submitted at the first session of the 26th Congress (Doc. 45), containing numerous illustrations from history, showing the impracticability of covering even a small extent of coast by cruising in front of it.

† The subject is ably discussed in "Halleck's Military Art and Science," under the head of "Sea Coast Defences."

‡ Report of Gen. Cass, while Secretary of War, on National Defence.

existing institutions may be applied to the great purpose in view, by a simple enactment granting to the States, in the words of the Constitution, the consent of Congress "*to keep troops.*"

Francis Lord Bacon has wisely said that "the principal point of greatness in any state is to have a race of military men;" and elsewhere, in his enumeration of the elements of true greatness in a state, he writes: "that it consisteth also in the value and military disposition of the people it breedeth, and in this that they make profession of arms. And it consisteth also in the commandment of the sea." But he writes: "In the measuring or balancing of greatness, there is commonly too much ascribed to largeness of territory, to treasure or riches, to the fruitfulness of the soil or affluence of commodities, and to the strength and fortification of towns and holds." What was made evident to Bacon by the lore of ages is equally true now. If we, as a people, neglect our military resources, do not foster the military spirit of the people, but on the contrary disregard military merit, and even neglect to honor and reward great military services rendered to the state, we cannot breed a race of military men, and are in danger of verifying the assertion of de Tocqueville, in his Observations upon Democracy in America, that "the military career was little honored and badly followed in time of peace." * * * That "this public disfavor is a very heavy burden, which bows down all military spirit," and that if such a people should undertake "a war after a long peace, they would run a much greater risk than any other people of being beaten."

The existing institutions which may be used as aids in organizing a system of National Defence are the Military Academy, the army of the United States, and the militia of the States. The Military Academy is already in successful operation. The first step, then, towards proper State organizations should be to give attention to the regular army—to make it, in fact, an aid or staff for the perfect development of the physical strength of the country. To do this, a system of recruiting is needed in harmony with our institutions and the manner in which all militia force must be collected. It is the several States which furnish the militia force; let the regular army, therefore, be recruited by States. Let every regiment have its depot in a particular district of country, and, with the present rate of pay given to the non-commissioned officers and privates, with the reward of promotion from the ranks bestowed whenever merited, we should soon have an army, in the different parts of which the various sections of the country would take a lively interest. In an army thus collected, which offered a career worthy of being sought, an *esprit-de-corps* would soon be developed which we may

in vain seek in our present establishment, and such an army, instead of being regarded by their countrymen as strangers in sympathy and pursuit, might be made the nucleus of science and strength, around which the mental and physical force of the country could be concentrated in war. To accomplish this great object, other changes are also necessary, but much lies within the discretion of the President, and upon his recommendation it is not doubted that Congress will legislate where legislation is required.

If the idea be just that the skeleton regular establishment is maintained in peace, as a *nucleus* to be expanded in war, to meet the wants of the country, the President should be careful not so to distribute that force as to make this great purpose unattainable or difficult when war may impend. If it be possible so to locate the troops as to give them all possible instruction, and, at the same time, not neglect our Indian frontiers, the latter object should not be suffered to override that other most paramount consideration.

Look at any map of the United States, and attempt for a moment to realize the vast extent of our possessions. Bring your mind back to the period when railroads did not afford those facilities which we now have, in a portion of our country, for quickly passing over hundreds of miles, and you may no longer consider that military posts in Texas, New Mexico, California, Oregon, &c., and on the routes to those distant States and Territories, have such means of communication as would enable us to bring together any respectable force in a short period. Bear in mind that the whole army of the United States consists of but one hundred and ninety-eight companies, and that these companies are scattered in posts which dot our immense territory. Realize this, and then answer, is it possible for the small number of troops thus stationed to prevent marauding parties of Indians from passing between these posts and committing depredations either in Mexico or upon our own people? No candid inquirer will assert the possibility! What, then, is remedy? Settlers upon our Indian frontiers must be provided with arms; and the United States Government, besides encouraging Indians to engage in agriculture and other arts of peace, must hold tribes responsible for the acts of individuals. Where predatory bands of Indians have been known to proceed against Mexico or our own people, the tribe must be made answerable, and no vain pursuit be made after the marauding party. We must severely chastise such tribes, and make them understand that the United States require head men to govern and control their young men. That, for the acts of any individuals of the tribe, we will not fail, in any instance, to pun-

ish the tribe for such predatory acts. An occasional campaign made against Indians to punish them for misdeeds, produces lasting effects, and will always prove far more efficacious in guarding the lives and property of our citizens, than the present system of small posts, which, by the impunity they afford, only encourages a spirit of adventure in Indian tribes. Another advantage in breaking up the present vicious system of small posts, would be the establishment of schools of instruction for cavalry, artillery, engineers, and infantry. We now have a preparatory school for the cultivation of military science, at West Point; but, if officers of the army, after graduating there, are left without means or motives for improvement, and on remote stations suffer their minds to degenerate from want of exercise and competition, the Military Academy will have accomplished but very partially the great object of its institution. If the army is to be made the rallying point and instructor of our countrymen in war, it should keep pace with the improvements made in Europe, and this can only be done by assembling the engineers, and the three arms of the service, together, in schools of *practice*. Let those schools of practice be properly located: and, besides, the great results thus to be obtained by embodying the troops, detachments could at any time be sent to strike and punish tribes of Indians that failed to keep the peace. With one large detachment on the Atlantic coast; another at Jefferson barracks; a third in New Mexico, and a fourth on the Pacific, the army might be kept in a high state of discipline and efficiency, and soon made, by legislation, all that it should be. With an army so established, it would be apparent that all officers should be active, intelligent, and progressive. A retired list should provide for veterans, and proper legislation would enable commanding officers to appoint their own staff officers, in recognition of the established principle that such officers are the assistants of commanders of troops. Such a change would be necessary to insure the just responsibility of commanding officers, as well as proper instruction by alternation of duty in the line and staff; and by instituting a rigid system of inspection, which would inform the general-in-chief and Secretary of War of the legitimacy of the acts of all commanders, defects of organization, errors of administration, and pernicious customs of service would be made known and corrected by the Executive and Congress.

General Orders, No. 17, of 1854, contain very well-considered regulations for carrying into effect the 5th section of the Act of Congress of August 4, 1854, relative to the promotion of non-commissioned officers. Let us now abandon a system of recruiting, which burdens

the army with the scum of cities, and promotion from the ranks would follow as regularly as from a lower to a higher grade of commissions. In a republican army *caste* should not exist, and it will help to break down that distinction now dividing officers and solders, leaving only the necessary difference in grades from private to general, if the army should be recruited by means of regimental recruiting depots so located, that different States shall consider different regiments as raised within their respective limits.

Our army organized and collected, as herein recommended, could easily, on the approach of war, by the addition to each regiment of two battalions, and by increasing the number of privates in a company, be made fifty thousand strong, and this federal force, organized, as it would be, in harmony with State troops, would constantly have kept pace with the advance of professional knowledge in Europe, and be capable of diffusing that knowledge throughout the country by means of the respective State organizations to be now considered.

If the first French revolution did not inaugurate the ideas of liberty and equality, it at least first inculcated by practice the correlative duty of every citizen to defend his country. Accustomed as Americans are to borrow ideas from the English press, it is not remarkable that the outcry made by that aristocratic community against French conscription should have been echoed in our own country. But in the language of General Knox, "It is the wisdom of political establishments to make the wealth of individuals subservient to the general good, and not to suffer it to corrupt or attain undue indulgence. Every State possesses not only the right of personal service from its members, but the right to regulate the service on principles of equality for the general defence. If people, solicitous to be exonerated from their proportion of public duty, exclaim against the only reliable means of defence, as an intolerable hardship, it cannot be too strongly impressed upon them, that while society has its charms, it also has its indispensable obligations. That to attempt such a degree of refinement as to exonerate the members of the community from all personal service, is to render them incapable of the exercise and unworthy of the characters of freemen."

Let us, then, no longer permit the marvels of industry in which our countrymen have been eminently successful, so far to dazzle us as to make us forget the lessons of past history. The Italian republics of the Middle Ages had made great strides in industry and the arts. The republic of the United Netherlands was enriched by commerce in the time of De Witt. But it has been well said, that in bending their

whole energies to the attainment of riches, and neglecting their military resources, Italy became the prey of foreigners, and Holland only secured national independence by the sacrifice of political liberty.

The history of modern tactics proves "that preparation in peace gives victory upon fields of battle." The mobility of troops, as now organized, armed, and instructed; the quantity, and still more the kind of artillery used, render a passive resistance, such as that formerly made, impossible. The impossibility of resisting attacks by such means causes the defence to seize the moment in which the attacking party uncovers himself to resort to the offensive, and hence the issue is now more quickly decided, and conquest more rapid than it was a hundred years ago. The ease with which large bodies of men are now transported, the rapidity of all preparatory manœuvres, as well as the greatly increased mobility in action of instructed troops, admits of the ready concentration of great numbers of such men, without the machine becoming too heavy or unmanageable, or its component parts losing the sentiment of order. It therefore follows that the loss of a battle, in consequence of the numbers engaged, is now much more important than it formerly was, and that such loss resulting from incapacity to manœuvre, or want of discipline, may involve the most disastrous consequences. If the people of the United States suppose that the facilities which our railroads offer enable us to concentrate larger masses of men in a short period, the answer must be made that DISCIPLINE is the soul of an army, and that without the habit of obedience, an assemblage of men in battle can never be more than a panic-stricken mob. Instances in our own history are not rare to verify this truth. The fields of Princeton, Savannah River, Camden, Guilford Court-House, &c., during our Revolutionary War, not to speak of later disasters, amply sustain the declaration of Washington, that such undisciplined forces are nothing more than a "destructive, *expensive, and disorderly mob.*" "When danger is a little removed from them, they will not turn out at all. When it comes home to them, the well-affected, instead of flying to arms to defend themselves, are busily employed in removing their families and effects; while the disaffected are concerting measures to make their submission, and spread terror and dismay all around, to induce others to follow their example. Daily experience and abundant proofs warrant this information. Short enlistments and a mistaken dependence upon our militia, have been the origin of all our misfortunes, and the great accumulation of our debt. The militia come in, you cannot tell how; go, you cannot tell when; and act, you cannot tell where; consume your provisions, exhaust your stores, and leave

you at last at a critical moment." Such facts, bringing fearfully home to us the contrast between indiscipline and discipline, it is hoped, may yet cause our countrymen to heed the admonition of the Father of his country, that "In peace we must prepare for war." Let us not deceive ourselves by supposing that, when danger becomes imminent, Congress will take the necessary measures to meet it. The steps which are necessary call for sacrifices from the people, and unless public opinion sanctions the means, Congress, in the day of trial, will always be found to represent misdirected popular opinions.

The veteran, Mr. Gales, in the *National Intelligencer* on the occasion of the death of Mrs. Madison, gave a picture of the inertness of the last session of the War Congress of 1814–15. His recollections of the past furnish instructive lessons of what we may expect in the future, if the attention of the people of the United States be not fixed on the necessary sacrifices which love of country demands. So believing, extracts from his historical sketch are here quoted in the firm persuasion that the measures, then recommended, are essential to the safety of our cities and towns, if some organization by States, at least, as efficient as the militia scheme recommended by General Knox, with the sanction of General Washington, be not adopted in time of peace when a matured scheme may be well digested. Mr. Gales writes: "Congress had assembled on the 19th of September preceding—not, as might be supposed from the date, in consequence of the then recent capture of the city [of Washington] by the enemy, but in pursuance of a requisition by the President anterior to that event, calling Congress together (as the President informed the two Houses, in his message at the opening of that session) for the purpose of supplying the inadequacy of the finances to the existing wants of the Treasury, and of making further and more effectual provisions for prosecuting the war. During the recess of Congress, the honor of the arms of the United States had been gallantly sustained in every conflict by land and sea; politically considered, the capture of Washingon itself, and the destruction of the Capitol and the other public buildings, so far from being a misfortune, was for the administration a fortunate event, by its effect in exciting indignant feelings throughout the country, uniting the people in support of the common cause, and preparing their minds for the additional burden of taxation which it had become obvious that they must be called upon to bear. All that was wanting to the vigorous prosecution of the war, was the provision of men and money for the purpose. The progress of recruiting for filling the ranks of the regular army had already proved entirely too slow, if not total failure, as had the resource of

loans for the support of the Government, as well as for carrying on the war. The army, whose organization was, on paper, more than 62,000 men, comprised an actual force of only 32,000, exclusive of officers, of which force probably not more than one half could be relied on for effective service; and the credit of the Government had sunk so low that plummet could hardly sound the depth of its degradation.

"At the opening of the session, the President, in his communication to the two Houses of Congress, with eloquent persuasion, endeavored to impress upon them the necessity of making *immediate* provision for filling the ranks of the army, and replenishing the treasury. In this purpose he was earnestly seconded by Secretary Monroe, of the War Department, and the new Secretary (Mr. Dallas) of the Treasury Department.

"Towards the first of these objects, a bill was soon matured, and afterwards received the assent of Congress, extending the age at which recruits might be enlisted to fifty years, doubling the bounty in land to each, and removing the interdiction upon recruiting minors and apprentices. This measure was a mere experiment, of no practical value, as the event showed. The plan for filling the ranks of the army upon which the Executive relied, and which was placed before the Senate in a bold and energetic report from the War Secretary, was to form into classes of 100 each, all the population of the United States fit for militia duty, out of every class of which four men for the war were to be furnished within thirty days after the classification, by choice or by draught, and delivered over to the recruiting officer of each district, to be marched to such places of general rendezvous as might be directed by the Secretary of War. This plan, which, as the reader will perceive, comprised all the essential features of the French conscription, though, perhaps, the only one which at the time promised effective results, found from the first no favor, especially in the House of Representatives; and became more and more obnoxious, the more the administration seemed to have it at heart. Hardly any one in Congress had the courage to allude to it. Mr. Troup did indeed prevail upon the Military Committee, of which he was chairman, to allow him to report a bill, conformable to the Executive recommendation, by the pregnant title of 'An Act making provision for filling the ranks of the regular army, by classing the free male population of the United States;' and the bill was referred to a Committee of the whole House, and never after heard of. In the course of the session some acts had passed, looking to the employment of volunteers and detachments of militia, under the old plan, for short terms; and one of more importance, 'to authorize

the President of the United States to accept the service of State troops and volunteers.' This last was not only the most effective measure which had passed towards the supply of men for carrying on the war, but it was the most so that was likely to pass.

"The truth to say, indeed, notwithstanding the nature of the emergency, a dogged inertness seemed to paralyze the action of Congress during the latter part of that session. The recommendation to recruit the army by drafts from the militia was not only unwelcome, as we have said, but revolting to the inclination of the popular branch of Congress; so much so, that a great proportion of the members of that body (and among them some of the leading and most conspicuous members of the republican party) shrunk from it as from the plague; and, as though the leprous influence of that proposition contaminated every other part of the plans of the administration, it was with almost equal reluctance that the House approached the consideration of adequate measures (such as Mr. Secretary Dallas frankly and fearlessly recommended) for the support of the public credit, and for strengthening the sinews of war." *

From the foregoing sketch of the past, it is evident that, unless the opinions and prejudices of the people of the United States be greatly changed, any attempt to raise large armies in the most critical emergencies, without the agency of States, must prove a failure. In order, therefore, to provide for the "common defence," the aid of State organizations will be necessary, and several plans, more or less efficient, have consequently been proposed to better the organization of the militia. All such attempts have, however, met with no favor from the people; and, indeed, it is much to be doubted whether the constitutional reservation to the States "of training the militia according to the discipline prescribed by Congress," and governing them, except when called forth "to execute the laws of the Union, suppress insurrections and repel invasions," will admit of any "good, energetic, general, uniform, and national system of organization." The division of authority made by the constitution between the United States and the several States, in regard to the militia, until called forth by the Federal Government, has left with Congress only the right to provide for "organizing, arming, and disciplining the militia;" but discipline, in that restricted sense, without power to regulate the appointment of officers

* In striking contrast with this inertness of Congress, the Legislature of New York assembled on the 26th of September, 1814, passed by the 24th of October a bill giving additional pay to the militia from the State treasury, an act to encourage privateering and an act to raise twelve thousand State troops by conscription or classification. See Hammond's Political History of New York, vol. 1. pp. 380–1.

or otherwise to govern, means little more than prescribing a system of tactics, and such discipline can never make soldiers.

There is, however, another suggestion in the Constitution of the United States, for providing for the common defence, which is obnoxious to none of the objections made against large standing armies, and which commends itself to favorable consideration, as being in harmony with the Federal Government, and capable of furnishing any number of disciplined soldiers which the exigency of our foreign relations may require, without outrage to the instincts of the people of the States. The tendency of the multiplication of States in our confederacy is to restrict the authority of the general Government over the internal affairs of the people of the States. This has been shown by breaking down the Bank of the United States, establishing the independent treasury, refusing appropriations for internal improvements, and, lastly, leaving to the people of Territories the regulation of their own institutions. The maxim "that the world is governed too much," has been sturdily preached, and it may become necessary not to shrink from maintaining our doctrine in the face of foreign powers. To do this we must arm for defence, and the consistent mode of doing so, is for Congress to give its consent for the several States to "*keep troops;*"—more particularly as the history of our country has shown that public opinion will not admit any other efficient military organization. States now have authority to keep troops in time of war, but for such troops to be useful in war, they must be prepared in peace; but as the Constitution of the United States forbids States "to keep troops in time of peace without the consent of Congress," that consent could be given with conditions attached, and those conditions, besides providing for the common defence in war, should require the organization and instruction of State troops to conform with that of the army of the United States, or rather with the cavalry, harnessed batteries of artillery, and infantry of the army.

To encourage States in such organizations, let Congress provide for the annual distribution of ——— dollars among the several States and Territories in proportion to their enrolled militia force, upon satisfactory evidence being furnished to the Secretary of War, that such States have organized camps of instruction during two months in the year, containing a number of troops not less than one-twentieth of the enrolled militia force of the State. Direct the President to furnish to the several State governors, upon their requisition, such army officers as they may desire to aid the commanders of the camps of instruction, and the information collected and kept up in the army will thus be dif-

fused throughout the country. The different States will take pride in their respective organizations, and would recruit their respective armies according to the genius of their people. Their military codes would react upon each other, and upon that of the United States. An interest in military affairs would take the place of present derision, and more than all, the United States might laugh to scorn the efforts of any invader.

The Prussian Landwehr of the first ban, to which the proposed organization is assimilated, is considered a reserved army, remaining by their firesides in times of peace, except during their annual seasons of manœuvring, but ready to appear in case of war upon the first call, organized, equipped, and armed to serve like the line of the army, either at home or abroad. The Prussian territory is divided into as many districts as there are battalions of the Landwehr of the first ban. Each district furnishes a battalion of infantry, a squadron of cavalry, a company of artillery, and some other detachments. The battalions and squadrons are named from the principal town of their district, and depots of arms, clothing, camp and garrison equipage, and cavalry and artillery equipments, are there located. The districts of the Landwehr are also the recruiting districts of the line of the army; and, as troops from the same district serve together, there naturally exist between those corps ties of consanguinity, which dispel all feelings of superiority, and cause them mutually to sustain each other in time of danger.

In each district of the Landwehr, the following small list of officers are permanently paid. For the infantry: one major commanding, one adjutant, who is also accountant, four first sergeants, and four second sergeants, (one per company,) eight corporals, (two per company,) and one armorer. For the cavalry: one captain, or first lieutenant, one quartermaster-sergeant, and three corporals. The paid commanders of battalions are charged with the assistance of their staff, with the *personnel* and *materiel* of the Landwehr, and are accountable for the ordnance and military stores in depot in their districts. The first sergeants keep the list of names belonging to their companies, and no man can absent himself without notifying them.

If all the States of the Union did not deem it better under this system to keep up a small permanent force, it is supposed that they would all find it necessary to maintain a small skeleton organization of officers and non-commissioned officers, similar to that of the Prussian Landwehr of the first ban. And if such officers and non-commissioned officers were appointed by the States from officers and non-commissioned officers who have honorably retired from the army, a new link would be established between the army and State troops which would prove mutually beneficial.

To resume, then: the system of national defence or military organization herein suggested, as suitable for the United States is: 1. The promotion of the most thorough organization and instruction of the United States army, by concentrating troops at strategic points; changing the system of recruiting; creating a retired list for officers of the army, and providing for alternation of duty in the line and the staff, so that the whole army may be made really an aid or staff for the perfect development of the physical strength of the whole country. 2. An act of Congress authorizing the several States to keep troops in time of peace, provided their respective regimental organizations of cavalry and infantry shall conform to the regimental organization of those arms instituted by Congress. 3. An annual appropriation by Congress to be distributed among the several States in proportion to the enrolled militia force of the State, provided satisfactory evidence is brought before the Secretary of War that such State has had within its limits, during two months of the year, organized camps of instruction in which were assembled a number of troops not less than one-twentieth of the enrolled militia force of the State. 4. Requiring the President to furnish to State governors, upon their requisitions, such army officers as may be desired to aid commanders of State camps of instruction, so that the information collected in the federal army may be extended to all State organizations. 5. Giving authority to the President to muster into the service of the United States, State troops, in all cases in which he is now authorized by law to call forth the militia. (*See* CALLING FORTH.)

DEFILADING—consists in raising the parapets of a fortress or field-work, or in depressing the terre-pleins so much as to conceal the interior of the work from the view of an enemy on an elevated position. It also consists in directing the magistral lines of its parapets toward points, where local impediments, as rivers, marshes, lakes, &c., would prevent a besieger from constructing batteries. The former is defilading by relief, the latter is termed defilading by the trace or plan. When a field-work has been necessarily constructed in such a situation that it may be commanded by some height within range of artillery, the defilading is made by raising the parapet, or constructing traverses in the interior of the work. The necessary trace for a field-work to accomplish these objects is more expeditiously effected by the eye and a few poles and profiles, than by resorting to theoretical and scientific proceedings, which constitute a part of the art of the engineer, and which are indispensable considerations in permanent fortification.

DEFILE. Any narrow passage—as a ford, a bridge, a road

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DEFILE. Any narrow passage—as a ford, a bridge, a road

through a village, mountain passes, &c., are defiles. To pass a defile safely, it is necessary first to drive away, as far as possible, the enemy. Under cover of this engagement, other troops pass the defile as soon as they reach it. The aim should be to pass the defile as quickly as possible; whether advancing or retreating. The passage in double columns will facilitate the formation in order of battle on the right and on the left after having passed the defile, and this order has the advantage of occupying both sides of the road. But it cannot be too strongly urged that quickness in the passage is the great consideration, and theoretical movement must give way to this primary object If the defile is a ford or bridge, and the passage in retreat, formations on the bank of the river, after the passage, ought not to take place. Combats separated by a river end in nothing, and the worst possible way of defending a bridge or ford is taking positions too near it. The enemy would certainly unite his artillery upon the opposite bank, and not attempt the passage until he had greatly worsted the defenders of the ford or bridge by his projectiles. The defenders would lose many men, and would probably have been demoralized before coming to close quarters. It is necessary then to wait until a portion of the enemy passes the bridge or ford. If the enemy be then vigorously attacked the defenders will, by a hand-to-hand conflict, render nugatory his artillery on the opposite bank, as well as all of his troops that have not yet crossed. To accomplish this intended purpose, it will only be necessary to place troops at some point, at full cannon range from the bridge, or if the accidents of ground admit of cover, nearer still to the bridge. If a bridge is passed in advancing, the troops which pass first are pushed forward to gain as much ground as possible, and thus favor the passage of other troops, by relieving them of the dangers of the combat. In this case the simplest and most rapid method of crossing is the best. (Consult *Aperçus sur quelques Details de la Guerre, par* MARSHAL BUGEAUD.)

DELINQUENT, (DISBURSING OFFICERS.) Such officers may be dismissed by the President of the United States on failure to render their accounts of disbursements quarterly in the United States, and every six months if resident in a foreign country; (*Act* January 31, 1823.) (*See* DEFAULTER.)

DEMILUNE—is a work constructed to cover the curtain and shoulders of the bastion. It is composed of two faces forming a salient angle towards the country, has two demi-gorges formed by the counterscarp, and is surrounded by a ditch. The demilune is sometimes termed a ravelin.

DEPARTMENT. Any general officer commanding an army, or colonel commanding a separate department, may appoint general court-martial, whenever necessary; (ART. 65.)

Besides the territorial divisions, called Departments, in the Rules and Articles of War, the term is also applied to the following branches of the service: Adjutant-general's, Inspector-general's, Medical, Pay, Ordnance, Quartermaster's, and Subsistence Departments.

DEPARTMENT OF WAR. There shall be an Executive Department, to be denominated the Department of War; and there shall be a principal officer therein, to be called the Secretary for the Department of War; (*Act* Aug. 7, 1789.) "He is to perform and execute such duties as shall, from time to time, be enjoined on, or intrusted to him, by the President of the United States, agreeably to the constitution, relative to military commissions, or to the land forces or warlike stores of the United States, or such other matters respecting military affairs, as the President of the United States shall assign to said *department*. And furthermore, that the said principal officer shall conduct the business of the said department in such manner as the President of the United States shall, from time to time, order or instruct. That there shall be in said department an inferior officer, to be appointed by the said principal officer, to be employed therein as he shall deem proper, and to be called the chief clerk in the Department of War, and who, whenever the said principal officer shall be removed from office by the President of the United States, or in any other case of vacancy, shall, during such vacancy, have the charge and custody of all records, books, and papers, appertaining to said Department. The said principal officer, and every other person to be appointed or employed in said Department, shall, before he enters on the execution of his office or employment, take an oath or affirmation, well and faithfully to execute the trust committed to him;" (*Act* Aug. 7, 1789.) It seems impossible to read this act of Congress, and contend that officers of the army are a portion of the War Department. And the statute book will be searched in vain to find authority given to the Secretary over any officers other than officers of Staff Departments, or over subjects disconnected with the custody of public records, the support and supply of troops, the manufacture and care of warlike stores, the keeping of exact and regular returns of all the forces of the United States, or other kindred administrative matters; such as receiving the proceedings of courts-martial, and laying them before the President of the United States for his approval or disapproval, and orders in the case. There is no act of Congress which authorizes the Secretary of War to *command* the troops, and he being

no part of the army, the President, of course, cannot authorize him to do so. But "the Secretary of War is (Peters' Digest of Decisions of Federal Courts, vol. 1, p. 179) the regular constitutional organ of the President for the administration of the military establishment of the nation; and rules and orders *publicly promulgated* through him, must be received as the acts of the Executive, and as such are binding upon all within the sphere of his legal and constitutional authority."

By an act of Congress, approved March 3, 1813, it is provided: "That it shall be the duty of the Secretary of War, and he is hereby authorized, to prepare general regulations, better defining and prescribing the respective duties and powers of the several officers in the adjutant-general, inspector-general, quartermaster-general, and commissary of ordnance departments, of the topographical engineers, of the aids of generals, and generally of the general and regimental staff; which regulation, when approved by the President of the United States, shall be respected and obeyed, until altered or revoked by the same authority." Here was a partial delegation of legislative power; and under this power of legislation so confined to the several staff departments, the Secretary of War, with the approval of the President, established bureaus of the War Department, making the head of each staff department chief of a bureau, in all fiscal and administrative matters connected with his particular department under the general direction of the Secretary of War. The War Department thus centralized all army administration, and efforts have since been made to centralize in the same way the command and government and regulation of the army. But as the 62d article of war declares that when different corps come together, the officer highest in rank shall command the whole, and *give orders for what is needful to the service*, unless otherwise specially directed by the President of the United States, according to the nature of the case," while the 61st article gives the command to the senior regimental officer within his regiment, when other troops are not present, such centralization, if not a violation of law, would be a violation of all military principles, destructive alike to discipline and military spirit. For (says Odier): "Commands given immediately by the highest authority cause agitation rather than action. The superior authority becomes weakened in proportion as the eye becomes accustomed to it. Fear of it ceases, and when the highest authority habituates itself to doing every thing, as soon as it ceases to be sufficient to do all, there is nothing done. All degrees of rank and command have their degree of importance. Authority must regularly ascend and descend. Every inferior grade is the *lieutenant* of its superior grade, even

to the oldest soldier, who replaces the corporal. Obedience is reciprocal to authority." Rules established by Congress, defining the rights, powers, and duties of all officers and soldiers, are much needed. (*See* SECRETARY OF WAR.)

DEPLOYMENT. All tactical manœuvres intended to pass from close column to the order of battle are deployments. Deployments, however convenient or brilliant, which cause the soldier to turn his back to the enemy, are not suited to war. (Consult Infantry and Light Infantry and Rifle tactics for the prescribed deployments.)

DEPOSITION OF WITNESSES—when not of the line or staff of the army, may be taken in cases not capital, provided the prosecutor and accused are present at the taking of the same, or duly notified; (ART. 74. *See* WITNESS.)

DEPOT. The colonel of ordnance, under the direction of the Secretary of War, is authorized to establish depots of arms, ammunition, and ordnance stores, in such parts of the United States, and in such numbers, as may be deemed necessary; (*Act* Feb. 8, 1815.)

Three recruiting depots have also been established under the direction of the Secretary of War, but a system of regimental depots is much needed. In England and in France, regimental depots have been found indispensable. In France, upon taking the field, a regiment leaves in depot the quartermaster and the accounting officer of the corps, the clothing officer, workmen, and stores; infirm men, those too old for war, and uninstructed recruits; these make the depot; the wounded and sick are sent there to be re-established; new levies are received there, and detachments of able-bodied and instructed men are successfully directed from the depot towards the army. The depot, like the stomach, receives, elaborates, and gives life to its members. It is at the depot that the clothing, and shoes, and all the wants of the regiment are provided; it is there that the accountability is centralized, that the papers are kept; it is at the depot that all regimental administration goes on; and for that purpose the major of the regiment remains there, and likewise commands. In England, the depot company is one left at home by regiments embarking for India, for the purpose of recruiting. There are four *reserve companies* for all foreign stations except India, which remain at home under the command of the senior major. A roster is regularly kept of the officers at the depot; and to insure that each individual embarks in his proper turn to join the service companies, a figure marking his place on the roster, is annexed to every officer's name in the monthly returns transmitted to the adjutant-general. Regimental records, with the attestations and service records

of the men doing duty with the regiment abroad, are left at the depot, and filled up at stated periods.

DERRICK—consists of a spar which is always kept in an oblique position; one end of it on the deck of a ship, the other supported by guys, and generally used to hoist heavy weights. (*See* GIN.)

DESERTER. Punishable by stripes, by sentence of general court-martial. Not punishable by death in time of peace. May be tried and punished, although the term of enlistment may have elapsed previous to apprehension. (ART. 20, and *Acts* March 16, 1802, May 29, 1830, May 16, 1812, and March 2, 1833.)

Of a deserter from the enemy, we demand his name, his country; the motive of his desertion; the number of his regiment; the name of his colonel; his immediate general; that of the commander-in-chief; the strength of his particular corps; that of the whole army; whether distributions are regular; how many cartridges each man has; how many guns there are; whether there are many sick or wounded in the camp of the enemy; whether the soldiers have confidence in their chief, and whether he is well treated by them.

DETACHED BASTION—is one which is separated from the enceinte by a ditch.

DETACHED WORKS—are those which are constructed beyond the range of the musketry of the main works; and as a constant and steady communication with them cannot be kept up during a siege, they are frequently left to their own resources; nevertheless, they ought to exercise a general influence on the defence of the place.

DETACHMENT. (*French Origin.*) BARDIN, *Dictionnaire de l'Armée de Terre* thus defines it: A word which has the same origin as *attach*. It implies any fraction of a body, or an entire corps charged particularly with functions which are dependent for their duration upon circumstances in war or actual service. The Romans expressed by the word *Globus** nearly the meaning of detachment. The movable columns of the French army were *detachments* formed sometimes of whole corps, sometimes of fractions of corps. We call also detachments, the escorts of convoys of prisoners, those for evacuations, certain extra duties, some maritime expeditions, a patrol, &c. Agreeably to the definition given in the instructions of the year six, the separation of many men from a single or from different corps, and the subsequent reunion of those men under a military chief, constitutes a detachment, and it is so considered, whether upon a voyage, or stationed in a depot of a corps

* A troop; a squadron, or party of soldiers; a knot of men who jointly carry on any design. AINSWORTH'S *Latin Dictionary*.

or in garrison; whether in cantonment, or whether in reference to the means of transportation that may be necessary for it. In some cases, picket and small detachments have the same signification. The following illustrations of the meaning of detachment are drawn from various sources :—

Rules and Articles of War passed Sept. 20, 1776.

ART. XII. Every officer commanding in any of the forts, barracks, or elsewhere, where the corps under his command consists of *detachments* from different regiments, or of independent companies, may assemble courts-martial, &c.; [such courts were called detachment courts-martial.] ART. II. SEC. 17. For the future, all general officers and colonels, serving by commission from the authority of any particular State, shall, on all *detachments*, courts-martial, or other duty, wherein they may be employed in conjunction with the regular forces of the United States, take rank, &c.—When regiments or *detachments* are united, either in camp, garrison, or quarters, the eldest officer, whether by brevet or otherwise, is to command the whole; (*Regulations British Army.*) The *detachments* which are, from time to time, sent from the depots at home to regiments abroad, &c.—The periods of the year at which detachments are required to embark for foreign stations, &c.; (*Regulations British Army.*)—Whenever recruits are to be sent from a depot or rendezvous to a regiment or post, a separate muster and description roll, and a separate account of clothing of each *detachment*, will be placed in the hands of the officer assigned to the command of such *detachment;* (*U. S. Army Regulations.*)—Any detachment so far separated from the main body to which it belongs as to render it impracticable for the commander of the latter to make muster and inspection enjoined by the general regulations, is considered as a separate command within the meaning and for the purpose of this regulation.—Where a field-officer is serving with *detached* companies of his regiment, the captains thereof will make their company monthly returns through him, which returns he will transmit with his own personal report to regimental head-quarters; (*Regulations of the War Department, dated* Feb. 10, 1855.)

SEC. * * And the said corps may be formed into as many companies or *detachments* as the President of the United States may direct. (*Act of Congress.*)

"Corps, formed by *detachments*, are the usual method in which brevet officers are employed, as they cannot be introduced into regiments without displacing other officers, or violating the right of succession, both of which are justly deemed injurious in every service. But the reasoning is new by which the employing such officers in detached

corps is made an infringement of the rights of regimental officers; (*Letter of General Washington, dated* August 11, 1780.)

DETAIL FOR DUTY—is a roster, or table, for the regular performance of duty either in camp or garrison. The general detail is regulated by the adjt.-general, according to the strength of the several corps. The adjutant of each regiment superintends the detail of the officers and non-commissioned officers for duty, and orderly sergeants detail the privates.

DEVIATION OF FIRING. (*See* FIRING.)

DIMINISHED ANGLE—is that formed by the exterior side and the line of defence in fortification.

DISBURSING OFFICERS. Exclusively of the paymasters of the army, and other officers already authorized by law, no other permanent agents shall be appointed, either for the purpose of making contracts, or for the purchase of supplies, or for the disbursement in any other manner of moneys for the use of the military establishment, but such as shall be appointed by the President of the United States, with the advice and consent of the Senate. But the President may appoint such necessary agents in the recess of the Senate to be submitted for their advice and consent at their next session, provided that the compensation allowed to either shall not exceed one per centum per annum, nor be more than $2,000 per annum; (*Act* March 3, 1809.) All purchases and contracts are made under the direction of the Secretary of War; (*Act* March 3, 1809.) Shall give bonds to be regulated by the President, and may be dismissed by the President on failure to render their account. (*See* DEFAULTER; DELINQUENT.)

DISCHARGE. After a non-commissioned officer or soldier shall have been duly enlisted and sworn, he shall not be dismissed the service without a discharge in writing; and no discharge granted to him shall be sufficient, which is not signed by a field-officer of the regiment to which he belongs, or commanding officer, where no field-officer of the regiment is present; and no discharge shall be given to a non-commissioned officer or soldier, before his term of service has expired, but by order of the President, the Secretary of War, the commanding officer of a department, or the sentence of a general court-martial; nor shall a commissioned officer be discharged the service but by order of the President of the United States, or by sentence of a court-martial; (ART. 11.) Under this article it has been contended that the President may arbitrarily *discharge* any commissioned officer from the service; but as the Rules and Articles of War provide for the punishment of all military crimes, disorders, or neglects, by courts-martial, all arbitrary and ca-

pricious action over such matters is thereby necessarily excluded. Besides, *dismission* and *discharge* are essentially different. The latter, in its primitive sense, means relieved of a burden or obligation. Thus, as every individual who enters the army by enlistment or commission must remain in it until regularly *discharged*, under penalty of being considered a deserter, the article declares that no discharge of a commissioned officer is regular but by the order of the President of the United States, or the sentence of a court-martial. Voluntary separations from the service, therefore, or resignations, are only legal when accepted by the President of the United States. No other military authority is competent to release an officer from the obligations he assumes on entering the army, even on his own application. Hence the use of the word *discharge* in the article, so as to embrace voluntary separations authorized by the President, and involuntary separations by sentence of court-martial. But the article gives no power to the President to *dismiss* summarily. Had such been the intention, the authority would have been clearly given, as it has been by the act of Jan. 31, 1823, in the case of delinquent disbursing officers—a power not needed, if it before existed under Article 11. This rule of making the acceptance of an officer's resignation dependent upon the President or highest military authority, is necessary; because an officer who was amenable to punishment for infractions of military law, might otherwise, by the resignation of his commission, escape punishment. The Court of King's Bench in England have decided, therefore, that an officer of the East India Company's service has not the right to resign his commission under *any* circumstances, and whenever he pleased; (case of Capt. Parker; *Prendergast*, p. 248.) In the case of Capt. Vertue, however, (*Prendergast*, p. 250,) while the court held that Capt. Vertue's resignation was invalid, as having been made in pursuance of an improper combination of a large number of officers, yet Mr. Justice Yates intimated that there may be a state of circumstances, under which an officer may have a legal right to resign, and so to obtain a release of exemption from military law.

Such would undoubtedly be the decision of a civil court in the United States. The power given to the President of accepting or withholding his acceptance of a resignation was intended for the maintenance of justice, and not the oppression of individuals; and if that power should be perverted, a court of justice might, and no doubt would, interpose its writ of *habeas corpus*.

DISCIPLINE. It ought to result from a perfect uniformity of rules; for stability, method, exactness, and even routine, are necessary to insure its maintenance; under a perfect discipline, troops in peace

and in war, in garrison or in campaign, would be fitted for all the duties of war. To attain this perfection, it is necessary that discipline should rest entirely upon law; it ought to have its roots in patriotism; to be adapted to the character of the people; to the spirit of the age, and the nature of the government. It is essential to make rights and duties inseparable. This absolute necessity, and the importance of regularity of pay, are truths dwelt upon by French writers. Discipline may be distinguished as active and passive. The first derives its power from a military hierarchy or range of subordination, skilfully established and regulated; it is secured by calmness, impartiality, promptness, firmness, and the prestige of character in officers. These qualities are manifested by preventing wrongs rather than by punishing faults, and by abstaining from arbitrary corrections when obliged to chastise. Discipline, intrusted to such authorities enlightened by military experience, will partake of the character of paternal government, and will not be enforced with an unsparing harshness suited only to governments essentially despotic.

The dogma, that military discipline can only be sustained by the aid of severe and unpitying punishment, is far removed from the idea here suggested. That unpitying military discipline seems to have prompted Peter the Great, when he sacrificed a young officer, who triumphantly fought the Swedes without orders. Thus also thought Frederic the Great, when he executed the unfortunate Zietten, who violated an order by keeping a light a little too long in his tent. But such harsh principles are no longer inculcated in the best governed armies of Europe. Passive discipline is the fusion of individual interest in national interest. The first military virtue is *esprit de corps*, with fidelity to the oath taken upon assuming the military character. These duties exact obedience to the laws, and to the lawful orders of the President of the United States, and officers set over us according to law. These laws should command obedience from all inferiors, and distinctly define the extent of all authority. They ought to bind the President or commander-in-chief as well as the simple soldier. Rights and Duties must be reciprocal, and be alike established by law, which should, to maintain discipline, "precisely determine the functions, duties, and rights of all military men—soldiers, officers, chiefs of corps, generals." Discipline that has attained this perfection supplies the deficiency of numbers, and gives new solidity to valor; since, although surrounded by dangers, the brave man feels that his leaders and comrades are not less devoted, less vigorous, or less experienced than himself.

Discipline is sometimes used as meaning "system of instruction," but its signification is much broader. Its technical military sense includes not only the means provided for exercise and instruction, but subjection to all laws framed for the government and regulation of the army. The good or bad discipline of an army depends primarily upon the laws established for its creation, as well as its government and regulation.

DISEASE. (*See* SANITARY PRECAUTIONS.)

DISEMBARKATION. In disembarkations, the first essential matter is to determine by *reconnoissance* the proper point for landing—how near the landing can be approached with vessels of light draught, to scour the beach and thus cover the operation; and secondly, the manner in which the men, horses, and some field-artillery are to be disembarked. The landing of heavy ordnance and all supplies is a subsequent matter. Having chosen the point of debarkation, the troops are put into flat-bottomed boats, previously provided, as expeditiously as possible, but without hurry or disorder—*they are to sit down in the boats, and positively ordered not to load until formed on the beach.* Each man should carry three days' provisions cooked in his haversack, at least forty rounds of ammunition, and his canteen filled with water. The men should also carry their intrenching tools. The covering vessels must be liberal with round shot, grape, and canister; and under cover of their fire, the *first line of boats* should pull boldly in, recollecting that the men are to be landed, and that the sooner it is done the better. When a boat grounds, the officer jumps out over the bow, and the men follow also over the bow. If the boat is large, or there are rocks, so as to render it unsafe for an accoutred man to jump, the gang-boards must be used. The men follow the officer to the sheltered spot selected by him for their formation. Without waiting for other boats, the officer will consider his men part of a line of skirmishers, the supports of which are behind. As soon as each boat is clear, she must shove off, and pull to the shipping for a fresh load.

The second division of boats will land as the first, but these will not commence firing until the whole of each company has joined, when they will act as supports, under the command of their proper officers. As soon as a sufficient number of well-united companies are on shore, the irregularly formed skirmishers first landed will be relieved, formed by companies, and sent to their respective battalions. Boats employed landing troops should have neither guns, masts, nor sails; their equipments should be gang-boards, oars, grapnels and painters, boat hooks, bailers, hammers and nails, sheet lead, grease, and canvas; the latter articles to enable them to stop a small shot hole, in case of accident.

The launches of men-of-war are used for disembarking field-artillery, when opposed by the enemy. Two planks are laid from the bow to the stern of the launch, parallel to each other, at the distance of the space of the wheels; a bead is nailed to the inside edge, to prevent the wheels from slipping off. Two gang-boards, which can be laid out or taken on board, are fitted to the bow ends of the planks, so as to reach from them to the shore, as a ramp. These launches are towed by smaller boats. It is very desirable that this portion of artillery, with their officers and men, should be on board men-of-war. Each two-decker can take a couple; the guns are stowed away on the upper deck, the carriages and wheels in the chains, so that the guns can be mounted and ready to be lowered into the boats in a very few minutes. The muzzle of the gun must point forward in the launch, and as soon as the boat touches ground, the gang-boards are put out and the guns run ashore. The artillery should endeavor to gain the shore and land with the troops. It is dragged by the sailors or troops. A sufficient supply of ammunition must be at hand in a boat or two, close to the shore. In an emergency the harness may be at once sent ashore, and if the vessels are near, horses may be made to leap out and swim ashore. Under other circumstances, boats of proper capacity must be provided for the disembarkation of horses, heavy ordnance, &c.; or it may be necessary to establish temporary wharves on trestles, or by means of boats, and to erect shears, cranes, or derricks.

On a smooth, sandy beach, heavy pieces may be landed by rolling them overboard as soon as the boats ground, and hauling them up with sling carts. (*See* EMBARKATION. Consult *Aide Memoire of the Military Sciences;* SCOTT'S *Orders and Correspondences during the Campaign in Mexico.*)

DISINFECTANTS. (*See* SANITARY PRECAUTIONS.)

DISMISSION. No sentence of a court-martial in time of peace dismissing a commissioned officer, or which, in war or peace, affects a general officer, shall be carried into execution without the approval of the President of the United States; (ART. 65.) Disbursing officers may be dismissed by the President alone, without the intervention of a court-martial, on failure to account properly for moneys placed in their hands; (*Act.* Jan., 1823.) A general court-martial in time of peace may dismiss, with the approval of the President, in all cases in which they are authorized to sentence to "death or such other punishment as may be inflicted by a general court-martial." (*See* DEATH.) Such court may also sentence a commissioned officer to be cashiered or dismissed the service in the following cases:—1. Drunkenness on duty;

(ART. 45.) 2. Breach of arrest; (ART. 77.) 3. Conduct unbecoming an officer and a gentleman; (ART. 83.) 4. Using contemptuous or disrespectful words against the President of the United States, against the Vice-president thereof, against the Congress of the United States, or against the chief magistrate or legislature of any of the United States in which he may be quartered; (ART. 5.) 5. Signing a false certificate relating to the absence of either officer or soldier, or relative to his or their pay; (ART. 14.) 6. Making a false muster of man or horse; (ART. 15.) 7. Taking money or other thing by way of gratification, on mustering any regiment, troop, or company, or on signing muster rolls. 8. Making a false return to the Department of War, or to any of his superior officers authorized to call for such returns of the state of the regiment, troop, or company, or garrison under his command; or of the army ammunition, clothing, or other stores thereunto belonging; (ART. 18.) 8. Sending and accepting a challenge to another officer or soldier to fight a duel; (ART. 25.) 9. An officer who commands a guard, knowingly and wilfully suffering any person to go forth to fight a duel, and all seconds, promoters, and carriers of challenges shall be punished as challengers; (ART. 26.) 10. Selling, embezzling, misapplying, or wilfully, or through neglect, suffering provisions, arms, &c., to be spoiled or damaged; (ART. 36.) 11. Any commanding officer who exacts exorbitant prices for houses let out to sutlers, or connives at like exactions from others, or who by his own authority and for his private advantage lays any duty or imposition upon, or is interested in, the sale of any victuals, liquors, or other necessaries of life brought for the use of the soldiers, may be discharged the service; (ART. 31.) 12. Failure, by a commanding officer, to see justice done to offenders, and reparation made to the party injured, by officers or soldiers ill-treating any person, or disturbing fairs or markets, or committing any kinds of riots to the disquieting of citizens of the United States; (ART. 32.)

DISMOUNT. To dismount the cavalry, is to use them as infantry. Guards, when relieved, are said to dismount. They are to be marched with the utmost regularity to the parade-ground where they were formed, and from thence to their regimental parades, previously to being dismissed to their quarters. To dismount a piece of ordnance, is to take it from the carriage.

DISOBEDIENCE OF ORDERS—punishable by a court-martial with death or otherwise, according to the nature of the offence; (ART. 9.)

DISORDERS. (*See* ABUSES; CRIMES.)

DISPART—is the difference of the semi-diameter of the base-ring

and the swell of the muzzle, or the muzzle-band of a piece of ordnance. (*See* ORDNANCE.)

DISRESPECT TO A COMMANDING OFFICER—punished by court-martial.

DISRESPECTFUL WORDS—used by any officer or soldier against the President, Vice-president, the Congress or the governor of any State where he may be quartered, punishable with cashiering or otherwise, as a court-martial may direct; (ART. 5.)

DISTANCES. *Pacing Distances.*—"If you count the strokes of either of your horse's fore-feet, either walking or trotting, you will find them to be upon an average about 950 to a mile. In a field-book, as you note each change of bearing, you have only to note down also the number of paces (which soon becomes a habit); and to keep count of these, it is only necessary to carry about thirty-five or forty small pieces of wood, like dice (beans or peas will do), in one waistcoat-pocket, and at the end of every 100 paces remove one to the empty pocket on the opposite side. At each change of bearing you count these, adding the odd numbers to the number of hundreds, ascertained by the dice, to be counted and returned at each change of bearing to the other pocket. You should have a higher pocket for your watch, and keep the two lower waistcoat-pockets for this purpose. Now, to plot such a survey, you have only to take the half-inch scale of equal parts, (on the six-inch scale, in every case of instruments,) and allowing *ten* for a hundred, the half-inch will represent a thousand paces. You may thus lay down any broken number of paces to a true scale, and so obtain a tolerably accurate map of each day's journey. The latitude will, after all, determine finally the scale of paces; and you can at leisure adjust each day's journey by its general bearing between different latitudes, and subsequently introduce the details." (Sir THOMAS MITCHELL.)

A traveller, when the last of his watches breaks down, has no need to be disheartened from going on with his longitude observations, especially if he observes occultations and eclipses. The object of a watch is to tell the number of seconds that elapse between the instant of occultation, eclipse, &c., and that, a minute or two later, when the sextant observation for time is made; and all that it actually *does*, is to beat seconds, and to record the number of beats. Now, a string and stone swung as a pendulum will beat time; and a native who is taught to throw a pebble into a bag at each beat will record it; and, for operations that are not tedious, he will be as good as a watch. The rate of the pendulum is, of course, determined by taking two sets of observations, with three or four minutes' interval between them; and, if the

distance from the point of suspension to the centre of the stone be thirty-nine inches, and if the string be thin, and the stone very heavy, it will beat seconds very nearly indeed. The observations upon which the longitude of the East African lakes now depends (1859) are lunars timed with a string and a stone, in default of a watch.

Units of length.—A man should ascertain his height; height of his eye above ground; ditto, when kneeling; his fathom; his cubit; the span, from ball of thumb to tip of one of his fingers; the length of the foot, and the width of two, three, or four fingers. In all probability, some one of these is an even and a useful number of feet or inches, which he will always be able to recollect, and refer to as a unit of measurement. A stone's throw is a good standard of reference for greater distances. Cricketers estimate by the length between wickets. Pacing should be practised. It is well to dot a scale of inches on a pocket-knife.

Angles to measure.—A capital substitute for a very rude sextant is afforded by the outstretched hand and arm. The span between the middle finger and the thumb subtends an angle of 15°, and that between the forefinger and the thumb an angle of $11\frac{1}{4}$°, or one point of the compass. Just as a person may learn to walk *yards* accurately, so may he learn to span out these angular distances accurately; and the horizon, however broken it may be, is always before his eyes to check him. Thus, if he begins from a tree, or even from a book on his shelves, and spans all round until he comes to the tree or book again, he should make twenty-four of the larger spans and thirty-two of the lesser ones. These two angles of 15° and $11\frac{1}{4}$° are particularly important. The sun travels through 15° in each hour; and therefore, by "spanning" along its course, as imagined, from the place where it would stand at noon, (aided in this by the compass,) the hour before or after noon, and, similarly, after sunrise, or before sunset, can be instantly reckoned. Again, the angles 30°, 45°, 60°, and 90°, all of them simple multiples of 15°, are by far the most useful ones in taking rough measurements of heights and distances, because of the simple relations between the sides of right-angled triangles, whose other angles are 30°, 45°, &c. As regards $11\frac{1}{4}$°, or one point of the compass, it is perfectly out of the question to trust to bearings taken by the unaided eye, or to steer a steady course by simply watching a star or landmark, when this happens to be much to the right or the left of it. Now, nothing is easier than to span out the bearing from time to time.

Squaring.—As a triangle whose sides are as 3, 4, and 5, must be a right-angled one (since $5^2=3^2+4^2$), we can always find a right angle

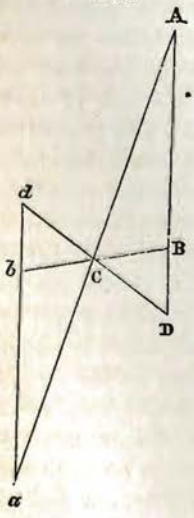
very simply by means of a measuring tape. We take a length of twelve feet, yards, fathoms, or whatever it may be, and peg the two ends of it, close together, to the ground. Next a peg is driven in at the third division, and then the third peg is held at the seventh division of the cord, which is stretched out till it becomes taut, and the peg is driven in. These three pegs will form the corners of a right-angled triangle.

Measurements, &c.—The breadth of a river may be measured without instruments and without crossing it, by means of the following useful problem from the French "Manuel du Génie," which requires pacing only:

To measure A B (Fig. 106), produce it any distance to D; from D, in any direction, take any equal distances, D C, C *d*, and produce B C to *b*, making C *b* = C B; join *d b* and produce it to *a*, where A C produced intersects it; then *a b* is equal to A B. In practice, the points D C, &c., are marked by bushes planted in the ground, or by men standing.

Colonel Everest, the late surveyor-general of India, has pointed out the following simple way of measuring an angle, and therefore a triangle:

Fig. 106.

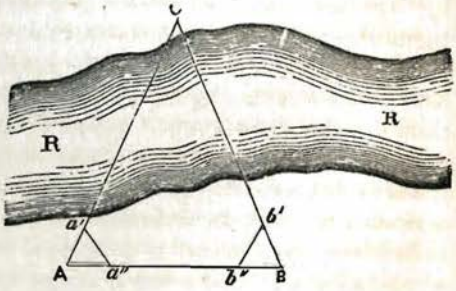


A B is the base, R R the river, C an object on the other side; (Fig. 107.) He paces any length A *a'*; and an equal length A *a''*; also *a' a''*, which is the chord of *a'* A *a''*. In other words—

$$\sin. \frac{A}{2} = \frac{a' a''}{2 A a'}:$$

in the same way B is found. A B being known,

Fig. 107.



the triangle A B C is known, and the breadth of the river can be found. The problem can be worked out, either by calculation or by protraction. (Galton's *Art of Travel*. *See* Stadia; Surveys; Target; Velocities.)

DISTRIBUTION—means, generally, any division or allotment made for the purposes of war, and minor arrangements made for the supply of corps.

DISTRICT. One of those portions into which a country is divided, for the convenience of command, and to insure a co-operation beween distant bodies of troops.

DITCH—sometimes called the Fosse—is the excavation made round the works, from which the earth required for the construction of the rampart, parapet, and banquette is obtained. In besieging a fortification, when the ditch is dry, and a descending gallery has been constructed, the passage of the ditch consists of an ordinary sap pushed from the opening in the counterscarp wall to the slope of the breach, and, when necessary, it is carried on to crown the summit of the breach. If the ditch be full of water, and the locality favors its being drained, every means must be used to break the batardeaux, to cause the water to flow away entirely or in part. If none of the batteries can see the batardeaux, the sluices must be sought and destroyed by shells, or by mining. Should the assailants be unable to breach the batardeaux or to destroy the sluices, a bridge or causeway must be thrown across. This is one of the most difficult operations in a siege. The bridge or causeway, with its epaulement, is constructed with pontoons or casks, or, if without them, with fascines, hurdles, gabions, and sand-bags, openings being left in the causeway to allow the free flowing of the water, if it be a running stream, or can be made so by the defenders. A wet ditch may sometimes be crossed by a raft of sufficient length, which should be constructed along the counterscarp, and attached by one end to the bottom of the descent. The raft is then allowed to swing round with the current, if there be one, or is rowed or pulled round, if there is not one, so as to form a connection across the ditch with the breach.

The following experiment for crossing a wet ditch was successfully tried at Chatham by Sir Charles Pasley:—Two hundred large casks were prepared, with their heads taken out; they were lashed by fours, end to end, so as to form hollow piers, about 18 feet in length, of unequal diameters, in consequence of the unequal size of the casks. Each pier was launched in succession from a great gallery, representing that of the counterscarp in a regular siege. These piers had guys at each end, by which they were hauled round into their intended position, and there sunk by means of sand-bags. After this, the intervals between the upper tiers of casks were filled in with long fascines, and others were laid over these at right angles, till a general

level was obtained, when strong skids were laid over all, and a 24-pounder, on a travelling carriage, was dragged through the gallery, and passed along these skids to the other side. In this manner, a piece of water, representing a wet ditch, was bridged over with ease and comparative expedition. This experiment was afterwards tried with full success in the Mast Pond of Chatham Dockyard, where a very strong current was produced, much stronger than could occur in the ditches of any fortified place. It is stated, that there was no perceptible depression in the bridge as the 24-pounder passed over. The same experiment was tried with common gabions, lashed together, end to end, in like manner, forming hollow piers or cylinders, which were similarly sunk one over another until the upper layer rose above the water, and were covered with fascines and skids. These, also, bore a 24-pounder, which caused a depression of more than 6 inches in the part over which it was passing. The gabions were very weak and old. The piers of casks were fastened as follows: on being placed end to end, staples were driven into each cask, about 10 inches from their ends, in three equi-distant parts of their circumference; strong spun-yarn, connecting the staples, lashed the four casks together. Six or eight bushel sand-bags were necessary to sink each pier with ease, yet without making it sink too rapidly. To get them into the water, they were launched on ways made of planks. In making the gabion bridge, each pier consisted of four gabions lashed end to end like the casks, by spun-yarn, at three equi-distant points of the circumference. These were not loaded to make them sink. It was found, from the irregularity of their surface, that the second pier merely forced the first out from the bank to make room for itself; the third the second, and so on, until the tier of gabions connected the two scarps. On rolling other piers on the top of them, the lower ones sunk to the bottom, and brush-wood and fascines were laid in the intervals of the gabions to form a level surface; (Hyde's *Fortifications.*)

DIVISION. In the ordinary arrangement of the army, two regiments of infantry or cavalry shall constitute a brigade, and shall be commanded by a brigadier-general; two brigades, a division, and shall be commanded by a major-general. Provided always that it shall be in the discretion of the commanding general to vary this disposition whenever he shall judge proper; (*Act* March 3, 1799; *Sec.* 8.)

DOMICILE. By law every man's domicile is in the country where he has his permanent residence, or to which he ordinarily returns for the purpose of residence after occasional absence; and in case of his death, the right of succession to his goods and chattels and personal

property of all sorts is regulated by the law of the country of his domicile, although he may happen to die beyond its limits. As regards military men, their employment on duty involving only temporary absence in intention would not, on common principles, cause a change of domicile; and as the laws of different States of the Union vary on the subject of the right of succession to property, the subject is of great interest to military men. Recently, an officer who was a native of South Carolina died intestate in the city of New York, and no heirs being forthcoming, his estate was taken possession of by the public administrator, although the Rules and Articles of War enacted by Congress provide that, in such cases, an officer of the army at the station shall take possession of the effects for purposes of administration.

"Personal property, in point of law, has no locality, and in case of the decease of the owner, must go wherever in point of fact situate, according to the law of the country where he had his domicile." (ROBERTSON'S *Law of Personal Succession.*)

The 14th Lord Somerville entered the army in 1745, and continued in the service till the peace of 1763, during which period he accompanied his regiment to England, Scotland, and Germany, both in quarters and on active duty. At his death in 1796, a question arose, whether, under the circumstances, his domicile was English or Scotch; and the Master of the Rolls, (Sir R. P. Arden,) in giving judgment, said: "I am clearly of opinion Lord Somerville was a Scotchman upon his birth, and continued so to the end of his days. He *never ceased* to be so, never having abandoned his Scotch domicile, or established another. The decree, therefore, must be, that the succession to his personal estate ought to be regulated according to the law of Scotland." His honor must consequently have been of opinion, that a Scotchman entering the British army does not thereby lose his original Scotch domicile; and since the union of England and Scotland, the army is certainly as much that of Scotland as of England.

Sir Charles Douglas, a Scotchman by birth and original domicile, left his native country at the age of twelve, to enter the navy. From that time to his death, he was in Scotland only four times: 1st, as captain of a frigate; 2dly, to introduce his wife to his friends, on which occasion he staid about a year; 3dly, upon a visit; and 4thly, when, upon his appointment to a command upon the Halifax station, he went in the mail coach to Scotland, and died there in 1789. He was not for a day resident there in any house of his own; nor was he ever there except for temporary occasions. He also commanded the Russian navy for about a year, and was afterwards in the Dutch service.

He had no fixed residence in England till 1776, in which year he took a house at Gosport, where he lived as his home when on shore. This was his only residence in the British dominions; and when he went on service he left his wife and family at Gosport. At his death it became necessary to decide whether his domicile was Scotch or English, because he had made a will, bequeathing a legacy to his daughter, with certain conditions, which were void by the law of Scotland, but valid by the law of England. The House of Lords decided that his original domicile was Scotch, and that though he did not lose it in this first instance, by becoming an officer in the British navy, he abandoned it by entering a foreign service, and acquired a Russian domicile; that on returning to England, and resuming his position as a British officer, he acquired an English domicile, but did not recover his Scotch domicile, that his subsequent visits to Scotland, not being made *animo manendi*, did not revive his Scotch domicile, and that the succession to his property, as that of an Englishman, was therefore to be governed by the law of England, in which country he last acquired a domicile.

In connection with this subject, it may be proper to notice an opinion expressed by the Master of the Rolls, during the argument of Lord Somerville's case—that an officer entering the military or naval service of a foreign power, with consent of the British government, and taking a qualified oath of allegiance to the *foreign* state, does not thereby abandon or lose his native domicile.

In Forrest *v.* Funston, the defendant was a lieutenant in the king's army, and held a situation of master gunner at Blackness Castle in Scotland, where he had the charge of considerable military stores, with an apartment for his residence. He was a native of Strabane in Ireland; and it was held by the Court of Session, that though it was his duty to reside at Blackness, he did not by the possession of his office acquire a Scotch domicile. With respect to the East India Company's Service, the question of domicile does not turn upon the simple fact of the party being under an obligation, by his commission, to serve in India; but when an officer accepts a commission or employment, the duties of which necessarily require residence in India, and there is no stipulated period of service, and he proceeds to India accordingly, the law from such circumstances presumes an intention consistent with his duty, and holds his residence to be *animo et facto* in India.

In the recent case of General Forbes, in the Court of Chancery, the subject of domicile in its relation to military men was extensively discussed before the Vice-chancellor Wood. Nathaniel Forbes, afterwards General Forbes, was born in Scotland of Scotch parents; his father

being possessed of an ancestral estate called Auchernach, on which there was then no house. In 1786, Nathaniel Forbes, being then a minor, and a lieutenant on half-pay in the 102d foot, a disbanded regiment, contracted a marriage with a Scotch lady. He shortly afterwards obtained an appointment in the service of the East India Company; and in December, 1787, he sailed for India, where he continued until 1808. He then obtained a furlough, and returned with his wife to Scotland. On the death of his father in 1794 he had succeeded to the family estate in Scotland; and during his furlough he built a house there, and furnished it, and made some improvements in the grounds. In 1812 he returned with his wife to India, and remained there for several years. The wife left India in 1818: and in 1822 her husband, who had then attained the rank of a general officer, and was colonel of a regiment, also quitted India, according to the rules of the service, with the intention of never returning to that country; and he never did return thither. During the whole of his service under the East India Company General Forbes retained his commission and rank of a lieutenant in the king's army. His domicile was without doubt originally Scottish. After his final return from India he had an establishment at a hired house in Sloane-street, London. He also kept his house at Auchernach furnished: and had some servants there also. He likewise became a justice of the peace and a commissioner of taxes in Scotland: and kept his pedigree and papers (including his will) at Auchernach, where he was in the habit of residing half the year, and where he had constructed a mausoleum in which he wished to be buried. But his health did not permit him to reside constantly at Auchernach, where his establishment was also not suitable for his wife; and his house in Sloane-street was manifestly his chief establishment, and his wife resided there. He died in 1851. His wife thereupon laid claim to a share of his property according to the Scotch law of succession, and contended that, in the events which had happened, he must be considered to have died possessed of his original Scottish domicile. The substantial question in the case was, whether his domicile was in England or in Scotland. If he had been a single man his final domicile would probably have been considered Scottish. But the court held that Sloane-street, having been his chief establishment, and the abode of his wife, must be taken to have been the seat of his domicile. In pronouncing judgment upon the case, the learned Vice-chancellor ruled the following points: 1. That the Scottish domicile of General Forbes, notwithstanding his having gone to India during his minority, in the service of the East India Company, continued until he attained the age of twenty-one:

on the principle that a minor cannot change his domicile by his own act. 2. That, on attaining twenty-one, he acquired an Anglo-Indian domicile; and thereupon his Scottish domicile ceased: on the principle that a service in India, under a commission in the Indian army, of a person having no other residence, creates an Indian domicile. 3. That the circumstance of his being a lieutenant on half-pay in a disbanded king's regiment, did not affect the question. 4. That the Anglo-Indian domicile of General Forbes continued unchanged until his departure from India in 1822: the furlough, or limited leave of absence, implying by its nature that it was his duty to return to India on its expiration. 5. That in 1822 the Anglo-Indian domicile of General Forbes was abandoned and lost: the possibility of his being called upon, as colonel of a regiment, to return at some indefinite time to active service in India, being too remote to have any material bearing upon the question. 6. That he had acquired by choice a new domicile in England on his return from India.

DRAGOONS. There are two regiments of dragoons in our army. (*See* ARMY; CAVALRY.)

DRAG-ROPE. This is a 4″ hemp rope, with a thimble worked into each end, one of the thimbles carrying a hook. Six handles, made of oak or ash, are put in between the strands of the rope, and lashed with marline. It is used to assist in extricating carriages from different positions; by the men, for dragging pieces, &c. Length 28 feet.

DRAWING. (*See* RECONNOISSANCE.)

DRILL. The manœuvres and tactical exercises of troops.

DRUNKENNESS ON DUTY. Any commissioned officer who shall be found drunk on his guard, post, or other duty, shall be cashiered. Any non-commissioned officer or soldier so offending, shall suffer such corporal punishment as shall be inflicted by a court-martial; (ART. 45.)

DUEL. Sending and accepting a challenge, or, if a commanding officer, permitting knowingly a duel, or seconding, promoting, or carrying challenges in order to duels, punishable with cashiering, if commissioned officers, and with corporal punishment in the case of non-commissioned officers and soldiers; (ARTS. 25, 26.) (*See* CHALLENGES.)

DUTY. In all military duties, the tour of duty is invariably from the eldest downwards. Brigade duties are those performed by one regiment in common with another. Regimental duties are those performed by the officers and companies of a regiment among themselves. A court-martial, the members of which have been assembled and sworn, is reckoned a duty, although they may have been dismissed without

trying any person. If an officer's turn for picket, general court-martial, or fatigue, happens when he is upon any other duty, he is not obliged to make good that picket, &c., when he comes off, but his tour passes him; however, if an officer is on the inlying picket, he is liable to be relieved, and placed on other duties. Officers cannot exchange their duties without permission of the commanding officer. A guard, detachment, or picket, having once marched off the place of parade, is reckoned to have performed a duty, though it may have been dismissed immediately afterwards. Officers, on all duties under arms, are to have their swords drawn, without waiting for any word of command for that purpose.

DYSENTERY. (*See* SANITARY PRECAUTIONS.)

E.

ECHELON. An arrangement of battalions, so that each has a line of battle in advance or in rear of its neighboring battalion. (Consult *Infantry Tactics*, vol. 3. *See* also MANŒUVRES IN COMBAT.)

ELEVATION. The elevation of a work is the projection of its face on a vertical plane by horizontal rays. It shows the height or depth of a work, and also its length, when the plane of projection is parallel to the face. Applied to a piece of ordnance, the elevation is the inclination of the axis of the piece above the plane on which the carriage stands.

EMBARKATION. Field-batteries should always be embarked by the officers and men belonging to them, who will then know where each article is stowed. Articles required to be disembarked first, should be put in last. When there are several vessels laden with ordnance and ordnance stores for an expedition, each vessel should have on each quarter, and on a signal at mast head, a number that can be easily distinguished at a distance. The same numbers should be entered on the list of supplies shipped in each vessel. The commander will then know exactly what resources he has with him. Articles shipped must be divided among vessels according to circumstances; but, as a general rule, place in each vessel every thing required for the service at the moment of disembarkation, so that there will be no inconvenience, should other vessels be delayed.

If boats are to be employed in the embarkation, and the boats are much lower than the top of the wharf, the guns and ammunition boxes will be lowered into the boat by means of cranes; but when the gunwales are nearly level with the wharf, the ammunition boxes may be more expeditiously put on board by hand, and if there are no cranes,

the guns may be parbuckled into the boats. Men told off to the carriages, will prepare them for embarkation. Each carriage, when called for, is to be run forward to the boat or crane; the gun unlimbered and dismounted; the ammunition boxes, shafts, wheels, &c., &c., to be taken off; the washers and linch-pins carefully put away. If they are left in the axle-tree they are liable to be lost. When a battery is embarked in different vessels, every part should be complete, and a proportion of general stores on each. Should two batteries be on the same vessel, they should be stowed on different sides of the vessel.

The embarkation of horses is more difficult than that of guns, particularly if it be necessary first to take them alongside the vessel in boats. In bad weather the guns and carriages are easily hoisted, but not the horses. If the embarkation of both cannot go on, therefore, at the same time, the horses should be embarked first. Horse ships are always provided with slings for hoisting in the horses; they are made of stout canvas, and are about $6\frac{1}{2}$ or 7 feet long, and from $2\frac{1}{4}$ to $2\frac{1}{2}$ feet wide. It may be necessary to embark horses: 1st, when the transports can come alongside the wharf, and the horses are taken on board at one operation; or, 2d, when the transports cannot come alongside the wharf, and the horses are embarked first in boats; or, 3d, when the horses are embarked in boats, from an open beach.

The first case is the best, easiest, and most expeditious—resembling in all respects the hoisting a cask in and out of the hold of a vessel. Horses should generally be blindfolded for this purpose, as this prevents their being frightened or troublesome. In the second case there are two operations: first, lowering the horse into the boat, and, after the passage of the boat to the vessel, hoisting the horse into the transport. Sheers or derricks are absolutely necessary for this purpose, because the tackle must be of such a description as to raise the horse off the ground instantaneously, which a crane cannot do. The head of the derrick must incline inwards while the horse is rising; but when he is high enough, the head of the derrick or sheers must be forced out, to bring the horse directly over the boat. Horses may, in this way, be embarked in boats from a beach. Sand or straw must be put into the boats to preserve their bottoms, and to prevent the horses from slipping. The horses should stand athwart, the head of one horse being on the starboard side, and the head of the next to him on the larboard side. The conductors must sit on the gunwale or stand between the horses. Decked gun-boats or coasting vessels are very convenient for this purpose when there are time and materials for the necessary preparation, as they not only hold a greater number of horses, but can come alongside

of a wharf, and the horses, by means of a ramp, may be walked aboard. The disembarkation of horses is carried on by the same means as their embarkation. (*See* DISEMBARKATION. Consult *Army Regulations* for the rules governing troops embarked on transports.)

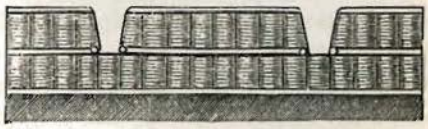
EMBEZZLEMENT—either of public property or money, punishable in the case of an officer with cashiering, and making good the loss; if a non-commissioned officer, by reduction to the ranks, corporal punishment, and making good the loss; (ART. 36 and ART. 39.)

By SEC. 16 of Act approved Aug. 6, 1846, using in any manner for private purposes, loaning or depositing in bank any public money, and any failure to pay over or to produce public money intrusted to persons charged with its safe keeping, transfer, and disbursement, is made prima facie evidence of embezzlement, and declared to be felony. The taking of receipts and vouchers without paying the amount which they call for, and all persons advising or participating in said act, are also declared guilty of embezzlement by the same section.

EMBRASURE. An embrasure is an opening cut through the parapet to enable the artillery to command a certain extent of the surrounding country. The space between every two of these openings, called the *merlon*, is from 15 to 18 feet in length. The opening of the embrasure at the interior is two feet, while that towards the country is usually made equal to half the thickness of the parapet. The interior elevation of the parapet, which remains after cutting the embrasure, is called the *genouillere*, and covers the lower part of the gun carriage. The *plongee*, or slope given to the *sole*, is generally less than the inclination given to the superior slope of the parapet, in order that the fire from the embrasure may meet that of the musketry from the parapet at a point within a few feet from the top of the counterscarp.

Fig. 108 represents the rear elevation of a two-gun portion of an elevated battery revetted with gabions. In this figure the two gabions at the necks of the embrasures are made to assume a small degree of slope which may usually be done, because the gabions, one with another, occupy rather less than the regular average space of 2 feet each, when placed very close together, so that those of the upper tier will generally admit of being closed at top, and eased at bottom, to favor this arrangement. If not, the neck of the embrasure may be made of equal width throughout, without attempting the kind of slope alluded

FIG. 108.



to; but the gabions which form the cheeks of the embrasures should have a slope gradually increasing from the neck towards the front, until the fifth gabion (more than five will seldom be used) has a slope of at least one-third of its height.

Fig. 109 is the plan of a portion of parapet and embrasure, showing the arrangement of gabions above adverted to.

Fig. 110 shows in elevation the arrangement of the gabions and of the sand-bags above them, as well as the genouillere or solid part of the

FIG. 109.

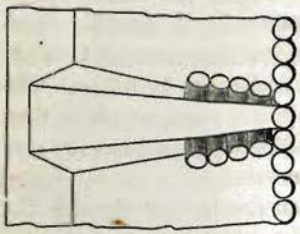
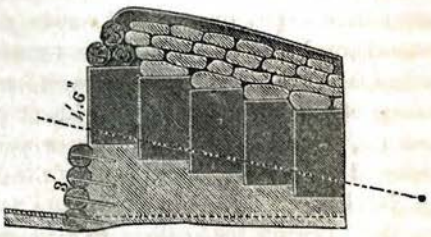


FIG. 110.



embrasure, below the sole of it, in a construction that frequently arises in sieges, especially in the offensive crowning batteries on the crest of the glacis, where the depression of the sole of the embrasure is considerable, to allow of the guns being pointed to spots of the wall some distance below them.

EMOLUMENTS. (*See* PAY.)

ENCAMPMENT. (*See* CAMP.)

ENCEINTE—is the body of the place, or the first belt of ramparts and parapets that inclose the place.

ENFILADE. To sweep the whole length of the face of any work or line of troops, by a battery on the prolongation of that face or line.

ENGINEER CORPS. (*See* ARMY for its organization.) The functions of the engineers being generally confined to the most elevated branch of military science, they are not to assume, nor are they subject to be ordered on, any duty beyond the line of their immediate profession, except by the special order of the President of the United States; but they are to receive every mark of respect to which their rank in the army may entitle them respectively, and are liable to be transferred, at the discretion of the President, from one corps to another, regard being paid to rank; (ART. 63.)

The engineers are charged with planning, constructing, and repairing all fortifications and other defensive works; with disbursements of money connected with these operations. In time of war, they present

plans for the attack and defence of military works; lay out and construct field defences, redoubts, intrenchments, roads, &c.; form a part of the vanguard to remove obstructions; and in retreat, form a part of the rear guard, to erect obstacles, destroy roads, bridges, &c., so as to retard an enemy's pursuit. (*See* SAPPERS AND MINERS.) (Consult LAISNÉ, *Aide Memoire à l' Usage des Officiers du Génie.*)

ENGINEERS, TOPOGRAPHICAL. (See ARMY for their organization.) The duties of the corps consist in surveys for the defence of the frontiers, and of positions for fortifications, in reconnoissances of the country through which an army has to pass, or in which it has to operate; in the examination of all routes of communication by land or by water, both for supplies and military movements; in the construction of military roads and permanent bridges connected with them; and the charge of the construction of all civil works, authorized by acts of Congress, not specially assigned by law to some other branch of the service. (Consult SALNEUVE, *Cours de Topographie à l' Usage des Elèves de l' Ecole d' Etat Major.* R. S. SMITH'S *Topographical Drawing.*)

ENLISTMENTS—are voluntary, and made for five years; (*Act* June 17, 1850.) Any non-commissioned officer or soldier who shall enlist himself in any other regiment, troop, or company, without a regular discharge from the regiment, troop, or company in which he last served, to be considered a deserter; (ART. 22.) Whenever enlistments are made at or in the vicinity of military posts on the western frontier, and at remote and distant stations, a bounty equal in amount to the cost of transporting and subsisting a soldier from the principal recruiting depot in the harbor of New York, to the place of such enlistment be, and the same is hereby allowed to each recruit so enlisted, to be paid in unequal instalments at the end of each year's service, so that the several amounts shall annually increase, and the largest be paid at the expiration of each enlistment; (*Act* June 17, 1850.) The amounts and instalments have been fixed in the regulations for the Pay Department. (*See* RE-ENLISTMENT.)

ENSIGN. Lowest grade of commisssioned officers of infantry.

ENTANGLEMENT. Abattis, so called, when made by cutting only partly through the trunks, and pulling the upper parts to the ground, where they are picketed.

ENTICING. Any person whatever who shall procure or entice a soldier to desert the service of the United States, may be fined not exceeding $300, or imprisoned any term not exceeding one year, at the discretion of any court having cognizance of the same; (*Act* March 16, 1802.)

EPAULEMENT. An elevation thrown up to cover troops from the fire of an enemy. It is usually composed of gabions filled with earth, or made of sand-bags, &c.

EPAULETTE. Badge of rank, of bullion, worn by officers on the shoulders. The Army Regulations prescribe these badges under authority given by law to the President to establish the uniform of the army.

EPROUVETTE, (PENDULUM.) The best method of testing the projectile force of gunpowder, is to ascertain by experiment its effects when used in the same quantities in which it is to be employed in service. This method has been adopted by establishing, at the Washington Arsenal, a cannon pendulum and a musket pendulum, which are used for proving samples of powder sent from the manufactories. The apparatus shows the initial velocity of a ball fired from a cannon or musket.

In the ordinary eprouvette, gunpowder of *small grain* and low specific gravity gives the highest range, whilst the *ballistic pendulum* shows that the greatest initial velocity in a shot from a heavy cannon is produced by powder of great *specific gravity* and *coarse grain*. (*Ordnance Manual.*)

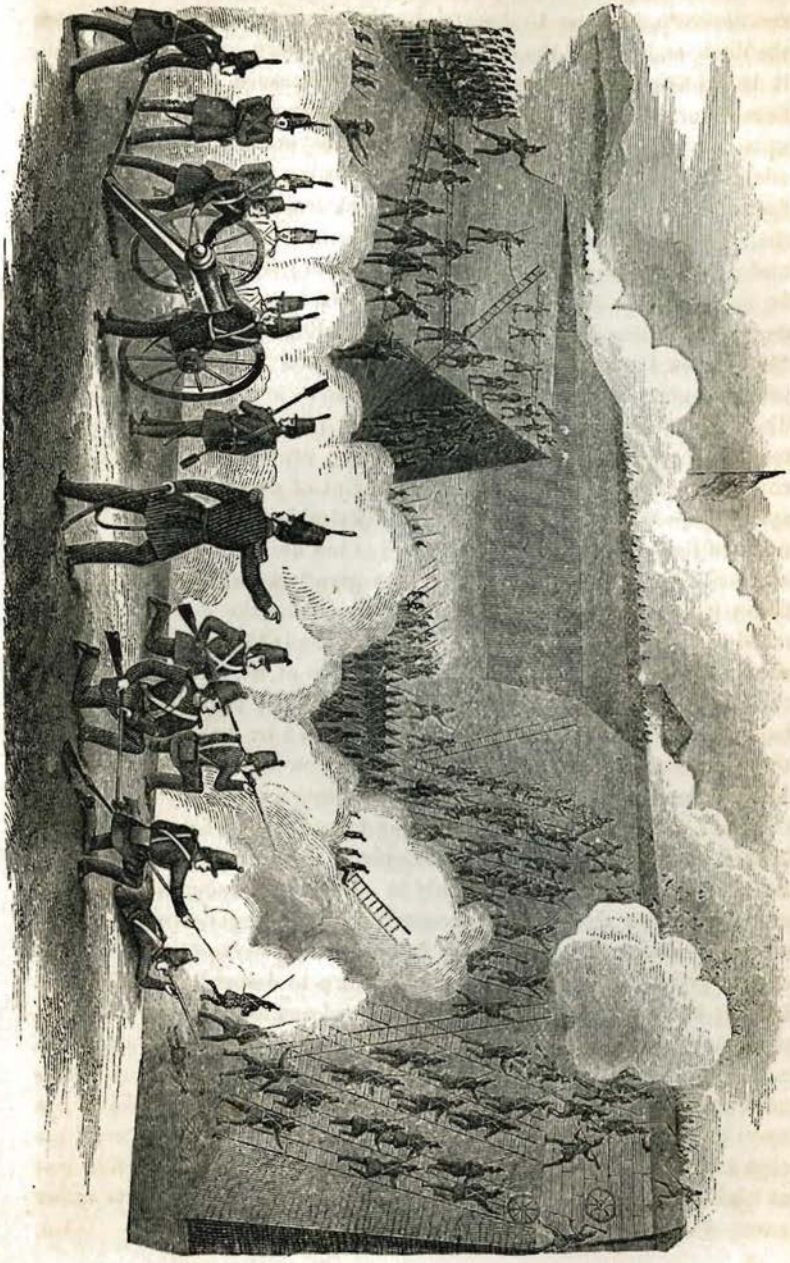
EQUIPAGE, CAMP AND GARRISON—are tents, kitchen utensils, axes, spades, &c. (*See* CLOTHING.)

EQUIPMENT. The complete dress of a soldier, including arms, accoutrements, &c.

ESCALADE, AND SURPRISE OF A FORTIFIED PLACE. A place is taken by *surprise*, whenever a sufficient number of men are secretly introduced into it to cause the defenders to abandon or surrender it. It is taken by *escalade*, when ladders are used to cross the walls. (Fig. 111.)

The surest way of succeeding in a surprise, is to have a perfect knowledge of the interior of the place, or to be accompanied by reliable guides, who know those parts of the place which may be penetrated with least difficulty. Such parts are ordinarily dilapidated portions of the body of the place; houses contiguous to the walls, the windows of which are not barred, &c., &c. Aqueducts and sewers have also sometimes been used for the introduction of armed men, unknown to the garrison. But when a place is badly guarded, all parts are accessible with ladders, and it is sometimes best to choose the highest walls for the escalade, as the enemy will probably, from a feeling of security, be less vigilant at such parts of the body of the place. Thus, at the siege of Badajoz in 1812, the English escaladed the highest walls in the city, and penetrated into the interior, while the attack directed upon breaches in the lower walls, although vigorously made, was repulsed. When

FIG. 111.



it is considered how slow a process it is to bring up ladders to the counterscarp, in order to descend by them into the ditch, then to cross the ditch, and to rear the ladders against the escarp, and to mount them, it is evident that success will, in a great measure, depend upon the number of men that can mount at the same moment; in other words, upon the number of ladders. A ladder beyond a certain length becomes unwieldy, and the rearing of it difficult. The distance from the foot of the ladders to the wall should be at least equal to one-fourth of their height. If the distance be greater, the ladder will be easily broken under the weight of the men mounting them; if much less, they will be so erect that the soldiers, as they ascend, must be continually in danger of falling headlong down. The scaling ladders introduced by Sir Charles Pasley, are in pieces of 12′ 8″ and 7′ 6″ in length, fitting into each other with strong double iron sockets, and tied by stout ropes. These can be arranged for any length, and quickly adjusted. Ladders made of long spars are awkward to carry; especially if there be narrow sharp turnings in approaching the point of escalade: nor can long sound spars be always procured. It is desirable that ladders should be made of light, tough wood: teak wood is too heavy. If a guy-rope be attached to each side of the ladder, they greatly assist in adjusting and fixing it against the wall: the men told off for the guy-ropes should stand close to the wall, within the slope of the ladder; these guy-ropes should be fixed at 5 or 6 feet below the top of the ladder, to prevent their being cut by the enemy on the wall. The total lengths of the ladders should exceed the height to be escaladed by 3 or 4 feet, in order that the men may step easily off the ladders on to the parapet or wall. Many failures have occurred from ladders being too short. It is desirable to have a pair of stout lifting bars, 3 or 4 feet long, with hooks, for each ladder. When an escalade is to take place, be sure to practise the men intended for the service thoroughly in carrying, in fixing, in ascending, and descending the ladders; descending, for going down a counterscarp; ascending, for getting up an escarp. Always use as many ladders as possible. If there be a counterscarp to descend, leave half the ladders there, while the other half are used against the escarp, that no time may be lost. Ascend the ladders together, on as large a front as possible. When an escalade is opposed by an enemy, take care that a good firing party covers the escalade, with especial directions to fire upon any work that may flank the ladders. Avoid night attacks, except under peculiar circumstances: the example of gallant men is lost at night, whilst timidity is infectious. Make all arrangements under cover of darkness, but assault at day-break.

At the moment of the escalade, the ladders should be filled with soldiers, and it is necessary, therefore, that they should be underpropped about the middle. Soldiers exercised in *gymnastics* are capable of mounting high walls with arms and accoutrements, by means of a hook, helved to a pole sufficiently long to reach the top of the wall. This exercise is practised by some French troops, and the walls of the citadel of Montpellier are thus escaladed with the greatest facility.

Precipitous rocks may be escaladed by grasping bushes and roots, or by planting the bayonet in the crevices of the rocks, in order to reach the top. Such escalades are very dangerous when an enemy defends the height, as heavy stones may be rolled down upon the assailants; but activity and ingenuity accomplish much, as was shown by the French in the attack upon Fort Scharnitz near Innspruck. They tied their haversacks round their heads, and, protected by this buckler, they scrambled up the rocks, despite the stones precipitated upon them. And still later the difficult ascent at Alma was scaled by French troops, in the face of Russian artillery and infantry.

The most favorable time for a *surprise* is that of a winter night, when there is no moon. A long march may then be made without discovery, and the troops may arrive an *hour before day*. This is the propitious moment for the execution of the design. It is then that men sleep most profoundly; and it is at that hour the attacking force may begin in the dark, and end the work by daylight; such favorable circumstances are much increased by heavy wind and rain during the night, as the clanking of arms and other inevitable noises made by the troops cannot be heard by the garrison, and the latter, besides, are more disposed to negligence. It is extremely important for the men to be able to recognize each other in the darkness, and the simplest means of doing so is to put the shirt outside the dress, or to tie a white band around the arm.

The party must be furnished with petards, axes, and levers, to force open doors; with beams and ladders, to overthrow and scale walls. Hurdles and fascines are necessary to cross muddy ditches, or broad planks may be used as a substitute for hurdles. With fascines small ditches and pools are filled up. All these articles should be carried by the men from the last halting-place. Wagons and animals would lead to discovery, and are therefore left at a safe distance, while every precaution is taken to maintain silence in the assailing party. The soldiers should also not light their pipes, as the fire can be seen from a long distance in the dark. Barking dogs must be quieted without the use of fire-arms, and every one must be on the alert.

The dispositions made for the attack will vary with circumstances, but in general it is well to divide the force into three parts: the first to penetrate into the city; the second to remain without and protect, if necessary, the retreat of the first; and the third to take such position as is most likely to prevent aid from reaching the enemy.

When the first division has penetrated the city by escalade or otherwise, it surrounds at once some of the adjacent quarters, and holds the outlets of the principal streets, whilst detachments quickly open the gates to the troops outside, after having taken or killed the guards. As soon as the gates are opened, and sufficient numbers are at hand, the troops spread themselves in the city, after leaving good reserves, upon which to retreat in case of check. The house of the commandant, barracks, arsenal, and the guards of the interior are at once sought, to prevent, if possible, any re-union of the defenders, and to paralyze all their efforts by the seizure of the commanding officer. If time and means of recovering from his stupor and concentrating his force in the interior of the city be left to the enemy, great risk will be run of being driven out, as the attacking force is necessarily everywhere weak, from the great number of points occupied.

The famous example of Cremona, where Prince Eugene, after having made himself master of a great part of the city, and after having seized Marshal Villeroi, who commanded there, was nevertheless then driven out by the defenders, shows that all is not lost to the defenders when the enemy has seized the exterior posts. Another example may be cited in the surprise of Bergen-op-Zoom in 1814, by Gen. Graham, where, although the surprise was successful, yet the assailants, in the end, were obliged by the garrison to surrender after considerable loss.

Much may then be done by defenders even under such circumstances, but much more may be accomplished by the most unceasing vigilance, and this quality, instead of being relaxed in stormy nights, should be then redoubled. (Consult *Cours de Tactique, par le General* Dufour.)

ESCARP, (or Scarp)—is the side of the ditch next to the place, which, in permanent fortifications, is usually faced with masonry.

ESCORT. (*See* Convoy.) There are also funeral escorts; escorts of honor; color escorts; &c., &c.

ESPLANADE. Empty space for exercising troops in fortified places.

ESPRIT DE CORPS. The brotherhood of a corps; military and regimental pride. Nothing is so prejudicial to it, as the failure to unite the companies of a regiment. It might also be promoted by re-

cording the distinguished services of a regiment on its colors. (*See* SOLDIER.)

EVACUATE. To withdraw from a town or fortress, in consequence either of a treaty or a capitulation, or of superior orders.

EVIDENCE—is that which makes clear, demonstrates, or ascertains the truth of the very fact or point in issue; (3. *Bl. Comm.*, 367.) Evidence may be considered with reference to, 1, the *nature* of the evidence; 2, the *object* of the evidence; 3, the *instruments* of evidence; and, 4, the effect of evidence.

As to its *nature*, evidence may be considered with reference to its being, 1, the primary evidence; 2, secondary evidence; 3, positive; 4, presumptive; 5, hearsay; and, 6, admissions.

1. *Primary evidence.* The law generally requires that the best evidence the case admits of shall be given; (1 *Stark. Ev.*, 102, 390.)

2. *Secondary evidence* is that species of proof which is admissible on the loss of primary evidence. Before it is admitted, proof must be made of the loss or impossibility of obtaining the primary evidence.

3. *Positive* evidence is that which, if believed, establishes the truth of a fact in issue, and does not arise from any presumption. Evidence is positive when the very facts in dispute are communicated by those who have actual knowledge of them by means of their senses; (1 *Stark.* 19.)

4. *Presumptive* evidence is that which is not direct, but where, on the contrary, a fact which is not positively known, is presumed from one or more other facts or circumstances which are known; (1 *Stark.* 18.)

5. *Hearsay* is the evidence of those who relate not what they know themselves, but what they have heard from others. As a general rule, hearsay evidence of a fact is not admissible. But evidence given on a former trial by a person since dead is admissible, as is also the dying declarations of a person who has received a mortal injury. A few more exceptions may be found in Phillips' *Ev.*, chap. 7; 1 Stark. *Ev.*, 40.

6. *Admissions*, which are the declarations made by a party for himself or those acting under his authority. These admissions are generally evidence of facts declared, but the admissions themselves must be proved.

The *object* of evidence is to ascertain the truth between the parties. Experience shows that this is best done by the following rules, which are now binding in law: 1. The evidence must be confined to the point in issue; 2. The substance of the issue must be proved, but only the substance is required to be proved; 3. The affirmative of the issue

must be proved. A witness, on being admitted in court, is first subjected to the examination of the party in whose behalf he is called. This is termed the *examination in chief*. The principal rule to be observed by the party examining is, that leading questions are not to be asked. The witness is then cross-examined by the other party. The object of cross-examination is twofold: to weaken the evidence given by the witness as to the fact in question, either by eliciting contradictions or new explanatory facts; or, secondly, to invalidate the general credit of the witness. In the latter case it is a general rule, that a witness may refuse to answer any question, if his answer will expose him to criminal liability. The general practice of English courts also seems to authorize his refusal to answer any question which will disgrace him. The credit of a witness may likewise be impeached by the general evidence of others as to his character; but in this case no evidence can be given of particular facts which militate against his general credit. Witnesses are excluded from giving evidence by: 1. Want of reason or understanding; 2. Want of belief in God and a future state; 3. Infancy; and, 4. Interest. Besides witnesses, records and private writings are also *instruments* of evidence.

1. Records, in all cases where the issue is *nul tiel reord*, are to be proved by an exemplification duly authenticated; that is, an attestation made by a proper officer, by which he certifies that a record is in due form of law, and that the person who certifies it is the officer appointed by law to do so. In other cases an examined copy, duly proved, will in general be evidence.

2. Private writings are proved by producing the attesting witness, or, in case of his absence, death, or other legal inability to testify, as if, after attesting the paper, he becomes infamous, his handwriting may be proved. When there is no witness to the instrument, it may be proved by evidence of the handwriting of the party, by a person who has seen him write, or in a course of correspondence has become acquainted with his hand. Parol evidence is admissible to defeat a written instrument on the ground of fraud, mistake, &c.; or to apply it to its proper subject matter, or, in some instances, as ancillary to such application, to explain the meaning of doubtful terms, or rebut presumptions arising extrinsically. But in all cases the parol evidence does not usurp the place or arrogate the authority of the written instrument. (Consult generally *Treatises on Evidence* by PHILLIPS and STARKIE; BOUVIER'S *Law Dictionary;* BRANDE'S *Encyclopædia.*)

EVOLUTIONS. (*See* MANŒUVRES.)

EXECUTION OF LAWS. On all occasions when the troops are

employed in restoring or maintaining public order among their fellow-citizens, the use of arms, and particularly fire-arms, is obviously attended with loss of life or limb to private individuals; and for these consequences, a military man may be called to stand at the bar of a criminal court. A private soldier also may occasionally be detached on special duty, with the necessity of exercising discretion as to the use of his arms; and in such cases he is responsible, like an officer, for the right use or exercise of such discretion. One of the earliest reported cases on this subject occurred in 1735, when Thomas Macadam, a private sentinel, and James Long, a corporal, were tried before the Admiralty Court of Scotland, upon a charge of murder under the following circumstances: They were ordered to attend some custom-house officers, for their protection in making a legal seizure; and being in a boat with the officers in quest of the contraband goods, one Frazer and his companions came up with them, leaped into the boat, and endeavored to disarm the soldiers. In the scuffle, the prisoners stabbed Frazer with their bayonets, and threw him into the sea. For this homicide the prisoners were tried and convicted of murder by a jury; and the Judge-admiral sentenced them to death. But the High Court of Justiciary reversed this judgment, on the ground that the homicide in question was necessary for securing the execution of the trust committed to the prisoners. The report of this case contains the following remarks upon it by Mr. Forbes, afterwards Lord President of the Court of Session of Scotland; and they appear to be of great importance to military men: "Where a man has *by law* weapons put into his hands, to be employed not only in defence of his life when attacked, but in support of the execution of the laws, and in defence of the property of the Crown, and the liberty of any subject, he doubtless may use those weapons, not only when his own life is put so far in danger that he cannot probably escape without making use of them, but also when there is imminent danger that he may by violence be disabled to execute his trust, without resorting to the use of those weapons; but when the life of the officer is exposed to no danger, when his duty does not necessarily call upon him for the execution of his trust, or for the preservation of the property of the Crown, or the preservation of the property or liberty of the subject, to make use of mortal weapons, which may destroy His Majesty's subjects, especially numbers of them who may be innocent, it it is impossible from the resolution of the Court of Justiciary to expect any countenance to, or shelter for, the inhuman act." This quotation, in the latter part of it, has a direct bearing on the case of the unfortunate Captain Porteus, whose trial took place in the following year, and

whose melancholy fate is the groundwork of Sir Walter Scott's "Heart of Mid Lothian." In the year 1736, the collector of customs on the coast of Fife made a seizure of contraband goods of considerable value, which were condemned and sold. Two of the proprietors of these goods took an opportunity of robbing the collector of just so much money as these goods had sold for. They regarded this as merely a fair reprisal, and no robbery; but they were nevertheless taken up, tried, and condemned to death for the fact. With the exception of some smuggling transactions, in which they had been concerned, the prisoners were men of fair character; and the mob expressed much dissatisfaction with their sentence, and the prospect of their execution. On the Sunday preceding the day appointed for the execution, the prisoners were taken to a church near the gaol, attended by only three or four of the city guards, to hear divine service. None of the congregation had assembled, and the guards being feeble old men, one of the prisoners made a spring over the pew where they sat, while the other, whose name was Wilson, in order to facilitate his companion's escape, caught hold of two of the guards with his hands, and seized another with his teeth, and thus enabled his companion to join the mob outside, who bore him off to a place of safety. Wilson then composedly resumed his own seat, without making any attempt to recover his own liberty. This generous conduct of Wilson created a strong public feeling in his favor; and the magistrates of Edinburgh soon learned that an attempt would be made by the mob to rescue him at the place of execution. They therefore procured some of the regular forces on duty in the suburbs to be posted at a convenient distance from the spot, so as to support the city guard, in case they should be vigorously attacked. The officer, whose turn it was to do duty as captain of the city guard, being deemed unfit for the critical duties of the day, Captain Porteus, unfortunately for himself, was appointed to the command on the occasion. His men were served with ball-cartridge; and, by order of the magistrates, they loaded their pieces when they went upon duty. The execution took place without any disturbance until the time arrived for cutting down the body, when the mob severely pelted the executioner with stones, which hit the guards as they surrounded the scaffold, and provoked them to fire upon the crowd. Some persons at a distance from the place of execution were thus killed. As soon as the body was removed, Captain Porteus withdrew his men, and marched up the West Bow, which is a narrow winding passage. The mob, having recovered from the fright occasioned by the previous firing, followed the guard up this passage, and pelted the rear with stones, which the guards returned with some dropping

shot, whereby some where killed, and others wounded. On reaching the guard-house they deposited their arms in the usual form, and Captain Porteus went with his piece in his hand to the Spread Eagle Tavern, where the magistrates were assembled. On his arrival there, he was charged with the murder of the persons who had been slain by the city guards, on the allegation that he had commanded the guards to fire. The mob was very riotous, and called for justice upon him; and the magistrates, after adjourning to the council chamber, committed him to the Tolbooth for trial. The strongest feeling existed against him on the part of the mob, until the hour of his trial before the High Court of Justiciary arrived, when, to their great satisfaction, he was found guilty, and condemned to be hanged. The higher classes of society, however, unaffected by the popular prejudice against the unfortunate prisoner, exerted themselves strenuously in his behalf, and succeeded in obtaining a reprieve. This created the greatest discontent among the lower orders, who, on the night before the day originally appointed for the execution, broke open the gaol, dragged the unhappy Captain Porteus down stairs by the heels, carried him to the common place of execution, and there, throwing a rope over a dyer's pole, hanged him with many marks of barbarity. The perpetrators of this outrage were never discovered, and the subject gave rise to very warm debates in Parliament, particularly in the House of Lords, with respect to the conduct of the city magistrates and officers.

It was quite clear, however, with reference to the criminality of Captain Porteus, that he had ordered his men to fire without sufficient cause or justification; and, under such circumstances, he was in point of law justly found guilty of murder.

Ensign Hugh Maxwell, of the Lanarkshire Militia, was tried in 1807, before the High Court of Justiciary of Scotland, for the murder of Charles Cottier, a French prisoner of war at Greenlaw, by improperly ordering John Gow, a private sentinel, to fire into the room where Cottier and other prisoners were confined, and so causing him to be mortally wounded. It appeared that Ensign Maxwell had been appointed to the military guard over 300 prisoners of war, chiefly taken from French privateers. The building in which they were confined was of no great strength, and afforded some possibilities of escape. The prisoners were of a very turbulent character, and to prevent their escape during the long winter nights, an order was given that all lights in the prison should be put out by nine o'clock, and that if this was not done at the second call, the guard were to fire upon the prisoners, who were often warned that this would be the consequence of disobedience with

regard to the lights. On the night in question, there was a tumult in the prison, but of no great importance; and Ensign Maxwell's attention having been on that account drawn to the prisoners, he observed a light burning beyond the appointed hour, and twice ordered it to be put out. This order not being obeyed he ordered the sentry to fire, but the musket merely snapped. He repeated the order; the sentinel fired again, and Cottier received his mortal wound. At this time there was no symptom of disorder in the prison, and the prisoners were all in bed. The general instructions issued from the adjutant-general's office in Edinburgh, for the conduct of the troops guarding the prison, contained no such order as that which Ensign Maxwell had acted upon; and it appeared that the order in question was a mere verbal one, which had from time to time, in the hearing of the officers, been repeated by the corporal to the sentries, on mounting guard, and had never been countermanded by those officers, who were also senior to Ensign Maxwell. The Lord Justice Clerk described the case to the jury as altogether the most distressing that any court had ever been called upon to consider, and laid it down most distinctly, that Ensign Maxwell could only defend himself by proving specific orders, which he was bound to obey without discretion; or by showing that in the general discharge of his duty he was placed in circumstances, which gave him discretion, and called upon him to do what he did. His lordship was of opinion that both these grounds of defence failed in the present case; and the jury having found Ensign Maxwell guilty of the minor offence of *culpable homicide*, with a recommendation to mercy, the court sentenced him to nine months' imprisonment. Ensign Maxwell's conduct certainly exhibited none of those gross features which characterize murder; but at the same time he was guilty of a rash and inconsiderate act, which, if he had not been engaged at the time in military duty, though he was mistaken in the exercise of it, would probably have been held to amount to murder. In Maxwell's case, the soldier who fired the shot was not prosecuted for the act, nor was he liable to such prosecution.

It is laid down in a book of authority, that if a ship's sentinel shoot a man, because he persists in approaching the ship when he has been ordered not to do so, it will be murder, unless such an act was necessary for the ship's safety. And it will be murder, though the sentinel had orders to prevent the approach of any boats, had ammunition given to him when he was put on guard, and acted on the mistaken impression that it was his duty. In Rex *v.* Thomas, the prisoner was sentinel on board H.M.S. *Achille*, when she was paying off. The orders to him from the preceding sentinel were to keep off all boats, unless they had

officers in uniform in them, or unless the officer on deck allowed them to approach: and he received a musket, three blank-cartridges, and three balls. The boats pressed, upon which he repeatedly called to them to keep off; but one of them persisted, and came close under the ship, and he then fired at a man in the boat and killed him. It was put to the jury to find whether the sentinel did not fire under the mistaken impression that it was his duty; and they found that he did. But the case being reserved for the opinion of the judges, their lordships were unanimous that it was murder. They thought it, however, a proper case for a pardon: and further, they were of opinion that if the act had been necessary for the preservation of the ship, as if the deceased had been stirring up a mutiny, the sentinel would have been justified.

The cases already cited turned upon the improper exercise of discretion by the officers concerned. But in the following case, though not attended with actual consequences involving a criminal charge, the discretion in the use of arms was wisely exercised, and indicated great presence of mind, and correctness of judgment.

Some years ago, the public journals of London recorded the meritorious behavior of a private sentry, upon the occasion of a riotous mob assembled at the entrance of Downing-street, with the intention of attacking the government offices in that quarter of the town. This man standing alone presented his musket, and threatened to fire upon the crowd, if the slightest attempt were made to approach the particular office for the defence of which he was placed on duty, and succeeded by the terror thus created, though at a great risk of consequences to himself, in keeping the rioters at bay until a larger force arrived to assist him. The soldier's conduct was publicly much approved. It was also clearly legal according to Macadam's case; and if after the announcement of his intentions the mob had pressed forward to execute their purpose, he would have been held justified at law in firing at the rioters upon his own responsibility. The Duke of Wellington, as Constable of the Tower, testified his marked approbation of this man's conduct, by promoting him at once to a Wardership at that fortress.

During the Irish insurrection of 1848, Smith O'Brien was arrested at the railway station of Thurles, on a charge of high treason. A public passenger train was on the point of starting for Dublin, and the engineeer was mounted on the engine, with the steam up, and every thing in readiness for the immediate prosecution of the journey. The scene of the arrest lay in the disturbed district, which was in the occupation of the troops employed to suppress the insurrection and prevent its extension. General Macdonald's aide-de-camp, having been apprised

of the arrest, proceeded instantly to the station, and there commanded the engineer to dismount from the engine, and to stop the train; it being of the utmost importance to the public safety and service that the news of the arrest should not be carried along the line of railway, as the country people might assemble in great numbers and destroy the rails, and rescue the prisoner, or otherwise impede the conveyance of the prisoner to Dublin. Such interference would obviously have occasioned great loss of life, besides the danger to the public service at such a season. The engineer at first refused to obey the aide-de-camp's orders, whereupon the officer presented his pistol at the engineer, and threatened him with instant death if he persisted in his refusal. The man then dismounted; but it is conceived that the officer pursued a correct line of conduct, and exercised upon the occasion a sound discretion, which would have been a good legal defence to him, if he had ultimately proceeded to execute his threat upon the engineer. "Power in law (says Sir Edward Coke) means power with force."

The right of officers or soldiers to interfere in quelling *a felonious riot*, whether with or without superior military orders, or the direction of a civil magistrate, is quite clear, and beyond the possibility of mistake. This subject, however, was formerly little understood; and military men failed in their public duty through excess of caution.

George III. and his Attorney-general (Wedderburn) both deservedly acquired high credit for their energy in the crisis of the riots of 1780. When the king heard that the troops which had been marched in from all quarters were of no avail in restoring order, on account of a scruple that they could not be ordered to fire till an hour after the Riot Act had been read, he called a cabinet council, at which he himself presided, and propounded for their consideration the legality of this opinion. There was much hesitation among the councillors, as they remembered the outcry that had been made by reason of some deaths from the interference of the military in Wilkes's riots, and the eagerness with which grand juries had found indictments for murder against those who had acted under the command of their superiors. At last the question was put to the Attorney-general, who attended as assessor, and he gave a clear, unhesitating, and unqualified answer to the effect, that if the mob were committing a felony, as by burning down dwelling-houses, and could not be prevented from doing so by other means, the military, according to the law of England, might and ought to be ordered to fire upon them: the reading of the Riot Act being wholly unnecessary and nugatory under such circumstances. The exact words used by him on this occasion are not known; but they must have been nearly

the same which he employed when he shortly afterwards expounded from the judgment seat the true doctrine upon the subject. The requisite orders were issued to the troops, the conflagrations were stopped, and tranquillity was speedily restored.

This eminent lawyer having become Chief Justice of the Court of Common Pleas, with the title of Lord Loughborough, delivered a charge to the grand jury on the special commission for the trial of the rioters of 1780, in the following terms: "I take this public opportunity of mentioning a fatal mistake into which many persons have fallen. It has been imagined, because the law allows an hour for the dispersion of a mob to whom the Riot Act has been read by the magistrate, the better to support the civil authority, that during that time the civil power and the magistracy are disarmed, and the king's subjects, whose duty it is at all times to suppress riots, are to remain quiet and passive. No such meaning was within view of the legislature, nor does the operation of the act warrant such effect. The civil magistrates are left in possession of all those powers which the law had given them before. If the mob collectively, or a part of it, or any individual within or before the expiration of that hour, attempts, or begins to perpetrate an outrage amounting to felony, to pull down a house, or by any other act to violate the law, it is the duty of *all present*, of whatever description they may be, to endeavor to stop the mischief, and to apprehend the offender."

"A riot (says Mr. Justice Gaselee) is not the less a riot, nor an illegal meeting, because the proclamation of the Riot Act has not been read; the effect of that proclamation being to make the parties guilty of a capital offence if they do not disperse within an hour; but if that proclamation be not read, the common law offence remains, and it is a misdemeanor; and all magistrates, constables, and even private individuals are justified in dispersing the offenders; and if they cannot otherwise succeed in doing so, they may use force."

After the suppression of the great riots of London in 1780, by the aid of the troops, as already mentioned, the government was acrimoniously attacked both in and out of parliament, on the ground that the employment of a military force, to quell riots by firing on the people, could only be justified, if at all, by martial law proclaimed under a special exercise of the royal prerogative; and it was thence argued that the nation was living under martial law. But Lord Mansfield, the Chief Justice of the King's Bench, addressed the House of Lords on this subject, and placed it in its true light. "I hold (said his lordship) that His Majesty, in the orders he issued by the advice of his ministers, acted

perfectly and strictly according to the common law of the land, and the principles of the Constitution. . . . . Every individual in his private capacity may lawfully interfere to suppress a riot, much more to prevent acts of felony, treason, and rebellion. Not only is he authorized to interfere for such a purpose, but it is his duty to do so: and if called upon by a magistrate, he is punishable in case of refusal. What any single individual may lawfully do for the prevention of crime and preservation of the public peace, may be done by any number assembled to perform their duty as good citizens. It is the peculiar business of all constables to apprehend rioters, to endeavor to disperse all unlawful assemblies, and in case of resistance, to attack, wound, nay kill those who continue to resist;—taking care not to commit unnecessary violence, or to abuse the power legally vested in them. Every one is justified in doing what is necessary for the faithful discharge of the duties annexed to his office, although he is doubly culpable if he wantonly commits an illegal act under the color or pretext of law. The persons who assisted in the suppression of those tumults are to be considered mere private individuals acting as duty required. My lords, we have not been living under martial law, but under that law which it has long been my sacred function to administer. For any violation of that law the offenders are amenable to our ordinary courts of justice, and may be tried before a jury of their countrymen. Supposing a soldier or any other military person who acted in the course of the late riots, had exceeded the power with which he was invested, I have not a single doubt that he may be punished, not by a court-martial, but upon an indictment to be found by the Grand Inquest of the City of London or the County of Middlesex, and disposed of before the ermined judges sitting in Justice Hall at the Old Bailey. Consequently the idea is false, that we are living under a military government, or that, since the commencement of the riots, any part of the laws or of the Constitution has been suspended or dispensed with. I believe that much mischief has arisen from a misconception of the Riot Act, which enacts that after proclamation made persons present at a riotous assembly shall depart to their homes; those who remain there above an hour afterwards shall be guilty of felony and liable to suffer death. From this it has been imagined that the military cannot act, whatever crimes may be committed in their sight, till an hour after such proclamation has been made, or, as it is termed, 'the Riot Act is read.' But the Riot Act only introduces a new offence—remaining an hour after the proclamation—without qualifying any pre-existing law,

or abridging the means which before existed for preventing or punishing crimes."

In the case of Handcock *v.* Baker, which was an action brought against the defendants, who were not constables, for forcibly detaining and confining the plaintiff, in order to prevent him from murdering his wife, Mr. Justice Heath made the following observations: "It is a matter of the last consequence that it should be known upon what occasions bystanders may interfere so as to prevent felony. In the riots which took place in 1780, this matter was much misunderstood, and a general persuasion prevailed that no indifferent person could interpose without the authority of a magistrate; in consequence of which much mischief was done which might otherwise have been prevented." And in the same case Mr. Justice Chambre said: "There is a great difference between the right of a private person in cases of intended felony and breach of the peace. It is lawful for a private person to do any thing for the prevention of a felony." And in so doing it becomes quite immaterial whether the persons wounded or slain are taking any active part in the riot. In the case of Clifford *v.* Brandon, which was an action by a barrister of great eminence against the box-keeper of Covent Garden Theatre, who had arrested him in the theatre for wearing in his hat a ticket with O.P. on it—this being a badge of the party by whom the celebrated O.P. riots relative to the prices of admission were carried on—and nothing else having been proved against him—the Lord Chief Justice, Sir James Mansfield, said: "If any person encourages, or promotes, or takes part in riots, whether by words, signs, or gestures, or by wearing the badge or ensign of the rioters, he is himself to be considered a rioter, he is liable to be arrested for a breach of the peace. In this case all are principals."

But notwithstanding the existence of a clear right and duty on the part of military men voluntarily to aid in the suppression of a riot, it would be the height of imprudence to intrude with military force, except upon the requisition of a magistrate, unless in those cases where the civil power is obviously overcome, or on the point of being overcome, by the rioters.

With regard to the requisition of military aid by the civil magistrate, the rule seems to be, that when once the magistrate has charged the military officer with the duty of suppressing a riot, the execution of that duty is wholly confided to the judgment and skill of the military officer, who thenceforward acts independently of the magistrate until the service required is fully performed. The magistrate cannot dictate to the officer the mode of executing the duty; and an officer would

desert his duty if he submitted to receive any such orders from the magistrate. Neither is it necessary for the magistrate to accompany the officer in the execution of his duty.

The learning on these points may be gathered from the charge of Mr. Justice Littledale to the jury, in the trial of the mayor of Bristol, for breach of duty in not suppressing the riots at that city in 1831. "Another charge (said His Lordship) against the defendant is, that upon being required to ride with Major Beckwith, he did not do so. In my opinion he was not bound to do so in point of law. I do not apprehend it to be the duty of a justice of the peace to ride along and charge with the military. A military officer may act without the authority of the magistrate, if he chooses to take the responsibility; but although that is the strict law, there are few military men who will take upon themselves so to do, except on the most pressing occasions. Where it is likely to be attended with a great destruction of life, a man, generally speaking, is unwilling to act without a magistrate's authority; but that authority need not be given by his presence. In this case the mayor did give his authority to act; the order has been read in evidence; and he was not bound in law to ride with the soldiers, more particularly on such an occasion as this, when his presence elsewhere might be required to give general directions. If he was bound to make one charge, he was bound to have made as many other charges as the soldiers made. It is not in evidence that the mayor was able to ride, or at least in the habit of doing so; and to charge with soldiers it is not only necessary to ride, but to ride in the same manner as they do; otherwise it is probable the person would soon be unhorsed, and would do more harm than good: besides that, if the mob were disposed to resist, a man who appeared in plain clothes leading the military would be soon selected and destroyed. I do not apprehend that it is any part of the duty of a person who has to give general directions, to expose himself to all kinds of personal danger. The general commanding an army does not ordinarily do so, and I can see no reason why a magistrate should. A case may be conceived where it might be prudent, but here no necessity for it has been shown."

This subject was also luminously expounded by the late Lord Chief Justice Tindal, in his charge to the grand jury on the special commission held at Bristol, on the 2d of January, 1832, for the trial of the parties implicated in the formidable riots and devastations committed in that city during the autumn of the previous year: "It has been well said that the use of the law consists, first, in preserving men's persons from death and violence; next, in securing to them the free enjoyment

of their property; and although every single act of violence, and each individual breach of the law, tends to counteract and destroy this its primary use and object, yet do general risings and tumultuous meetings of the people in a more especial and particular manner produce this effect, not only removing all security, both from the persons and property of men, but for the time putting down the law itself, and daring to usurp its place. . . . . In the first place, by the common law, every private person may lawfully endeavor, of his own authority, and without any warrant or sanction of the magistrate, to suppress a riot by every means in his power. He may disperse, or assist in dispersing, those who are assembled; he may stay those who are engaged in it from executing their purpose; he may stop and prevent others whom he shall see coming up, from joining the rest; and not only has he the authority, but it is his bounden duty, as a good subject of the king, to perform this to the utmost of his ability. If the riot be general and dangerous, he may arm himself against the evil-doers to keep the peace. Such was the opinion of all the judges of England in the time of Queen Elizabeth, in a case called 'The Case of Arms,' (Popham's *Reports*, p. 121,) although the judges add, that 'it would be more discreet for every one in such a case to attend and be assistant to the justices, sheriffs, or other ministers of the king in doing this.' It would, undoubtedly, be more advisable so to do; for the presence and authority of the magistrate would restrain the proceeding to such extremities, until the danger was sufficiently immediate, or until some felony was either committed or could not be prevented without recourse to arms; and at all events the assistance given by men who act in subordination to, and in concert with, the civil magistrate, will be more effectual to attain the object proposed, than any efforts, however well intended, of separate and disunited individuals. But if the occasion demands immediate action, and no opportunity is given for procuring the advice or sanction of the magistrate, it *is the duty of every subject to act for himself, and upon his own responsibility* in suppressing a riotous and tumultuous assembly; and he may be assured that whatever is honestly done by him in the execution of that object, will be supported and justified by the common law. And whilst I am stating the obligation imposed by the law on every subject of the realm, I wish to observe that the law acknowledges no distinction in this respect between the soldier and the private individual. The soldier is still a citizen, lying under the same obligation, and invested with the same authority to preserve the peace of the king as any other subject. If the one is bound to attend the call of the civil magistrate, so also is the other; if the one

may interfere for that purpose when the occasion demands it, without the requisition of the magistrate, so may the other too; if the one may employ arms for that purpose, when arms are necessary, the soldier may do the same. Undoubtedly the same exercise of discretion which requires the private subject to act in subordination to, and in aid of, the magistrate, rather than upon his own authority, before recourse is had to arms, ought to operate in a still stronger degree with a military force. But where the danger is pressing and immediate, where a felony has actually been committed, or cannot otherwise be prevented, and from the circumstances of the case no opportunity is offered of obtaining a requisition from the proper authorities, the military subjects of the king, like his civil subjects, not only may, but are bound to do their utmost, of their own authority, to prevent the perpetration of outrage, to put down riot and tumult, and to preserve the lives and property of the people."

It is one result of the law, as laid down by the foregoing authorities, that a military officer refusing or failing, on a proper occasion, to bring into action against a riotous or an insurrectionary mob, the force under his command, would be guilty of an indictable offence at common law, and might be prosecuted accordingly for breach of duty, independently of his liability to military censure.

The most recent case on this subject arose out of the conduct of the military at Six-mile Bridge, in the County of Clare, during the parliamentary election for that county in the year 1852. At the ensuing Spring Assizes held at Ennis in February, 1853, an indictment for murder was preferred against the magistrate and the officers and men whose conduct was impeached; but the grand jury threw out the bill: and the case is here noticed only for the sake of the charge delivered to them by Mr. Justice Perrin, who thus commented upon the law in its application to the offence of which the military were accused:

"It appears that there was an escort of soldiers, consisting of forty men, with two sergeants, as a safe-guard for some persons going to the hustings at Six-mile Bridge, under the command of a captain and a lieutenant, and the conduct of a magistrate—a very difficult and a very nice service. With respect to the requisition, its terms, grounds, or sufficiency, the soldiers could have no knowledge. The orders of the general, which they are bound to obey, and not permitted to canvass, were obligatory on them; and for its sufficiency they are not responsible, and you are happily relieved from any inquiry into that matter. Under that order, and the command of Captain Eager, and the conduct of Mr. Delmege, they assembled. They proceeded to Six-mile

Bridge, and were there, with their arms in their hands, in obedience to orders. Those orders will not justify any unlawful conduct or violence in them, but it accounts for their presence there in arms: for ordinary persons going on such an occasion as that to the hustings would act very indiscreetly and very dangerously, if, perhaps, not very illegally, to arm themselves with deadly weapons, in order to meet obstruction or opposition, if it were expected. But the soldiers were bound, and were there under orders; and that which in other persons might denote a previous evil or deadly intention, you will see, plainly suggests none in them, for they must obey their orders as soldiers. *There was nothing illegal in their proceeding through the crowd with the freeholders, possibly like any other body of freeholders and their companions, but doing or offering no unnecessary violence, nor were they to be subject to any violence beyond others. They had no right to force a way through the crowd by violence, nor to remove any obstruction by arms, still less by discharging deadly fire-arms. They had no right to repel a trespass on themselves, or on the escort, by firing or inflicting mortal wounds.* You will observe the distinction I take between removing an obstruction and repelling a trespass in another part of the case. *They had a right to lay hold of, as every subject of Her Majesty has, and to arrest persons guilty of any assault or trespass, or other act tending to a riot, either to restrain or make them amenable.* There is no distinction between soldiers and others in that respect, Lord Mansfield says, and his attention was very much called to this subject, touching the military engaged, not as soldiers, but, he says, as citizens, and I say, as subjects of Her Majesty. No matter whether their coats be red or brown, they are employed not to subvert, but to preserve the laws which they ought to prize so highly, taking care not to commit any unnecessary violence, or to abuse the power vested in them. Every one is justified in doing what is necessary for the faithful discharge of his duty, although he is deeply culpable if he wantonly commits any illegal act under the color or pretext of law. Those persons who assist in the suppression of tumults are to be considered as mere private individuals, acting as duty requires. It is a mistake to suppose that having resort to soldiers, is introducing martial law or military government. Suppose a soldier, or any other military person, who acted in the course of the late occurrence, had exceeded the powers with which he was invested, there is no doubt that he may be punished, not by a court-martial, but by an indictment, to be found by the Grand Inquest of the County of Clare, and to be disposed of before the criminal judge, acting with the assistance of the jury, in the court of the county. If assaulted, or struck with

stones, they had a right to repel force by force, but not with deadly or mortal weapons; though if provoked by blows, so as to lose the command of their tempers—though more forbearance, perhaps, would be expected from soldiers than from others—if they did, when so provoked, use the mortal weapons in their hands, not with any previous premeditation on their parts so to use them—and I have marked the distinction between soldiers and others under such circumstances—in such repulsion or affray, the law, in consideration of the provocation and the frailty of human nature, reduces the crime, which would otherwise be murder, to manslaughter. And if it should still further appear that, having been so assailed and attacked, they had been guilty of no aggression, and repelling force by force, the violence proceeded so far that, without any misconduct on their part, their lives were threatened, and in actual danger; and if it appears that, in order to save themselves and their lives, they were obliged to fire, and did fire, in the defence of their lives, and slay, the homicide is excusable and justifiable. *But in order to warrant that finding by the jury, or that proceeding by the soldiers, you must be convinced by actual proof that their conduct had been all through correct, and by actual proof—not the saying nor the opinions of any individual—that their lives were in danger, and were saved by the firing, and only by the firing.* In order to warrant such a finding as that, you must entertain that conviction founded upon the evidence given before you. The facts evincing danger imminent to their lives, and which could be prevented only by the firing, must be established by clear evidence, demonstrating that such danger existed, and could be preserved only by resorting to that deplorable remedy. *In considering that matter, you will recollect that there were of the party forty soldiers fully armed, with fixed bayonets, under the command of two officers and two sergeants;* and further, that it is at least doubtful whether there was any legal command upon them to fire. No command was given by their officers—I think that is admitted on all hands. *And further, you must recollect that the firing cannot be justified upon the ground merely that otherwise the freeholders might either have escaped or been withdrawn. That would afford no justification for slaying the assailants.* You will also consider where the matter occurred—in this respect favorable to the accused—a narrow lane. In another point of view, (but that is a matter for inquiry,) it is said to have been near the courthouse, and near an open road, where there was a large body of police, and a strong detachment of soldiers stationed, and where several magistrates were in attendance. You will also consider the matter I have before taken into consideration, whether the soldiers fired without or-

ders, and whether they showed the steadiness and forbearance that they ought. I need not again repeat to gentlemen of your intelligence, that when I state any thing, I merely state what I have been informed; and I will not state a word as to that, but you will look to the evidence before you. If it shall appear to you that shots were fired, and some persons were killed, at a considerable distance from the lane, and out of that lane, and by some of the soldiers who had occupied and immediately come from it, and gained the open ground without any continued resistance—where there was no pretence of danger to their lives, and the persons were, some at a great distance, and some of them with their backs turned—if that state of facts appeared, without previous excitement and previous provocation, it would amount to a case of murder; but it will be for you to say whether such a state of facts as to some individual soldiers should appear—whether there was any previous excitement and provocation (which, as I before told you, would reduce the killing, though it would not justify it, to manslaughter) continuing for a sufficient time, and preventing the blood from cooling. You will consider how far that consideration in your mind operates, and leads you to the conclusion that they acted, not from a deliberate intention to take away life, but from the excitement and warmth produced by previous provocation. That would reduce the crime to manslaughter. Therefore, gentlemen, as to those persons who were slain on what is called the Lodge Road, or near Miss Wilson's, your inquiry will be: first, as to whether any persons were slain; next, by whom they were slain: because, unless it appears that the whole body of soldiers were forward, and if it should appear there were only a few there, it will be your duty to inquire with respect to them if it make any distinction in the finding—to identify and particularize those individuals. If you should find that the homicide was of the worst description, and that they had unnecessarily, and without provocation and excitement to excuse, and also a warmth of blood, for which there is allowance made, you could not visit their act upon the whole body; and, therefore, it will be material for you to ascertain who those individual persons were. That is as much and as important a part of the bill as any other. Then, gentlemen, if they be distinguishable, it is your duty to do so. If you find them guilty of a higher degree of offence than any of the others, you must be able to distinguish them: for you cannot find a general verdict against all upon that. With respect to those slain in the lane, if you are convinced that the soldiers were not the aggressors, but that when they fired they were unlawfully assailed, so as to be in real danger of their own lives, and could not otherwise save them—as

I before mentioned, it would amount to justifiable homicide, and ought to be so found. But if you think that, though they were not the aggressors, and that they were assailed and struck, and, being thereby provoked, repelled force by force, with the affray thickening, and they receiving blows, either from weapons in the hands, or from stones cast upon them—that they were provoked so, and repelled force by force, so as to get their blood so heated that they fired and slew them—I think then you ought to find a bill of manslaughter against all, that is, against every man who is proved to you to have discharged his musket on that occasion; but you must have such proof, of course. And whatever you find in respect to those slain in the lane—manslaughter or homicide in self-defence—you ought to find a bill of manslaughter, at the very least, against every soldier who is proved to have fired in the broad street, or what is called the Lodge Road. These are the observations that I think it right to suggest for your assistance. I cannot, of course, in my imperfect view of the facts, give you such advice and assistance as I would give a jury upon a case which I had heard; but I will be ready and happy, if you find any difficulty in applying any thing I have said upon the evidence, to give you such further assistance as I can, and answer any questions which you shall put to me on the subject."

It may, perhaps, be useful to subjoin a general order issued to the commander-in-chief at Madras, in April, 1825, during the government of Sir Thomas Munro, shortly after a melancholy affair at Kittoor, in which one or two civil servants of the East India Company lost their lives under circumstances which, in the opinion of the public authorities, indicated, both in the civil and military functionaries, a want of general knowledge respecting the subject of the order.

"The Honorable, the Governor in Council, deems it necessary to lay down the following rules relative to the exercise of the authority with which civil magistrates, and other officers acting in a similar capacity, are vested, for calling out military force to preserve the peace of the country:

"1. The first and most important rule is, that no civil officer shall call out troops until he is convinced, by mature consideration of all the circumstances, that such a measure is necessary.

"2. When the civil officer is satisfied of the necessity of the measure, he should, before carrying it into execution, receive the sanction of government, unless the delay requisite for that purpose is likely to prove detrimental to the public interests. In that case, also, he should fully report the circumstances to government.

"3. When the civil officer may not deem it safe to wait for the orders of government, he should address his requisition for troops, not to any subordinate military officer, but to the officer commanding the division, to whom he should communicate his object in making it, and all the information he may possess regarding the stength and designs of those by whom the public peace is menaced or disturbed. His duty is confined to these points. *He has no authority in directing military operations.*

"4. The officer commanding the troops has alone authority to determine the number and nature of those to be employed; the time and manner of making the attack, and every other operation for the reduction of the enemy.

"5. Whenever the officer commanding the division may think the troops at his disposal inadequate to the enterprise, he should call upon the officer commanding the neighboring division for aid, and report to government and to the commander-in-chief.

"6. No assistant or subordinate magistrate is authorized to call out troops. When any such officer thinks military aid necessary, he must refer to his superior, the principal magistrate of the district.

"The foregoing rules are to be observed, when it can be done without danger to the public safety. Should any extraordinary case occur, which admits of no delay, civil and military officers must then act according to the emergency and the best of their judgment. Such cases, however, can rarely occur, unless when an enemy becomes the assailant; and therefore occasion can hardly ever arise for departing from the regular course of calling out troops, only by the requisition of the principal civil magistrates of the province, to the officer commanding the division.

"Ordered, that the foregoing resolutions be published in general orders to the army, and be communicated for the information and guidance of such civil officers as they concern." (Consult PRENDERGAST. *See* CALLING FORTH MILITIA; OBSTRUCTION OF LAWS; INSURRECTION; MARSHALS; POSSE COMITATUS.)

EXEMPTS FROM MILITIA DUTY. The Vice-president of the United States; the officers, judicial and executive, of the government of the United States; the members of both houses of Congress, and their respective officers; all custom-house officers, with their clerks; all post-officers and stage-drivers, who are employed in the care and conveyance of the mail of the post-office of the United States; all ferrymen employed at any ferry on the post road; all inspectors of exports; all pilots and mariners actually employed in the service of any citizen or merchant within the United States; and all persons who

are or may be exempted by the laws of the different States; (*Act* May 8, 1792.)

EXPEDITION—is an enterprise undertaken either by sea or by land against an enemy, the fortunate termination of which principally depends on the rapidity and unexpected nature of its movements. To be successful, the design and preparations for an expedition should, as far as may be practicable, be carefully concealed; the means employed be proportioned to the object in view; the plan carefully arranged, and its execution intrusted to a general whose talents are known to fit him for such a command, and who possesses a perfect knowledge of the scene of action.

EXPENSE MAGAZINES—are small powder magazines containing ammunition, &c., made up for present use. There is usually one in each bastion.

EXTERIOR SIDE—is the side of the polygon, upon which a front of fortification is formed.

EXTERIOR SLOPE—is a slope given to the outside of the parapet. It is found by experience that earth of common quality will naturally acquire a slope of 45°, even when battered by cannon. This inclination is therefore given to the slope.

EXTRA ALLOWANCES. Officers shall not receive any additional pay, extra allowance, or compensation in any form whatever, for disbursements of public money, or any other service or duty whatsoever, unless the same shall be authorized by law, and the appropriation therefor explicitly set forth; that is, for such additional pay, extra allowance, or compensation; (*Act* Aug. 23, 1842.)

EXTRA EXPENSES. Where any commissioned officer shall be obliged to incur any extra expense in travelling, and sitting on general courts-martial, he shall be allowed one dollar and twenty-five cents per day, if not entitled to forage, and one dollar if so entitled; (*Act* Jan. 29, 1813.)

F

FACE OF A GUN. The superficies of the metal at the extremity of the muzzle.

FACES OF A BASTION—are the two sides extending from the salient to the angle of the shoulder.

FACES OF A SQUARE. The sides of a battalion when formed in square.

FACINGS. The movement of soldiers to the right, left, right about, left about, &c.

FALSE ALARMS. Punishable. (*See* ALARM.)

FALSE CERTIFICATES. Punishable with cashiering; (ART. 14.) (*See* CERTIFICATE.)

FALSEHOOD. The *onus probandi* in all accusations lies with the accuser. If A accuses B of having told a falsehood, A must prove it by legal evidence.

FARRIER AND BLACKSMITH. Allowed to cavalry regiments. (*See* ARMY; VETERINARY.)

FASCINES—are long cylindrical fagots of brushwood, and when designed for supporting the earth of extensive epaulements, are called *saucissons*, and are about 18 feet long, and ten inches thick; those for the revetment of the parapets of batteries are eight or ten feet long; those for covering wet or marshy ground from 6 to 9 feet long. (*See* REVETMENT for construction of fascines.)

FATIGUE DUTY. Soldiers on fatigue duty allowed an extra gill of whiskey; (*Act* March 2, 1829.)

That the allowance of soldiers employed at work on fortifications, in surveys, in cutting roads, and other constant labor, of not less than ten days, authorized by an act approved March second, eighteen hundred and nineteen, entitled "An act to regulate the pay of the army when employed on fatigue duty," be increased to twenty-five cents per day for men employed as laborers and teamsters, and forty cents per day when employed as mechanics, at all stations east of the Rocky Mountains, and to thirty-five cents and fifty cents per day, respectively, when the men are employed at the stations west of those mountains. —Approved August 4, 1854.

FAUSSE BRAIE—is a second enceinte, exterior to, and parallel to the main rampart, and considerably below its level.

FEVER. (*See* SANITARY PRECAUTIONS; MEDICINE.)

FIELD. In a military sense, the scene of a campaign or battle.

FIELD DAY. A term used when a regiment is taken out to the field, for the purpose of being instructed in the field exercise and evolutions.

FIELD MARSHAL. The highest military rank excepting that of captain-general.

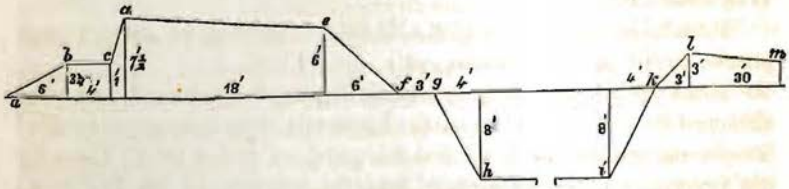
FIELD OFFICERS. Colonels, lieutenant-colonels, and majors, are called field officers. They should always be mounted, in order to give ground for movements, circulate orders, and correct pivots.

FIELD WORKS. Their object is to provide a body of troops, or a town, with a secure protection against a sudden assault of superior numbers by the interposition of a parapet of some material capable of resisting the effects of projectiles. This parapet may be made of very

miscellaneous materials, but is usually of earth, excavated from a ditch, which will itself be an obstacle to attack. The usual figure of a parapet with its ditch is shown in Fig. 112.

The exterior slope *e f*, which is always exposed to the action of the

FIG. 112.



weather, and during an engagement to enemy's shot, must have that inclination or slope which the materials composing it would assume when poured loosely from a height, and at which they would therefore stand without any additional support. This inclination for earth of ordinary tenacity, is about 45°; *i. e.*, the base on which the slope stands is equal to its height, or it has a depression of 1 in 1. The parapet would afford the best cover if its superior slope, *d e*, were horizontal, or rather parallel to the plane of site; but in this case a musket-shot, fired along its surface, could not reach the ground within a very considerable distance in front of it; a gentle inclination is therefore given to it, and experience has fixed this slope at a depression of 1 in 6. The interior slope, *d c*, of this parapet must be nearly vertical, that soldiers may lean against it and fire easily over it. It must, therefore, be supported by a wall of some material, called a *revetment*. The base of this slope is usually one-fourth the height. It has a depression, therefore, of 4 in 1. A step, *b c*, called the *banquette*, is added, of a height sufficient to enable a man of ordinary stature to fire conveniently over the crest, and sloping away gently towards the rear to facilitate the alternate advance and retirement of each soldier to discharge and load his firelock. The base of this slope is usually 1½ to 2 times the height. The depression is, therefore, 1 in 1½ or 2. The thickness of a parapet, that is, of its superior slope, must be sufficient to withstand the effects of the projectiles likely to be discharged against it. To afford security against

Musketry . . .	its thickness must be	5	feet.
6-pounders . . .	" "	6	"
9-pounders	" "	9	"
12-pounders . . .	" "	12	"
18-pounders	" "	18	"
24-pounders and heavier guns .	" "	20 to 24	feet.

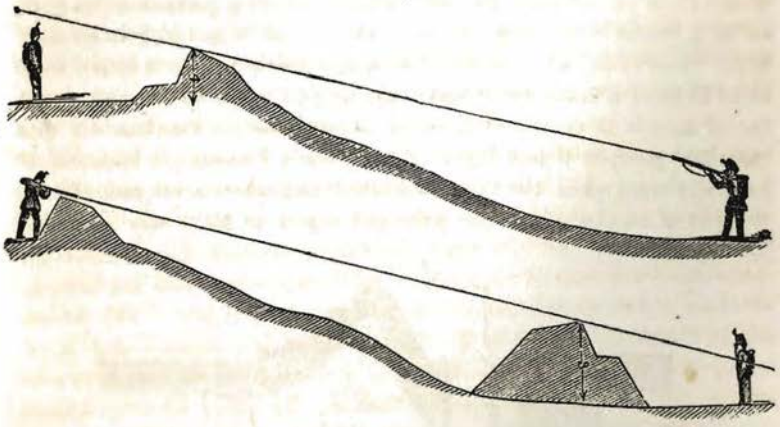
In field-works, which are seldom made to resist heavy artillery, a thickness of parapet of 11 feet will generally be sufficient.

The height of a parapet will greatly depend upon its position. It will readily be seen from Fig. 112, that a bullet striking the parapet near the upper part will have to traverse a small portion only of the thickness of the parapet in order to pass through.

It becomes necessary, therefore, to give to a parapet a height rather greater than that to which cover is required. Hence on a plain where the attacking and defending parties are on the same level, the height of a parapet, to furnish cover to men 6 feet high, is usually 7½ feet. Should the parapet be situated upon the brow of a hill, the defenders could obtain cover to any desired extent by merely retiring from it. In this case a height sufficient to protect the soldiers while firing is all that will be necessary; this will usually be from 4 to 6 feet. (Fig. 113.)

Should these conditions be reversed, that is, should the attacking party be in possession of the higher ground, a height of parapet up to 10 or 12 feet may be indispensable, and when the slope of the ground is considerable, even this will afford cover to a small distance only behind it; (Fig. 114.) It may be said generally then that the height of parapets varies from 4 to 12 feet, and the thickness from 4 to 25 feet.

FIGS. 113, 114.



In the defence of field positions the following considerations require special notice:—

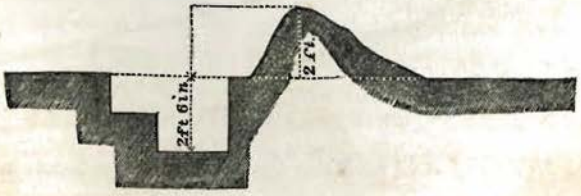
1st. The period likely to elapse before the position is attacked.

2d. The number of troops by whom the position is to be held.

3d. The number of men available for the construction of the work, and the nature of the materials at hand.

On the first of these considerations will depend the height and thickness of the parapet, depth and width of the ditch, and the nature of the obstacles which may be added, as only a certain amount of work can be executed in a given time, and a work of even feeble profile thoroughly complete will be capable of a better defence than a stronger work only partially executed. The extent which it may be desirable to give to the work will be limited by the number of men available for its defence. There must, at least, be sufficient to man the whole of the parapet, and a reserve, in addition, is almost essential. The length of crest line measured in yards, must not exceed half the number of men allotted for its defence. When either labor or materials are scarce, it may be necessary to reduce the profile, and to contract the extent of the work below that which would be desirable under other circumstances; but in this case the details should be so arranged as to admit of subsequent additions, should circumstances allow it, so as to bring the whole work to that condition which might have been desirable, though unattainable in the first instance. When time, labor, and materials are abundant, a good parapet and ditch should always be made to secure the defenders. The dimensions and construction of such a parapet have already been given. But cover can be obtained for a limited number of men in a more expeditious way. Thus a man will be equally protected from an enemy's fire, by standing behind a parapet 6 feet high, or in a trench 3 feet deep, with a bank of earth 3 feet high in front of him. Now to dig a trench 3 feet deep, and throw the earth to the front so as to form a bank 3 feet high, may be performed by the same number of men in at most $\frac{1}{3}$ of the time required for the construction of a complete parapet 6 feet high. A trench and breastwork then will be generally used when the time is limited, and when cover and not the creation of an obstacle is the principal object of the work. Fig. 115

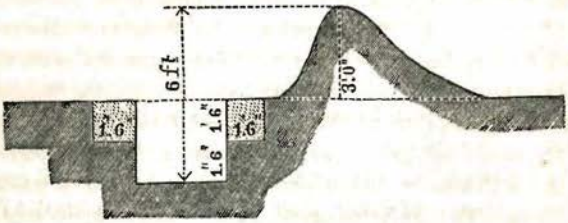
FIG. 11



represents a section of the slightest work of this nature which can be of any service. Here a trench $2\frac{1}{2}$ feet deep is dug, and the earth thrown to the front forms a rough parapet 2 feet high. The trench can contain one rank only, and the total cover being $4\frac{1}{2}$ feet high, the men will not

be safe except when sitting or stooping. A trench and breastwork of these dimensions can be completed in about 1½ hours. The next section (Fig. 116) is more serviceable; the total height of cover in this

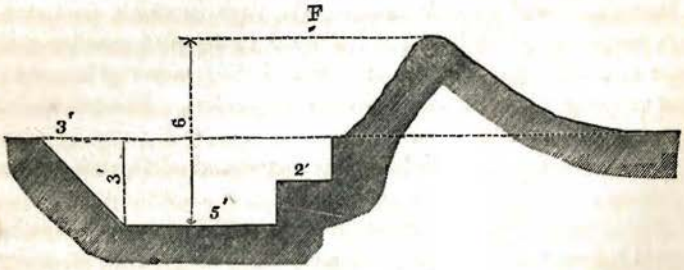
FIG. 116.



case is 6 feet. The men will be safe therefore so long as they remain in the trench, which provides room for one rank only at a time. The completion of this work would require about 3 hours.

Fig. 117 is a section of a breastwork and trench of a capacity suffi-

FIG. 117.



cient for most of the purposes for which works of this nature are usually required. The trench is wide enough to contain two ranks of men at the same time, and affords cover 6 feet in height. Such a work can be executed in about 5 hours.

FIG. 118.

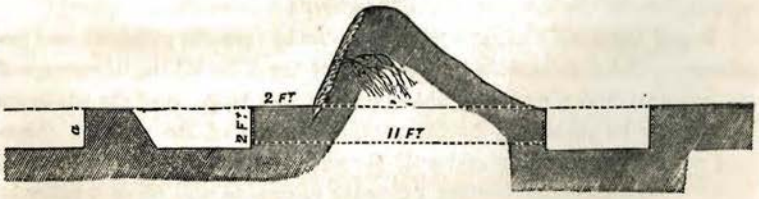


Fig. 118 is a profile adapted to marshy or rocky situations where shallow trenches only are practicable.

This work can be constructed very rapidly when labor is abundant, as two working parties, one in front and the other in rear, can be employed at the same time. The work to be performed then will generally be the excavation of a trench or ditch, and the formation of a parapet or breastwork, with the earth thrown out of it. It will in most cases be executed by the troops themselves, though sometimes laborers may be obtained. In constructing a simple trench and breastwork one row of workmen only can be advantageously employed at the same time, and it will be found desirable to place them 6 feet apart; as at this distance each man can use his arms freely, without interfering with or injuring his neighbor. When the saving of time is of more consequence than economy of labor, the diggers may be placed 4 feet apart, and the completion of the work will be accelerated, though not in proportion to the increase in the number of workmen. An ordinary laborer or common soldier can excavate one cubic yard, *i. e.* 27 cubic feet, in any but the hardest soils per hour; and can continue working at this rate for 8 hours. Should the soil be loose or sandy, so that the pickaxe is seldom required, this estimate may be nearly doubled. The trench or breastwork will be completed in the time in which each man will finish his portion, that is, a portion equal in length to the interval between any two adjacent diggers: therefore the number of hours will be equal to the number of cubic yards in such portion. Whence the following rule is at once obtained:

To find the time required for the construction of a trench or parapet, in ordinary soil—

Multiply the area of the section of the trench in square feet by the interval between the diggers (not less than 6 feet), and divide this product by 27, the quotient is the number of hours required for the construction of the work. Conversely, to find the area of the section of the trench or breastwork which can be executed in a given time—

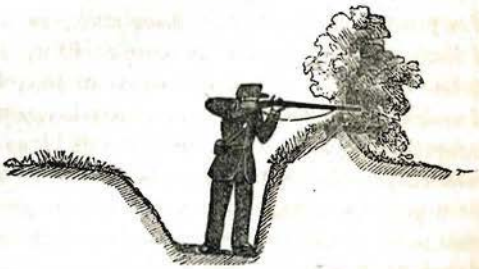
Multiply the number of hours by 27, and divide the product by the interval (in feet) between the diggers, the result will be the area, in square feet, of the section of the trench or breastwork.

It will frequently happen that cover can be speedily obtained, and positions rendered defensible in a very short time, by taking advantage of the hedges, ditches, or walls, which may be met with, or of the obstacles which may be presented by the natural features of the ground. General rules for proceeding under all the various circumstances which may occur cannot be given, but the following examples will show what may be effected in certain cases, and indicate the character of the operations usually required. Fig. 119 represents a common hedge and ditch

turned into a breastwork to be defended from the hedge side. If the hedge be thick and planted on a bank, as is generally the case, and especially if the ditch be tolerably deep and contain water, the breastwork will be rendered strong at the expense of little labor. A shallow trench should be excavated behind the hedge, and the earth thrown up to raise the bank sufficiently to form a rough breastwork some 18 inches thick at the top. Should the hedge be more than 6 feet high, it should be cut to that height, and the branches interwoven with the lower part to strengthen it. A hedge to be defended from the ditch side (Fig. 120) is a ready-made trench and breastwork, and will become a convenient work by a little scarping of the sides and widening and levelling of the bottom of the ditch, and by the addition, if necessary, of a banquette.

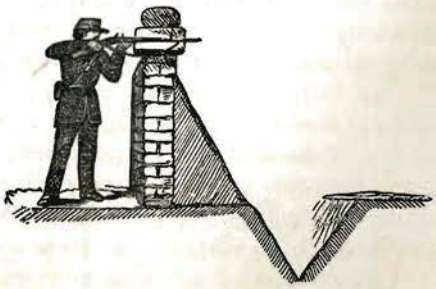
FIG. 119.

FIG. 120.



A good nine-inch brick wall is musket-shot proof. Such a wall 4 feet high will require no alteration, but may be used as a parapet by forming loopholes with sand-bags laid on the top, Fig. 121. Should there be time, a ditch should be dug in front, and the earth thrown up against the front of the wall to prevent the enemy from using the loopholes against the defenders. A wall 15 feet high can be pierced with two tiers of loopholes, one at 8 feet above the ground, the other at the top of

FIG. 121.



the wall. In rear a scaffolding must be erected of two stages to serve as banquettes. Such an arrangement is shown in the diagram, (Fig. 122.)

FIG. 122.

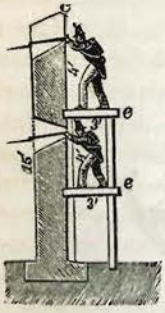
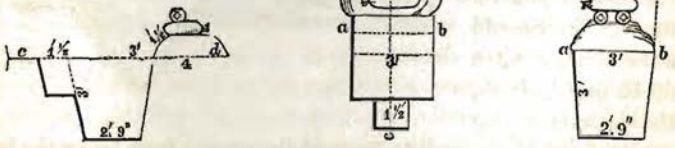


FIG. 123.

A wall 8 feet high may also be pierced with two tiers of loopholes as shown in Fig. 123. A trench must be dug in this case, to enable the defenders to make use of the lower tier of loopholes, and a scaffolding erected to serve as a banquette for the upper. On an emergency, materials of almost any conceivable description, as sacks or casks of earth, of sand, of coal, or even of corn or flour, bales of cotton, of cloth, packs of wool, mattresses, trusses of hay, fagots, carts or wagons of stable litter, brick rubbish or paving stones, may be formed into parapets of defence, while the approach of an enemy may be rendered exceedingly difficult, by a judicious combination of obstacles which, under urgent circumstances, may be extemporized of trees, bushes, posts, wagons, wheels, strong palings, chairs, tables, and miscellaneous articles of furniture, with iron rails, pitchforks, and agricultural implements, carefully arranged in the front, and secured by chains or ropes strongly picketed to the ground. Every soldier should be able to form for himself a rifle pit. This can be accomplished by digging a hole in the ground about 3 feet deep and 3 feet square at the top, with a little step to enable him to get in or out with ease. The excavated earth should be thrown up to the front to form a protection. A loophole should be made by three sand-bags; two placed longitudinally, and one across.

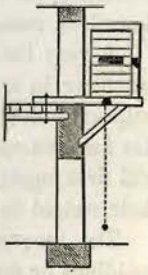
FIG. 124.



A rifle pit of this construction is shown in plan, section, and elevation in Fig. 124. Approach to field-works should be rendered difficult

by the formation of obstacles of various kinds, so that troops when coming to the assault may be detained under heavy fire as long as possible while they are endeavoring to force or surmount the obstacle. Contrivances of this nature are very numerous. (*See* ABATIS, TROUS-DE-LOUP, CROWS'-FEET, CHEVAUX-DE-FRIZE, INUNDATIONS.) In defensive warfare it is frequently necessary to intrench towns and villages, to secure them from the incursions of small parties, or to serve as points of support for the movements of troops. If a town or village be commanded on all sides, or even by great elevations on one side, if the houses be of wood and the roofs thatched, so as to be easily set on fire, such a position should be avoided. Neither should a detachment of troops occupy a town or village too extensive for their number, unless a part of the village can be easily and effectually separated from the rest. The number of the detachment should at least equal the number of yards in the exterior line of works by which the village is surrounded. To place a village in a state of defence, the first object will be to complete a continuous line of defensive works, by which it may be entirely surrounded. To this end advantage is taken of all buildings, fences and walls, near the exterior edge. The buildings, when substantial, may serve as bastions to flank the connecting lines of works, and when due preparations have been made will become strong positions. The walls and hedges must be strengthened by banks of earth, and will form curtains connecting the stronger portions. All openings remaining must be closed by parapets, strengthened by ditches, abatis, palisading, and such obstacles as the locality may present, and the streets must be barricaded at intervals. Barricades may be constructed of materials of almost any kind of earth, of timber, of paving stones, of wagons of stable litter; (the wheels should be taken off.) In buildings occupied for defence the doors and windows should be blocked up with sand-bags, supported by frames of wood, and the glass must be removed from the windows. Should there be no projecting wings or porches, it will be necessary to obtain a flanking fire by the construction of balconies projecting from the windows, and furnished with loop-holes in the sides and bottom, so that a flanking fire can be brought to bear on the ground at the foot of the wall. This arrangement is shown in the diagram, (Fig. 125.) The beams supporting the gallery or balcony are bolted to the flooring within; the balcony is surrounded with good oak boarding of 4″ or 5″ thick. That the communications of the defenders may be free,

FIG. 125.

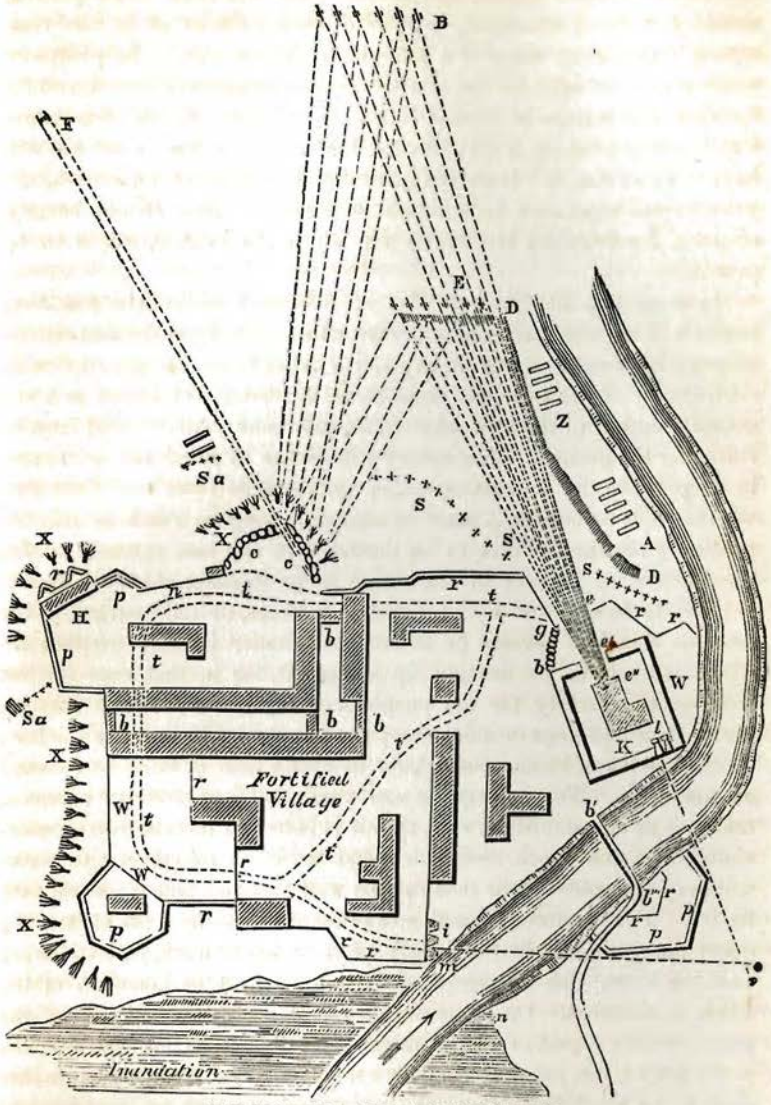


all interior hedges and walls which can in any way impede their movements must be levelled, so that they may be able to bring support rapidly to any point pressed by an enemy. Those hedges which it may be desirable to retain must be strengthened in the manner already pointed out. The strength of the position may (when circumstances admit) be greatly increased by the formation of an interior keep, whither the defenders may retire and obtain favorable terms of capitulation should they be unable to withstand the assaults of their assailants. A substantial building within the town, as a gaol, may be converted into a keep by blocking up unnecessary openings; by covering entrances or any unflanked portions of the walls with tambours; by loopholing the walls and surrounding them if possible with a ditch, palisade, and abatis. In the absence of a building of this nature, it will be desirable to construct a redoubt, of as strong a character as time will allow. If the village be of considerable extent, and a position can be found which cannot be commanded from the neighboring buildings, the redoubt may be of earth, as in an ordinary field-work. While the actual defences of the village are thus being prepared, parties will be occupied on the ground without, in creating obstacles and entanglements in the immediate vicinity of the place, and in removing and levelling all obstructions between such obstacles and the limits of rifle range. The greatest obstacle which can be presented to an attacking force, will, in future, be a long level tract, fully commanded by a sweeping fire. It is, in fact, difficult to see how an assaulting body could pass over such a tract of 1,000 or 800 yards in extent, to attack a work in daylight without being annihilated. To remove every object, whether tree or bush, rising ground, dry ditch, or hedge, which could afford cover or concealment to a rifleman, will be an object of primary importance in executing the arrangements for defence. Ditches full of water, or which can be filled, may generally be left, as they impede, and cannot assist the assaulting party. Fig. 126 gives an illustration of the means, already described, usually applicable for placing a village in a state of defence.

A very little time devoted to the study of the subject, would enable an officer in command of a picket or charged with the defence of an outpost to determine the construction of all the works that are requisite for protection and defence. THE SELECTION OF THE POST is what will first engage attention, and the following considerations must have their weight in determining the point:

The inequalities of the ground, and the objects upon it, such as buildings or fences, &c., should be of such a nature, and in that relative situation to each other, as to be convertible into a fortified post with

FIG. 126.



DEFENCE OF A FORTIFIED VILLAGE.

w, loopholed walls; P, parapets and ditches; *c*, ditto of casks; *x*, abatis; *r*, stockades; *b*, barriers; *t t*, free communication, road or passage; H, fortified house; K, keep.

ATTACK OF THIS FORTIFIED VILLAGE.

D D, flying sap-parallel or trench of cover; B, open field battery, first opened at about 350 yards' distance; E, ditto, advanced to breach; F, one 9-pounder and one 24-pounder howitzer, to enfilade flanking defences *e e' e''*, breaches; A, storming party; Z, supporting ditto; *s s s*, firing party and skirmishers; S *a*, false attacks, to divert the attention of the garrison at the moment of the real assault.

THE LEAST POSSIBLE LABOR, AND IN THE SHORTEST TIME. The position should not be commanded, especially on the flanks or in the rear, within the ordinary range of a field-piece. There should be plenty of materials on the spot for the construction of temporary works, and for forming obstructions in front of them. The soil should be of a nature that is easily worked, if it is foreseen that any trenches or ditches will have to be executed. It should generally be DIFFICULT OF ACCESS, and yet offer the MEANS OF RETREATING in security. And should be in a situation for fulfilling the object for which the detachment is to be posted.

In arranging the general plan of defensive works, the following points will require more particular attention :—It must be ascertained from a minute examination of the position, what figure will give the greatest quantity of fire over the most accessible points of attack, and the general contour of the intrenchment should make available buildings or fences on the ground. THE OBJECT THE WORK IS EXPECTED TO FULFIL in reference to the supporting force; the distance from that force; or whether it is to be left to itself to hold an enemy in check as long as possible; or whether it is to be defended to the last extremity. ITS SITUATION WITH RESPECT TO THE ENEMY as to distance, &c.; whether it is likely to be attacked by overwhelming forces, or only subject to the brusque attack of cavalry or infantry in smaller bodies; whether artillery is likely to be brought up against it, for in that case earthen works, when merely for the purposes of cover, are in some respects better than buildings or stockades; the parapets, too, must be thicker; —whether it can be surrounded, for in such a case it must be inclosed all round, &c. THE NUMBER OF MEN THERE WILL BE FOR ITS DEFENCE, taking it as an established rule, that it is better to have a force concentrated, than too much distributed, and therefore injudicious to make works of a greater extent than can be well manned and vigorously defended. For instance, in small works there might be a file of men for every pace or yard in the length of their breastwork, and in larger ones the same, with a reserve of from one-fourth to one-sixth of the whole in addition. On some such general basis, a calculation of the proportionate extent of a work might be made. All this of course depends very much upon circumstances. THE NUMBER OF MEN, whether soldiers or inhabitants, that can be collected together for working, and whether there are tools enough for them, so as not to undertake more work than can be well done. And, which is a very important point, THE TIME THERE IS TO DO IT IN. Whether an immediate attack is to be apprehended, or otherwise, for this will decide not only the nature of

the works, but the parts of them that require the first attention; as will be more apparent when the details of execution are brought under consideration. THE NATURE OF THE MATERIALS that can be had on the spot, or procured in the neighborhood. This will have a great influence on the details of the plan to be pursued, and will afford opportunity for the display of considerable tact and intelligence, in appropriating and adapting the means at hand for carrying the general plan into effect, and securing its objects with the LEAST POSSIBLE LABOR. No one who is not conversant with work of this description, can have any idea of the great saving of time and labor that may be effected, by taking advantage of what might appear at a casual glance to be very unimportant and local features; such, for instance, as gentle undulations in the ground.

Details of Execution.—The following description of tools and stores would be found more or less necessary, where temporary works were to be thrown up. They are classed in three divisions, that their separate uses may be apparent.

Class 1. Field Exercise Tools.

Shovels, Pickaxes, Felling-axes, Bill-hooks,	For sinking trenches, forming breastworks, felling timber, making abatis and obstructions, &c.

Class 2. For Houses, Walls, &c.

Sledge-hammers, Hand-borers, Crowbars, Saws. Augers, Spike-nails,	For forming loopholes, breaking through walls; preparing timber for barricades, stockkade work, &c.

Class 3. General service and purposes of defence.

Sand-bags, Rockets, Small shells, Hand-grenades,	The sand-bags for blocking up windows, forming loopholes, &c.; the rockets and shells for defence of houses and intrenchments.

The proportions of these necessary to be demanded would of course vary with the description of work which might be anticipated. For example, in throwing up earthen works in an open country, a pickaxe and shovel for every man that could be employed on the breastworks would be wanted. If an abatis could be formed, and there were fences

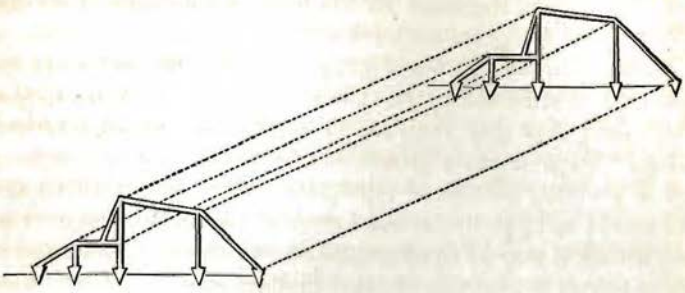
to be cut up and levelled, one-third of the men would be advantageously employed with felling-axes and bill-hooks. In a case where houses were to be placed in a state of defence, walls would have to be broken through for making loopholes, and windows, doors, and passages to be barricaded; here crowbars, hand-borers, sledge-hammers, spike-nails, and saws would be required in greater proportion than spades and pick-axes. Sand-bags are included as being very useful for many purposes, such as protecting men when firing over a parapet or breastwork, quickly blocking up the lower parts of windows, &c.

A man will carry one hundred empty sand-bags, weighing about 60 lbs., each of which will contain a bushel of earth, and when *full* they are *musket-proof*. Rockets, small shells, and grenades, are mentioned as being very powerful and attainable auxiliaries in the defence of posts and houses; and one great advantage of them is, that any body who has common sense may use them, or at least be instructed in the requisite precautions in a few minutes. A CERTAIN DIVISION OF LABOR must also be attended to, and a man should always have a tool put into his hand that he has been accustomed to use; carpenters should therefore be employed where saws and axes are wanted; miners and blacksmiths where walls are to be broken through; laborers where the spade and pickaxe come into play. Those who never handled tools of these descriptions, would be most usefully employed in collecting materials. It would be well also to select such men for the first tour of duty, as patrols, and sentries, and to employ the best workmen in overcoming the greatest difficulties, which are usually found in the commencement. A little foresight will not be misapplied in considering these points. It is essential to obtain the assistance of the inhabitants in executing works of this description, and an officer should always have authority to enforce their attendance, and to pay them in proportion to their exertions. They should also be required to bring with them whatever tools they can best use, or that are most wanted.

A stick may be cut to measure lines, and stakes will be driven to show the slope and general form of the profile necessary in each particular case. Whatever form is to be given to a work, it is traced upon the ground by laying off its angles according to the number of their degrees, and its sides are designated by little furrows dug with the mattock or spade along cords stretched in the proper direction. To profile a work is to figure upon the ground its elevation by means of poles and laths nailed together; (Fig. 127.) The officer who directs the work ought to take with him four or five soldiers who carry mattocks, 100 pickets, twenty poles ten or twelve feet long, twenty laths,

some camp colors, and a cord 65 feet in length. There ought also to be a carpenter, who carries hammer, nails, and a saw.

FIG. 127.



Field-works necessary or desirable in the operations of an army in the field to strengthen lines of battle, keep open lines of communication, protect bridges from destruction, &c., will generally be constructed under the supervision of engineers. They may have any extent, from a simple redan, or a battery, to a line or several lines of works, some of considerable magnitude, extending over a position of ten or twenty miles. It will only be possible here to give a brief description of the works usually adopted for these purposes.

Field-works, then, are usually arranged in three classes:—

First-Class, consisting of works open at the gorge—

Redan	Double Redan
Redan with flanks	Tenaille Head
Lunette	Bastion Head

Second Class, consisting of works inclosed all round—

Redoubt

Bastion Fort

Third Class, consisting of lines both continuous or at intervals—

Lines of Redans	Lines of Bastions
Lines of Tenailles	Lines at intervals

Indented Lines à la Cremaillère

A redan is a work of the simplest kind. It consists of two faces of parapet and ditch, forming a salient angle. Redans serve to cover bridges, causeways, avenues, &c., and being quite open at the gorge, are only suited for positions in which their extremities rest on rivers or other obstacles, so that they cannot be turned, or else when protected by the full sweeping fire of works in their rear. Redans in front of other works are generally mere covers for an advanced post; for example, if a strong redoubt occupies the commanding summit of a hill,

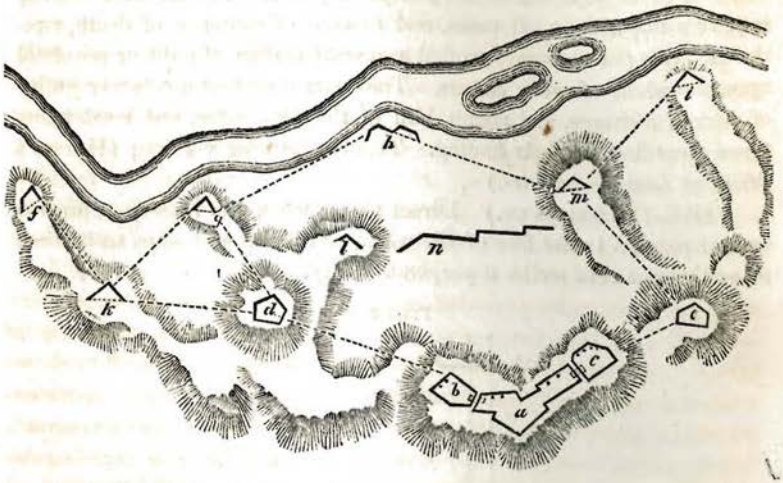
its elevation and position usually prevent the deep hollows and approaches by the valleys being fully seen from its faces. Redans may then be advantageously constructed on the lower knolls, or under features of the hill, to command all the hollows, which cannot always be reached by the fire of the main redoubt.

Lines.—Continuous lines of rampart, parapet, and ditch, are sometimes used to connect important redoubts, or to cover the front of a position, and they may have, according to circumstances, a variety of tracings. To cover any considerable extent of country with continuous lines is generally considered injudicious, but must not be altogether condemned; as in particular cases, especially on ground unfavorable for manœuvring, it may be an advantageous constructon. Continuous lines require a great expenditure of labor in their construction, and a large force is necessary for their defence; if forced at one point, the whole is lost, and they interfere greatly with the offensive movements of the troops they cover. When circumstances oblige any considerable extent of country to be defended, lines at intervals are more generally adopted. Lines at intervals are a series of detached works arranged in two or more rows, mutually supporting each other, and each capable of enduring an independent attack. In lines at intervals the most advanced positions are usually occupied by simple works open at the gorge as Redans and Lunettes, within range of each other, that is, not more than 600 or 700 yards apart. These works, being open at the gorge, can be fully commanded by the works in rear, which can bring a fire upon every point within them; if taken by an enemy, they cannot, therefore, be held by him until the latter works are also subdued. The second line of works are generally a series of redoubts, adapted in shape to the features of the ground, 400 or 500 yards behind the salient works, covering their intervals, and protecting their faces and ditches by a powerful flanking fire. If necessary, a third line of works on similar principles may be added. The works in the second line, *i. e.* the redoubts, must be made as strong in rear as in front, or an enemy would not fail to attempt to carry them by an attack on the rear, and the faces of all the works should, as far as possible, be directed on ground which the enemy cannot occupy, so as to be protected from his enfilade fire. The annexed diagram (Fig. 128) exhibits a tract of ground defended by lines at intervals, and will convey an idea of the general arrangement of works of this nature.

In the construction of these and all other field-works, the following maxims must be strictly observed: 1st. That the works to be flanked, are never to be beyond the range of the weapons of the works flanking

them, that is, never out of the effective range of musketry. 2d. That the angles of defence should be about right angles. 3d. That the salient

FIG. 123.



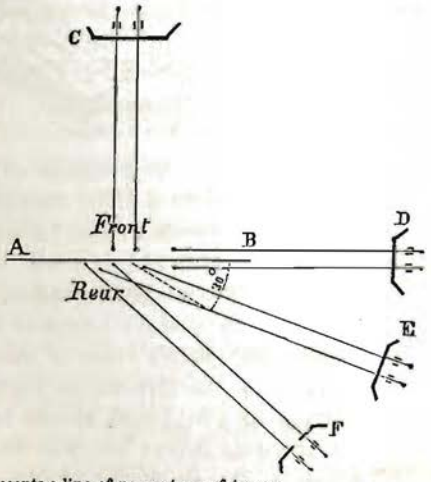
angles of works should be as obtuse as circumstances will permit 4th. That, although ditches cannot always be as fully flanked, as in permanent fortification, yet that partial flanking must be carried as far as possible. 5th. That in the construction of field-works, reference should not only be had to the direct and immediate obstacles that the work itself presents to the enemy, and the positive effects of fire on the approaches to it; but likewise the relative value of the work must be considered, as to the support it can give to, or receive from, other works. 6th. That the outline of a field-work should be proportioned to the number of men intended to defend it. 7th. The ground over which an enemy must pass to the attack should, if possible, be seen both in front and flank. (Consult HYDE'S *Fortifications;* JEBB'S *Attack and Defence; Traité Théorique et Pratique de Fortification Passagère, &c., par* M. ERNEST DE NEUCHEZE, *Capitaine, &c.;* MAHAN'S *Field Fortifications; Aid Memoir to the Military Sciences, Edited by a Committee of the Corps of Royal Engineers.*)

FILE—generally means two soldiers, a front and rear rank man. Each man occupies in line about 21 inches; 10 files require a space of 7 paces; 100 files, 70 paces. The French designate men ranged in four ranks, as follows: the front rank men as *chefs de file;* the second rank, *serres demi files;* the third *chefs demi file;* and the rear rank *serres files.*

FINDING. Before a court-martial deliberates upon the judgment, the judge-advocate reads over the whole proceedings of the court; he then collects the votes of each member, beginning with the youngest. The best mode of doing so is by slips of paper. The Articles of War require a majority in all cases, and in case of sentence of death, two-thirds. It is not necessary to find a *general* verdict of guilt or acquittal upon the whole of every charge. The court may find a prisoner guilty of part of a charge, and acquit him of the remainder, and render sentence according to their finding. This is a *special* verdict; (HOUGH'S *Military Law Authorities.*)

FIRE, (VARIETIES OF.) Direct fire is when the battery of guns is ranged parallel to the face of the work, or the line of troops to be fired at, so that the shot strike it perpendicularly.

FIG. 129.



A B represents a line of parapet, or of troops.
C is the position of a battery, or line of infantry for direct fire on A B.
D ... ... for enfilade.
E ... ... for slant.
F ... ... for reverse.

ENFILADE.—Enfilade fire is when the battery is ranged perpendicularly to the prolongation of the crest of a parapet, or to a line of troops, so that the shot flies in the same direction, or parallel to the line or parapet, sweeping along from one end to the other.

OBLIQUE.—Oblique fire is when the battery of guns is ranged so as to form an angle with the front of the object to be struck.

PLUNGING.—Plunging fire is when the shot is fired from a position considerably higher than the object fired at.

RICOCHET.—Ricochet fire is firing with a slight elevation, and with small charges, in a direction enfilading the face of the work, so that the shot are pitched over the parapet, and bound along the rampart from end to end, with destructive effect on the guns and gunners.

REVERSE.—Reverse fire is when the shot strikes the interior slope of the parapet at an angle greater than 30°.

SLANT.—Slant fire is when the shot strikes the interior slope of the parapet, forming with it a horizontal angle, not greater than 30°.

VERTICAL.—Vertical fire is that in which the shot or shell describes a lofty curve through the air before it falls; such is the fire from mortars.

FIRE BALL. Made like a light-ball, except that, being intended to light the works of an enemy, it is also loaded with a shell.

FIRING. In the discharge of fire-arms, it is necessary to know the position and relations existing between the three following lines (Fig. 130): 1st, the *line of sight*, which is the prolongation of the visual

FIG. 130.

ray passing through the highest points of the breech and the muzzle; 2d, the *line of fire*, which is the prolonged axis of the piece; and 3d, the trajectory described by the projectile.

The *point-blank range* is the second intersection of the trajectory with the line of sight.

The causes of deviation in firing are:

(1.) From the construction of the arm.	Causes which can be corrected.	Wrong position of the sight. Calibre not exact. Barrel imperfect. Too hard on the trigger. Windage.
	Which cannot be corrected.	The recoil. Vibrations of the barrel, (spring of barrel.)
(2.) From the charge powder.		Not exact measure. Form of grain and variable quality of powder. Its deterioration from dampness in transportation, &c. More or less ramming. Sticking along the bore, from becoming foul and damp. Getting foul or dirty.

(3.) From the ball.
- Not being of the exact weight and calibre.
- More or less deformed in loading, or on leaving the barrel.
- Not having the centre of gravity in the centre of the figure, (spherical ball.)

(4.) From the atmosphere.
- The effect of wind.
- The temperature; moisture in, and density of the air.
- The position of the sun.
- Difference of level between the target and gun.

For the same kind of arm, the dimensions, charges, weights, projectile, &c., being constant, the point-blank may be considered as constant, and serves as a point of reference in firing at different distances.

With a piece having a point-blank, that is, any piece having an angle in front, made by the line of sight and the line of fire, it is necessary, in firing at a point-blank object, to aim directly at the object. If the object be situated within the point-blank range, it will be necessary to aim below. If the object be situated beyond the point-blank, we must aim above the object.

As the end of the gun obstructs the view of the object, in aiming above the point to be reached, and, moreover, as it is difficult to determine at a certain distance the elevation that ought to be given to the line of sight, a *hausse* or *tangent scale* is placed upon the breech of the cannon, which, by enlarging its diameter, increases the angle of sight and consequently the point-blank range. The tangent scale is now generally used with guns and howitzers, and the hausse, or rear sight, has also been attached to small arms of 1855. In addition to the tangent or hausse some simple instrument may be used for determining distances. (*See* STADIA.)

Fired under angles of 4° 15′, 4° 30′, and 4° 50′, the new rifle musket, altered rifle, and altered musket have, respectively, a range of 1,000 yards. (*See* HAUSSE.) The elongated musket balls do not cease to ricochet on level ground at a distance of 1,000 yards. A strong wind, blowing perpendicularly to the direction of the rifle-musket ball, will deflect it from its course 12 feet in 1,000 yards; about 3 feet in 500 yards, and 1½ feet in 200 yards. The effect of wind on the pistol-carbine balls is somewhat greater for the same distance.

When two oblong balls are fired from the new rifle musket or altered rifle, with the ordinary service charge of 60 grains, they separate from each other and from the plane of fire about 4 feet in a distance of 200 yards. If the piece be held firmly against the shoulder, no serious inconvenience will be felt; but for the two balls it is necessary, in aim-

ing, to give the barrel greater elevation in the proportion of 6 feet for 200 yards. In cases of emergency, two balls might be employed against masses of infantry or cavalry, at distances not exceeding 300 yards. The angle of maximum range for the mortar is nearly 42°. The *angle of fall* is the angle made by the last element of the trajectory with the ground, and when this angle is small, the projectile rebounds upon the earth and performs a series of *ricochets*, increasing in number as the angle of incidence diminishes, or as the ground is firm and elastic.

The point-blank ranges of siege and garrison guns, with ordinary charges, are respectively eight hundred yards for the 24-pounder, seven hundred and seventy-five yards for the 18-pounder, and seven hundred yards for the 12-pounder. For field-artillery, the point-blank ranges are seven hundred and fifty yards for the 12-pounder, and six hundred and seventy-five yards for the 6-pounder.

The point-blank is increased or diminished by the hausse or tangent scale, and is then called the artificial point-blank. The practical rule in aiming field-guns by means of the tangent is: give one-twelfth of an inch on the instrument for each twenty-five yards beyond point-blank.

The direct fire is employed in breaching parapets or walls, against troops in column, and in most cases where the object of attack is possessed of considerable depth or thickness.

The enfilade fire, with heavy ordnance, full charges and solid shot, is especially effective in those circumstances which admit of its adoption; a single shot having been known to disable several guns, or to strike down a whole rank of men.

Enfilade fire à ricochet is generally employed to dismount guns on parapets, protected by traverses, at ranges varying from 400 to 600 yards.

The ricochet and vertical fires, being intended to act upon a surface, and not an isolated point, may be executed during the night, as well as by daylight. (*See* TARGET. Consult THIROUX; KINGSBURY'S *Artillery and Infantry; Reports of Experiments by Ordnance Department*, U. S. A., 1856; HYDE'S *Fortification.*)

FLAG. The flag of the United States shall be thirteen horizontal stripes, alternate red and white. The Union shall be a number of white stars in a blue field, corresponding with the number of States in the Union. Upon the admission of a State to the Union, another star is added to the flag on the 4th of July next succeeding her admission; (*Act* April 4, 1818.)

All flags captured from an enemy to be displayed in such public place as the President may deem proper; (*Act* April 8, 1814.)

FLAGS OF TRUCE—are frequently sent by an enemy with the design of gaining information. To prevent this, it is usual for outposts to halt the flag of truce, and if he is merely the bearer of a letter, receipt for it, and order the party to depart, preventing all conversation with sentries. It may sometimes, however, be necessary to send the bearer of the flag to head-quarters. in this case, his eyes are bandaged, and he is forwarded with an escort.

Flags of truce are used when an enemy is in position, on a march or in action. The flag ought always to be preceded by a trumpeter 25 paces in advance, and when within range of the guns of the sentinels or videttes, he halts, returns his sword to its scabbard, and at the same moment raises and flourishes a white flag or handkerchief. If he is not signalled to retire, he continues to advance step by step until ordered to halt. If he remarks that it is sought to draw him into a snare, he retires at a gallop with his trumpet as soon as he is *certain* of the bad intention. When consent is given to receive him, he submits to all measures that may be exacted of him for the fulfilment of his mission.

If it is during an action that a flag proceeds from the ranks of the enemy, the ranks that he leaves halt and cease their fire. He proceeds towards the chief of the adverse force, and at a suitable distance returns his sabre to its scabbard, and raises his flag. If he is not signalled to retire, and if the fire ceases in his front, he continues to advance and executes his orders. Some serious motive is indispensable for sending a flag during an action, for the enemy is apt to believe that it is a stratagem, and therefore fires upon the flag, and follows up his aim more vigorously, while the opposite party have lost time.

FLANK. The right or left side of a body of men, or place. Flank presupposes a formation more or less deep. A flank march is upon the prolongation of the line to which a body faces. Thus, when we say the enemy, by a flank march, outflanked our right wing, it is understood that the enemy, by marching parallel to our line of battle, put himself in position upon our extreme right.

To disturb the flanks of a column or army is to throw an opposing force upon either side of the route that it follows. By this manœuvre the march of the column is retarded, or it is forced to halt; its baggage is sometimes seized, and terror and disorder fall upon the masses.

Flank (*To*)—is to cover and defend the flanks. We flank a camp by posts placed on the right and left; a corps d'armée is flanked by detachments which take roads parallel to the routes followed by the larger body; smaller columns are flanked by flankers on the right and left, who keep in view the columns, warn them of the approach of an enemy,

discover ambuscades, skirmish with them, and fall back when needed upon the mass of the troops.

FLANK OF A BASTION—is that side which connects the face and curtain. It is one of the principal defences of the place, as it protects the curtain, the face, and flank of the opposite bastion, and the passage of the ditch.

FLÈCHE—is a simple species of field-work. It consists of two faces forming a salient angle. One simple rule for their construction is to select a spot for the salient and throw up a breastwork on either side, forming an angle of not less than 60°, and allowing one yard for each file.

FOOT—in a military sense, implies infantry soldiers.

FORAGE. The hay, corn, fodder, and oats required for the subsistence of the horses of an army. Generals, field-officers, cavalry-officers, and staff-officers receive a commutation in lieu of forage for each horse allowed by law, owned, and kept in service. (*See* PAY.) The maximum ration of forage is fourteen pounds of hay or fodder and twelve pounds of oats, corn, or barley. The established forage ration is furnished by the quartermaster's department. The food of horses however, like that of men, must be modified according to circumstances, by changing established proportions or by substituting one article of food for another. A knowledge of the different descriptions of food capable of maintaining a horse in working condition is essential. Forage in garrison or established quarters is ordinarily obtained under contract; but in the field the resources of the country occupied must be made immediately available. War deranges the proportions commonly maintained between demand and supply, and cripples agricultural industry. It is for the military administrator to counteract as far as possible this tendency, and not alone to seize upon all the resources of supply, but to render them continuously productive. Under the very best arrangements, however, few countries when they become the theatre of contending armies can long support the drain upon them, and afford sufficient sustenance for the immense number of animals which accompany an army, and a partial supply must under the most favorable circumstances be drawn from without. While the army is acting in the immediate vicinity of the sea-board there is little difficulty in maintaining this supply, but when it advances inland, and the means of water transport fail, it becomes a matter of extreme difficulty to provide the requisite transport for so bulky an article as forage. The artillery can render some assistance in this respect, and should be required to carry in their wagons at least three days' supply, but the cavalry soldier

cannot always encumber himself with his forage ration, and at best can only be expected to carry three days' allowance of oats or barley, relying upon the supply department for his hay. Although hay has been packed by hydraulic pressure, the necessity of a further reduction of bulk, both as a question of economy and of convenience, has always been apparent. This consideration, and representations of the waste incurred at the seat of war in the unloading of grain, and its transport to the front, led Mr. Julyan, asst.-com.-gen., B.A., to apply his inventive mind to the manufacture of what is now known as the "Amalgamated Field-forage." This consisted of a preparation of chopped hay, bruised oats, bran, &c., in the proportions usually issued to cavalry horses, thoroughly mixed together, subjected to a chemical process for the expulsion of fixed air, and compressed by hydraulic power into thick cakes of great solidity. It was cut up into rations of 22 lbs. each, and four of such pieces were packed in one canvas cover, which was convertible into a nose-bag. From these bags the horses were to have been fed, the forage being restored to its original bulk and condition by moderate friction and a few minutes' exposure to the air. This preparation thus combined the advantages of extreme portability, full nutritious property, cheapness, and (from its being almost impervious to air and fire, as well as from its peculiar form) exemption from the accidents, deterioration, and losses to which forage in its ordinary state is subject.

FORAGE MASTER. (*See* WAGON MASTER.)

FORAGING—is properly the collection of forage or other supplies systematically in towns or villages, or going with an escort to cut nourishment for horses in the fields. Such operations frequently lead to engagements with the enemy. Foraging parties are furnished with reaping hooks and cords. The men promptly dismount, make bundles with which they load their horses, and are prepared for any thing that may follow. The word *foraging* is sometimes inaccurately used for marauding. When foraging is effected in villages, it is best not to take the party into the village, but to send for the chief persons and stipulate with them that the inhabitants shall bring the required forage and other stores out to the troops. If the inhabitants do not promptly comply with this moderate command, it is necessary to take the troops into the village. In this event, all possible means must be taken to prevent disorder, as for instance:

1. A certain number of houses are assigned to each company, so that the commander of the detachment may hold each company responsible for the disorders committed within its limits.

2. Guards are posted and patrols sent out, who arrest any foragers guilty of disorder.

3. If the form of the village permits, a part of the detachment remains at the centre to pack the horses and load the wagons as fast as the other men bring the forage from the houses.

In places where an attack may be expected, the foraging is conducted as follows: Either fatigue parties are sent with wagons, or parties of cavalry with their own horses; in both cases a special escort is added for the protection of the foragers. In all cases, the strength of the escort depends upon the degree of danger, the space over which the foraging is to extend, and the distance from the enemy. During the march of foragers to and from the foraging ground, if they consist of a fatigue party with wagons, an escort is added, which acts in conformity with the rules for escorting convoys. If the foragers consist only of cavalry with their own horses, then on the outward march they move in one body, observing the precautions prescribed for movements near the enemy; on the return march, if the horses of the foragers are packed and led, the detachment acting as escort should not pack more than 40 pounds on their horses, so that the load may not prevent them from acting against the enemy. One hundred and twelve pounds may be packed on a horse, and the horse must be led; 56 pounds are packed in two trusses. Sometimes the escort, or a part of it, may be sent out early to the foraging ground, to take measures for the security of the foragers before they arrive. For the safety of the foragers when at their work, the escort is divided into two or three parts, according to circumstances; one part places a chain of outposts and sends out patrols, to guard the whole ground; another furnishes the supports of the outposts, and if there are infantry or mounted rifles with it they occupy the points which cover the approaches; the third part is placed in reserve near the centre of the ground, that it may easily reach any point attacked. If the enemy attacks while the foraging is going on, the escort should go to meet him or defend itself in position, endeavoring to stop him until the foragers have finished their work, and are drawn out on the road for their return march; then the escort commences its retreat, acting as a rear guard, and endeavoring to keep the enemy as far from the foragers as possible. If it is impossible to hold the enemy in check long enough to finish the work, they should at least send forward and protect all the foragers who have packed their horses or loaded their wagons; the rest join the escort. If there is a probability of driving off the enemy by uniting all the foragers to the escort, it is best to abandon the forage already packed, and to begin foraging

anew after having repulsed the enemy. It is permitted to abandon the forage entirely only in extreme urgency, when there is absolutely no other way of saving the foragers. If the enemy is repulsed, we must not be induced to pursue him except far enough to prevent a renewal of the attack, but must endeavor to complete the foraging. The foraging must not be extended over any ground not guarded by the escort. If the escort is too weak to cover the whole space designated for foraging, the ground is divided into parts, and the foraging effected in the different portions successively. If the foraging ground is at a considerable distance from the camp, it will be a proper precaution to post a special detachment in support half way. Foraging in places occupied by the enemy is undertaken only upon the entire exhaustion of the ground occupied by our own troops. Such foraging is covered by offensive operations, so that, having driven in the enemy's advanced troops or other parties, we may rapidly seize all the supplies to be found in the vicinity. This is called *forced foraging*. The strength and composition of a detachment for forced foraging must be such that it can overwhelm the enemy's troops, and remain long enough in position to enable the accompanying detachment of foragers to complete their work and retreat out of danger. The main conditions of success in such an enterprise are suddenness, rapidity, and determination in the attack, promptness in the work of the foragers, and tenacity in holding the position taken from the enemy as long as necessary. Success will be greatly facilitated by partial attacks made upon different points of the enemy's position while the foraging is going on. Attacks upon foragers should be sudden and rapid, in order, by not giving the escort time to defend the points attacked, to produce confusion among the foragers and thus prevent them from working. The approach of the attacking party should be concealed, rapid, and compact; that is, it should not send out parties to any great distance in front or on the flanks, and, as a general rule, should not divide its force prematurely, but only the moment before the attack. The force of a detachment sent to attack foragers depends chiefly upon the object of the attack—that is, whether it is designed to capture the foragers, or only to prevent them from foraging by alarming them, or to prevent them from carrying off forage already packed. It is in all cases advantageous to begin with several simultaneous false attacks by small parties, to perplex the enemy and oblige him to divide the escort; then to direct the main party of the detachment upon the principal point of the enemy's arrangements, overthrow his weakened escort, and penetrate to the road of retreat, so as either to cut off and destroy a part of

the escort and foragers, or to force them to abandon their work and fly, by threatening to cut them off. If from the disproportion of force it is impossible to prevent the foraging entirely, the attacking party confines itself to delaying the work; its operations, therefore, should consist in partial attacks upon several points, in order to alarm and disperse the foragers by breaking through the outposts at several points. Upon meeting a considerable force of the enemy these attacking parties should at once retreat, and renew the attack in a different place. In such operations a portion of the attacking detachment should be kept together and held in reserve, as a support and rallying point for the small parties. If they do not succeed in preventing the foraging, they may try to attack the foragers on the return march; observing in this case the rules laid down for attacks upon convoys; (McCLELLAN'S *Military Commission to Europe.*)

FORCE. Any body of troops.

FORDS. In examining and reporting upon a ford, the main points to be considered are: the firmness and regularity of the bottom, its length, width, and direction; the depth, (and its increase by tides or floods,) the rapidity of the current, the facilities of access, security from attack, and the means of rendering it impassable: a ford should always be tried personally before making a report on its capabilities. The *depth* of fords for cavalry should not be more than 4 feet 4 inches, and for infantry 3 feet 3 inches; but if the stream is not very rapid, and the direction of the crossing is down-stream, the latter may pass by holding on to the horses, even if the depth is four feet. Should the stream be very rapid, however, depths much less than these could not be considered fordable, particularly if the bottom is uneven. Carriages with wheels 5 feet in diameter may cross a ford 4 feet deep; but if it is necessary to keep their contents dry, the depth should not be more than 2, or at most 2½ feet. Fords are generally to be found above or below a bend, and often lie in lines diagonally across the river; small gravel forms the best bottom; and rock, on the contrary, the most dangerous, unless perfectly regular and not slippery. They may be sounded by means of a boat having a pole attached. But cavalry or good swimmers may effect it with lances or poles, carefully feeling their way before advancing. Parts which may be too deep, or even the whole width, if the river is narrow, may be rendered fordable by throwing in fascines parallel to the direction of the current, and loading them with stones, which must afterwards be covered with smaller material to render the surface level. The approaches should also be levelled, and where the soil is soft, rendered firm by covering them with fascines, &c.,

so that the troops may advance with a broad front, and rapidly mount the further bank. The extent and direction of the ford should be clearly marked out by means of poles firmly fixed, and these may be notched, so that a dangerous rise in the river may be observed. If the current is rapid, a number of these placed along the upper edge of the ford, and connected by ropes, will also be useful to prevent men on foot being swept away; and boats and horsemen should also be in readiness to rescue them. The force of the current may be broken by the cavalry crossing a little above them; but if the bottom is sandy, the cavalry should cross after the infantry and artillery, as the passage of the former deepens a ford sometimes very materially. The opening and shutting of the mill-sluices will sometimes alter the depth of fords, and floods may even entirely destroy them; they can be rendered impracticable by means of large stones, harrows, planks with spikes, sharp stakes driven in so as to be concealed by the water, abatis, &c., or by cutting trenches across; (*Aide Memoire.*)

FORGE. One travelling forge and one battery wagon accompany each field-battery. They are furnished with the tools and materials required for shoeing horses and for the ordinary repair and preservation of carriages and harness. The total weight of the forge when loaded is 3,383 lbs., that of the battery wagon loaded is 3,574 lbs.

FORLORN HOPE. Officers and soldiers who generally volunteer for enterprises of great danger, such as leading the attack when storming a fortress.

FORT—is an inclosed work of the higher class of field-works. The word, however, is loosely applied to other military works.

FORTIFICATION. A fortification in its most simple form consists of a mound of earth, termed the *rampart*, which encloses the space fortified; a *parapet*, surmounting the rampart and covering the men and guns from the enemy's projectiles; a *scarp wall*, which sustains the pressure of the earth of the rampart and parapet, and presents an obstacle to an assault by storm; a wide and deep *ditch*, which prevents the enemy from approaching near the body of the place; a *counterscarp wall*, which sustains the earth on the exterior of the ditch; a *covered way*, which occupies the space between the counterscarp and a mound of earth, called a *glacis*, thrown up a few yards in front of the ditch for the purpose of covering the scarp of the main work. The work by which the space fortified is immediately enveloped is called the *enceinte*, or *body of the place.* Other works are usually added to the *enceinte* to strengthen the weak points of the fortification, or to lengthen the siege by forcing the enemy to gain possession of them before he can

breach the body of the place. These are termed *outworks*, when enveloped by the covered way, and *advanced works*, when placed exterior to the covered way, but in some manner connected with the main work; but if entirely beyond the glacis and not within supporting distance of the fortress, they are called *detached works*. In a bastioned front the principal outwork is the *demi-lune*, which is placed in front of the curtain; it serves to cover the main entrance to the work, and to place the adjacent bastions in strong re-enterings. The *tenaille* is a small low work placed in the ditch, to cover the scarp wall of the curtain and flanks from the fire of the besiegers' batteries erected along the crest of the glacis.

The *places of arms* are points where troops are assembled in order to act on the exterior of the work. The *re-entering places of arms*, are small redans arranged at the points of juncture of the covered ways of the bastion and demi-lune. The *salient places of arms*, are the parts of the covered way in front of the salients of the bastion and demi-lune. Small permanent works, termed *redoubts*, are placed within the demi-lune and re-entering places of arms for strengthening those works. Works of this character constructed within the bastion, are termed *interior retrenchments;* when sufficiently elevated to command the exterior ground, they are called *cavaliers*.

Caponnieres are works constructed to cover the passage of the ditch from the tenaille to the gorge of the demi-lune, and also from the demi-lune to the covered way, by which communication may be maintained between the enceinte and outworks. *Posterns* are underground communications made through the body of the place or some of the outworks. *Sortie passages* are narrow openings made through the crest of the glacis, which usually rise in the form of a ramp from the covered way, by means of which communication may be kept up with the exterior. These passages are so arranged that they cannot be swept by the fire of the enemy. The other communications above ground are called ramps, stairs, &c. *Traverses* are small works erected on the covered way to intercept the fire of the besiegers' batteries. *Scarp and counterscarp* galleries are sometimes constructed for the defence of the ditch. They are arranged with loopholes, through which the troops of the garrison fire on the besiegers when they have entered the ditch, without being themselves exposed to the batteries of the enemy.

In seacoast defences, and sometimes in a land front for the defence of the ditch, embrasures are made in the scarp wall for the fire of artillery; the whole being protected from shells by a bomb-proof covering overhead; this arrangement is termed a *casemate*. Sometimes

double ramparts and parapets are formed, so that the interior one shall fire over the more advanced: the latter in this case is called a *fausse braie.* If the inner work be separated from the other, it is called a *retrenchment*; and if it has a commanding fire, a *cavalier.* The *capital* of a bastion is a line bisecting its salient angle. All works comprehended between the capitals of two adjacent bastions, are called a *front.*

In the Prussian system of fortification, the defence of the ditch being provided for by casemated caponnieres, the necessity for breaking up the outline of the enceinte into a succession of salient and re-entering angles, as in the bastion tracings, is altogether removed. The enceinte may, therefore, have that outline which in the particular case is most advantageous for defence, and best adapted to the natural features of the position. This will generally be a polygon, more or less regular, according to the regularity or irregularity of the site. The caponnieres for the defence of the main ditch may either be on the centre of the front, or at the alternate salient angles; the latter, as being more secure from an enemy's distant fire, appears the better position. The length of the exterior side may be of almost any magnitude, though 600 yards are, perhaps, as great as under any ordinary circumstances would be requisite. The enceinte is a massive rampart and parapet, fronted by a revetment, from 24 to 30 feet in height, which is sometimes wholly or partially loopholed for musketry. The centre of the ditch is occupied by the casemated caponniere, a massive work of masonry, capable of containing two stages of five guns each, one on either face; so that the ditch on either side of the caponniere is swept by the fire of ten guns.

The advocates for the Prussian system claim for it the following advantages: 1st. When the range of musketry is given up as the standard length of a line of defence, and that of artillery substituted for it, the exterior sides of the polygons of fortification may evidently be much extended. 2d. The Prussian engineers prefer the construction of casemated flanks for the defence of ditches, as being more secure than the ordinary flanks of the bastion system; that is, the guns are protected from enfilade and vertical fire from a distance, and cannot be counter-battered by direct fire, until the assailant crowns the glacis. They use caponnieres for the defence of the main ditch, and for the ditches of the ravelin. 3d. The ravelins can be made as salient as the detached ravelins of Chasseloup and Bousmard; while the caponnieres or casemated projections by which their ditches are defended, protect the body of the place from the breaching batteries of the enemy on the counterscarp, at the salient angles of the ravelins. These ravelins are more under the fire of the

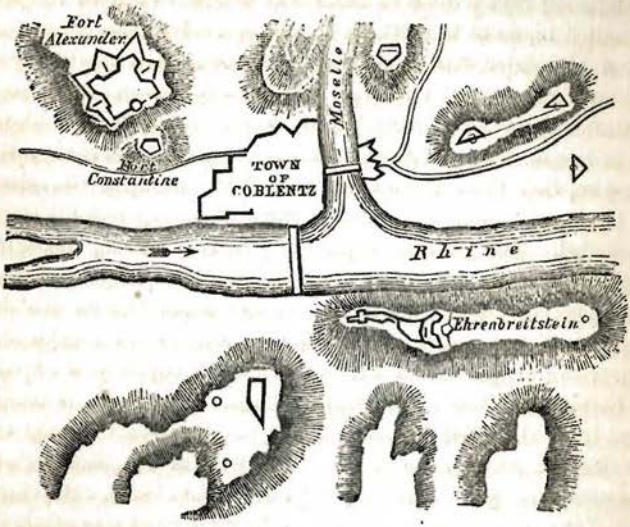
enceinte, than detached ravelins; they contain a greater interior space; there is a saving of masonry at the gorge: and fewer troops secure the work from assault. 4th. In the attack of these fronts, the approaches are opposed on the capital of the ravelin, by three mortars in casemates under the parapet, cutting off the salient of the ravelin, and by guns on the terre-plein above. The glacis is protected on each side, by the fire of 90 yards of the enceinte, and from 80 yards of the faces of the ravelin, which (being covered by the advanced portions of greater elevation) is very difficult to enfilade. 5th. The establishment of batteries on the counterscarp of the salient angle of the ravelin, is rendered very difficult by countermines, and by a double tier of fire along the whole width of the ditch, viz., from the caponniere and from the enceinte behind it; even supposing this caponniere to be silenced, its massive ruins would prevent a serious breach being made in the enceinte. 6th. The attempts of an enemy to lodge himself on the advanced part of the ravelin are opposed by countermines, prepared in the work during its construction, and by the retrenchment behind: moreover, any endeavor to establish a battery in the narrow part of the angle, would be opposed by the fire of the whole enceinte behind the ravelin;—by that of the casemated keep;—and by sorties having their flanks fully protected. 7th. The permanent possession of the ravelin can only be obtained after the destruction of the keep, (which commands every part of the interior, and is not seen from the exterior;) and until this is accomplished the enemy cannot make his approaches on the glacis, for the purpose of constructing his breaching batteries against the enceinte; or he would be taken both in flank and in reverse. 8th. The great caponniere flanking the ditch of the enceinte is independent of the keep of the ravelin, (which, after being taken, would be open to the fire of the enceinte and its detached escarp;) while its double tier of guns, sweeping the whole width of the ditch, can only be opposed by batteries directly in front. The establishment of these batteries, and of others for breaching the escarp at the salient, would, of course, require the capture of two ravelins, between which the approaches would be sheltered from the collateral works; but the ground would be diminished in extent on advancing near the place, and consequently expose the troops (concentrated in larger numbers) to a more destructive fire. 9th. From the great projection of the ravelin, and the obtuseness of the angles of the polygon, the effects of ricochet on the enceinte are prevented in an octagon, as the prolongations of the sides of the polygon, or the enceinte, are intercepted by the ravelins; which ravelins might (in cases where the ground is favorable) be made to project still further,

so as to cover the ditch from enfilade by distant batteries, and thus secure the great caponnieres from annoyance. 10th. The salient angles of the enceinte may also be retrenched by a detached loopholed wall, which would bring a great extent of fire on the breach. 11th. The Prussians consider that, by these arrangements, they obtain much superiority over the ordinary bastion systems, including those of Bousmard and Chasseloup de Laubat. That greater means of resistance are obtained at a comparatively small expense, which means might be increased when required, by cavaliers, by interior retrenchments, and by a covered way, with redoubts. 12th. The armament required would be comparatively small, as in the flanks or caponnieres, which completely enfilade the main ditches at a short range, a few pieces only would be necessary to prevent a coup-de-main, while a full supply to resist a serious attack might be brought by easy and secure communications. A few guns placed on the salients of the ravelins would be sufficient to keep off an enemy until he had broken ground; while the whole disposable guns of the place might easily be brought upon the enceinte on that side, and the second part of the collateral ravelins. 13th. The fatigue attending the usual arrangements would also be greatly diminished by the easiness and security of the communications. The garrison need not be numerous, as they are not required to expose themselves in outworks beyond the main ditch; they are protected by casemates in the flank defences, which are sufficiently strong to allow of their concentrating nearly the whole force on the points of importance, and which, being concealed from the enemy, do not give known points to his vertical fire.

Fort Alexander, which crowns a height commanding the town of Coblentz, (Fig. 131,) is a beautiful specimen of the German system. The position around Coblentz occupies the four opposite angles, made by the Moselle and the Lahn, which rivers empty themselves into the Rhine, nearly opposite to each other; for the Lahn runs into the Rhine about a league above Coblentz. The general form of the ground is very favorable for the offensive or defensive operations of an army in possession of it, and its fortresses; and many of the high roads from the most important towns in Germany pass in this direction; whilst the country is so difficult of access, that it is next to impossible to avoid the main road. Coblentz is situated in the angle formed by the junction of the Moselle with the Rhine. It extends about three-fourths of a mile in each direction. The enceinte of the town is secure against a coup-de-main. Its rampart forms a succession of salient and re-entering angles, which being obtuse are little liable to enfilade; while the

ditches are flanked by good casemated batteries, having three guns in each flank. The gateways are strong casemated barracks, containing

FIG. 131.



batteries to flank the ditches and approaches. These casemates are separated from the ramparts on each side, and form a kind of citadel: the profile of the rampart is nearly similar to Carnot's: the wall is well covered. Should the neighboring works on the heights be reduced, the town would be commanded and exposed to an enemy's fire. It is, however, no easy matter for an enemy to get possession of these commanding sites. The two most important of these are, Ehrenbreitstein on the right bank, and Fort Alexander on the left bank, of the Rhine.

Ehrenbreitstein occupies a commanding rocky site, 400 feet above the river, inaccessible on three sides, and on the approachable side from the north, it is defended by strong double works; having abundant casemates for its garrison, stores, and artillery. It is the key of the whole position, commanding all the surrounding works within its range, and having smaller works detached from it, for looking into hollows, that cannot be seen from the main works. It has a fine well, 300 feet deep. The faces of the works defending the only approachable side, can mount forty-three pieces of ordnance in casemates; the ditches are well defended by casemated batteries; and the escarps are about 35 feet in height. It is altogether a most formidable work. The piers that sep-

arate the casemates and support the arches are made to project right through to the front of the revetment, which is 10 feet thick: and the courses, instead of being horizontal, are laid in successive arches, the joints forming rays from a centre. The whole is built of rough stone, and grouted in, so as to settle in time into a solid mass.

Fort Alexander with its dependencies, commands all the approaches to Coblentz between the rivers. The principal front of this work has its exterior side about 650 yards, and its interior side about 500 yards in length. The ravelins and the counterguards have their faces directed so, that their prolongations do not fall upon the plateau in front, but upon the hollows and ravines, &c., from which they cannot be enfiladed. The flanking caponniere is very strong, being a casemated work for two tiers of guns; each flank has five guns in the lower tier for flanking the ditch, and five in the upper tier for flanking the terre-pleins of the counterguards. The casemates in the faces or angular parts are loopholed for musketry. Each caponniere serves as a good barrack for 160 men, besides stores. This work is completely covered in front by the counterguard or ravelin, which is only two feet lower than the body of the place. Each flank of the enceinte contains six casemates for guns to flank the ditches before them. The faces and ditches of the ravelins are flanked by solid casemated caponnieres, which cover the body of the place from any batteries that might be established at the rounding of the counterscarp of the ravelin. The ditches of the counterguards are flanked by casemated batteries, placed in the faces of the ravelins. The body of the work is an oblique parallelogram, about 5° from a right angle: the side fronts are about 420 yards, and the rear front 500 yards in length, in order to suit the ground. There is a strong casemated tower at the gorge connected with a communication from Fort Constantine. There is no covered way; the counterguards answer the purpose. Good ramps and other arrangements are made in the countersloping glacis and its salients, favorable for sorties. It is calculated that 5,000 men would be sufficient to man all these works on both sides of the river; while it is evident that a vast army might be securely cantoned within the circuit of the works. A great number of trees have been planted all around Fort Alexander; the roots of which, left in the ground, would defy the ordinary work of sappers and miners; and would therefore prove formidable obstacles in the process of a regular attack, while the timber would be invaluable in a siege; (Hyde's *Fortification.*)

FORTIFICATION (Front of)—consists of all the works constructed upon any one side of a regular polygon, whether placed within

or without the exterior side; or, according to St. Paul, all the works contained between any two of the oblique radii. Some authors give a more limited sense to the term "front of fortification," by confining it to two half bastions joined by a curtain. If the polygon be regular, that is, if all the sides be of equal length, and the fronts of the same description, it is called a regular work; but if they differ, it is called an irregular work.

FORTIFICATION (Irregular)—is that, in which, from the nature of the ground or other causes, the several works have not their due proportion according to rule; irregularity, however, does not necessarily imply weakness.

FORTIFICATION (Natural)—consists of such objects formed by nature, as are capable of impeding the advance of an enemy; and a station is said to be naturally fortified, when it is situated on the top of a steep hill, or surrounded by impassable rivers, marshes, &c.

FORTIFICATION (Regular)—is that in which the works are constructed on a regular polygon, and which has its corresponding parts equal to each other.

FORTRESS. A fortress is a fortified city or town, or any piece of ground so strongly fortified as to be capable of resisting an attack carried on against it, according to rule.

FOUGASS. Charges of gunpowder are frequently placed at the bottom of a pit or shaft dug in the ground over which an enemy must pass to the attack. In these cases they take the name of fougasses. The chief difficulty attending the use of fougasses is to explode them at the instant when the enemy is passing over, as any variation in the time of explosion from this instant renders them altogether useless. It is, therefore, recommended to place an obstacle over them, as an abatis or chevaux-de-frize, so that the fougasses may be exploded while the enemy is occupied in forcing his way over. Sometimes a fougass is made of several loaded shells placed in a box, with a charge of powder under. The box should be pitched, to keep the charge dry. (Fig. 132.)

Fig. 132.

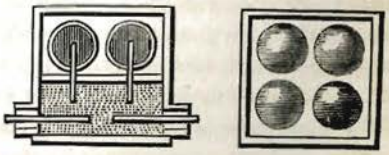
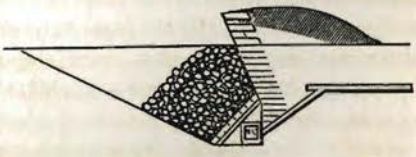


Fig. 133

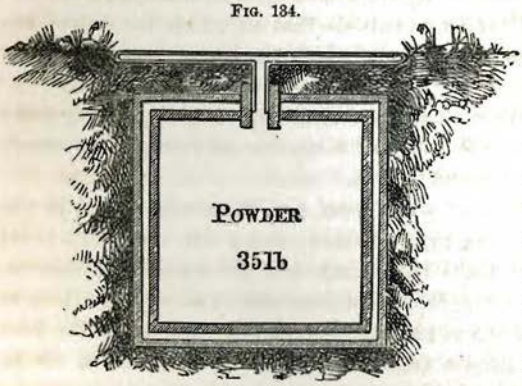


A stone fougass (Fig. 133) is made by excavating a shaft 6 feet deep, inclined to the horizon at

an angle of about 45°. At the bottom place a charge of 55 lbs. (a cubic foot) of powder, then a strong shield of wood at least 6 inches thick, in front of the charge, and over the shield throw in three or four cubic yards of pebbles, of not less than half a pound weight each. A sufficient body of earth must be placed vertically, above the charge, and retained over the upper part of the shaft, near the edge, by a revetment of sods, to insure the effect taking place in the right direction. Fougasses are usually fired by means of an augot, or casing tube, containing a hose or saucisson, &c., led up the side of the pit or shaft, and then parallel to the surface of the ground, at a depth of two or three feet; or they may be fired, at the proper moment, by means of a loaded musket with its muzzle in the powder, and a wire or string fastened to the trigger.

Analogous to fougasses were the Russian powder-boxes used at Sebastopol, Fig. 134. Each consisted of a double deal box, of a capacity sufficient to contain 35 lbs. of powder, water-tight, and effectually secured from the penetration of damp; into the top of each box was inserted a vertical tin tube, connected with a horizontal tin tube at the surface of the ground. Within the latter was a glass tube, filled with sulphuric acid, and coated with a composition of chlorate of potassa, sugar, sulphur, and gum water, which immediately takes fire on coming in contact with the acid. The space between the interior of the tin tube and the exterior of the glass tube, as well as the vertical tin tube, is filled with gunpowder. A little earth spread lightly over the whole completes the arrangement. A person walking over the ground, and treading on the tin tube, crushes it, and the glass tube contained in it, causing the escape of the sulphuric acid, and the explosion of the gunpowder.

FIG. 134.



FRAISES—are palisades placed horizontally or obliquely, at the edge of a ditch on either side, or projecting from the exterior slope of a parapet. If the slope be very long, there are sometimes two rows of fraises used.

FRAUD. Association of any officer with another officer convicted by a court-martial of fraud or cowardice shall be deemed scandalous; (Art. 85.) (*See* Cowardice.)

Fraud consists in unlawfully, designedly, and knowingly appropriating the property of another with a criminal intent. It is any trick or artifice employed by one person to induce another to fall into an error or detain him in it, so that he make an agreement in contracts contrary to his interest. The fraud may consist in the misrepresentation or in the concealment of a material fact; (Bouvier's *Law Dictionary.*)

FRAYS. (*See* Quarrels.)

FRICTION PRIMER for Cannon—consists of a tube charged with gunpowder, to the top of which is fastened a cup containing friction powder, composed of two parts of chlorate of potassa, and one of snl. of antimony, which is exploded by means of a slider pulled out with a lanyard. The *tube*, *cup*, and *slider* are made of sheet brass. The lanyard, for pulling off the primer, is a piece of strong cod line (about .2 in. thick) 12 feet long; to one end is attached a small *iron hook*, with an eye for the line, and to the other end a wooden toggel, .75 in. diameter, and 4 in. long. If injured by moisture, the primers become serviceable again when dried, and they have the great advantage of portability and certainty of fire.

FRONTIER. (*See* Defence, National.)

FUMIGATION. To correct and purify an infectious or confined atmosphere, such as is often found in transports, fumigations are necessary. The materials recommended for the purpose are brimstone with sawdust; or nitre with vitriolic acid; or common salt with the same acid. One fluid ounce of sulphuric acid mixed with two fluid ounces of water, and then poured over four ounces of common salt, and one ounce of oxide of manganese in powder, these latter ingredients being previously placed in hot sand, are also recommended. Burning charcoal is also a good disinfectant. (*See* Sanitary Precautions.)

FUNERALS. Army Regulations prescribe the honors to be paid at funerals.

FURLOUGHS. The term is usually applied to the absence with leave of non-commissioned officers and soldiers. (*See* Absence with Leave.)

FUZE—is the means used to ignite the bursting charge of shells. They are classified as *Time*, *Concussion*, and *Percussion* Fuzes. The time fuze is composed of a case of paper, wood, or metal, inclosing a burning composition. It is cut or bored to a length proportioned to

the intended range of the shell, so that it shall burn down and explode the bursting charge, just as the shell strikes the ground, or earlier if desirable. Instead of driving the fuze composition into a wooden tube as formerly, and requiring a saw to give the fuze its proper length according to range, the shell is now supplied with a plug of hard wood or metal, having a hole reaped out exactly the size of a paper case containing the composition. By varying this composition, the same length suffices for all the ranges or times of burning required. And these having the different compositions in paper cases of as many different colors, the cannoneer at a field-piece may, in an instant, insert into the plug the colored fuze required for the desired range. Similar fuzes have been adopted for the columbiads, the plugs being of bronze instead of wood. Three kinds of time fuzes are employed in the United States Service, viz., the Mortar Fuze, the Borman Fuze, and the sea-coast fuze. The best and simplest form of the percussion fuze is the ordinary percussion cap placed on a cone affixed to the point of the projectile. The arrangement should be protected by a safety cap to prevent the percussion cap taking fire by the discharge of the piece.

"Bickford's fuze" is a small tube of gunpowder, sewed round with tarred twine, and then pitched over. It is not injured by damp, and when well made, will burn under water, and is used for firing the charges of mines, &c. The Gomez Patent Electric Safety train or fuze is made in the form of a tape, inclosing a chemical compound that burns at the rate of one mile in four seconds; it may be used like the Bickford fuze. (*See* RIFLED ORDNANCE.)

G

GABIONNADE. A work constructed with gabions.

GABIONS—are cylindrical baskets of various dimensions, open at both ends, used to revet the interior slopes of batteries, the cheeks of embrasures, and to form the parapet of trenches. (*See* REVETMENT for the construction of gabions.)

GALLERY. In permanent fortification, a passage or communication to that part of a mine where the powder is lodged. The principal gallery, from which others originate, is constructed under the banquette of the covered way, and follows that portion of the works throughout its whole extent. Another gallery is formed in a direction parallel to the first at 50 or 60 yards' distance, and communicates with the first by means of other galleries perpendicular to it. Galleries are lined with masonry. When finished they are about six feet high and four and a half feet wide.

GARRISON—designates the troops employed in a strong place for its security, and it is also applied to the place itself when occupied by troops. The President may employ such troops of the United States as he may judge necessary as garrisons of fortifications; (*Act* March 20, 1794.)

GENERAL. Rank above lieutenant-general. There is no such grade in the United States army.

GENERAL OFFICERS. All officers above the rank of colonel. Any sentence of a court-martial affecting a general officer must be approved by the President. (*See* COURT-MARTIAL.)

GENOUILLÈRE. From the French *genou*, knee. It is that part of the parapet of a battery which remains above the platform and under the gun, after the opening of the embrasure.

GEOMETRY. The science which teaches the dimensions of lines, surfaces, and solids. It is a necessary introduction to fortification and mechanics. It enables us to ascertain the distances of inaccessible objects, the dimensions of a given surface, the contents of a given solid; to compute the distances and motions of the planets; to predict celestial phenomena; and to navigate a ship from any given point to another on the surface of the globe.

Geometry, besides other divisions, is divided into *ancient* and *modern:* ancient geometry being that form of demonstration and investigation which was employed by the Greeks, and of which Euclid's Elements form a well-known example; modern geometry is that in which algebra, or the differential and integral calculus, is employed. We also speak of pure geometry, practical geometry, and applied geometry. Descriptive geometry was first employed by Monge, and subsequently by other French geometers, to express that part of science which consists in the application of geometrical rules to the representation of the figures, and the various relations of the forms of bodies, according to certain conventional methods. It differs from ordinary perspective, inasmuch as the design or representation is made in such a manner that the exact distance between the different points of the body represented can always be found, and consequently all the mathematical relations resulting from the form and position of the body may be deduced from the representation.

In descriptive geometry, the situation of points in space is represented by their projections on two planes, at right angles to each other, called the *planes of projection.* It is usual to suppose one of the planes of projection to be horizontal, in which case the other is vertical; and the projections are called horizontal or vertical, according as

they are on the one or the other of these planes. According to this system, any point whatever in space is represented by drawing a perpendicular from it to each of the planes of projection: the point on which the perpendicular falls is the projection of the proposed point. As contiguous points in space form a line, so the projections of those points, which are also contiguous, form a line in the same manner, which is the projection of the given line. Hence as two projections only are required for the determination of a point in space, they are also sufficient for the determination of any curve whatever, whether of single or double curvature.

The same mode of representation cannot be employed with regard to surfaces; for, as the projections of the contiguous points of a surface cover a continuous area on both planes of projection, there is nothing to indicate that any particular point on one of the planes of projection corresponds to one point more than another on the second plane, and consequently that it belongs to one point more than another in space. But if we conceive the surface which is to be represented to be covered with a system of lines succeeding one another according to a determinate law, then, by projecting these lines on each of the two planes, and marking the correspondence of the one projection with the other, the projections of all the different points of the surface will have an evident dependence on each other, and the surface will be rigorously and completely determined.

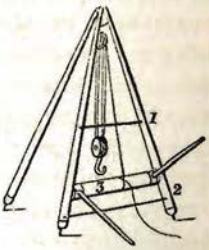
Some elementary surfaces may, however, be represented in a much more simple way. The plane, for example, is completely defined by the straight lines in which it intersects the two planes of projection. These lines are denominated the *traces* of the plane. A sphere is also completely defined by the two projections of its centre, and the great circle which limits the projections of its points. A cylinder is defined by its intersection (or trace) with one of the planes of projection, and by the two projections of one of its ends. A cone is represented by its intersection with one of the planes of projection and the two projections of its summit.

The most immediate application of descriptive geometry is the representation of bodies, of which the forms are susceptible of rigorous geometrical definition. Sculpture, architecture, painting, and all the mechanical arts, the object of which is to give to matter certain determinate forms, borrow from descriptive geometry their graphical procedures, by the aid of which all the parts of an object are faithfully represented in relief before the object itself is executed. But it was chiefly in consequence of its application to civil and military engineering, and

to fortification, that this branch of geometry received a distinctive appellation, and is considered of much importance in the Polytechnic school of France, and our own Military Academy. (Consult DAVIES' *Descriptive Geometry*.)

GIN. The derrick, sheers, and gin have one common object, viz.: to find a fulcrum in space, to which the pulley, in the shape of block and tackle, is to be applied. In the derrick and sheers this is effected on one and two legs, and stability is given by guys. The gin usually consists of three long legs, two of which are joined together by cross bars, and the third, called the pry pole, elevates the gin. A pulley is supported at the top, round which a rope is passed for elevating the weight. Fig. 135 shows the manner of working the gin. There are three kinds of gins used in service: the field and siege, the garrison, and the casemate. The last two differ from each other only in height; the first differs from the others in construction and size. Either of them may be used as *derrick* or *sheers*. The garrison and casemate gins differ from the siege gin in having two braces of iron instead of three wooden cross-bars or braces, and in having the *pry* pole inserted between the legs, which are kept together by the clevis bolt. The upper pulley (generally treble) is hooked to the clevis. (For description, setting up, and mechanical manœuvres with gins, consult *Instruction in Heavy Artillery*.)

FIG 135.



GIRDER. In building, the principal beam of a floor for supporting the binding or other joists, to lessen their bearing or length.

GLACIS. The superior slope of the parapet of the covered way, extended in a gentle declivity to the surrounding country. It is seldom used in field-works. (*See* FORTIFICATION.)

GLANDERS. A virulent and dangerous disease among horses, principally shown in a mucous discharge from the nostrils. To prevent this infectious disorder from spreading, it is necessary at once to remove the horse from his stall, and thoroughly wash with soap and water the rack, manger, and every part of the stall from which the horse has been removed. When the parts are thus made clean, they must also be covered with a quick-lime wash immediately after it is mixed, and afterwards three coats of oil colors given to it. The same precautions are taken in FARCY. (*See* VETERINARY.)

GORGE. The gorge of a fortification or gorge of a work is the opening on that side of the work corresponding to the body of the place,

or the side whence comes the defence. In isolated works, the gorge is sometimes intrenched. The gorges of works not attached to a fortress, but which are its dependencies, are in general open, or without parapets, in order that the enemy may not cover himself from the fire of the place if he should seize such detached works. If the works are liable to surprise, and their gorges cannot be shut, a row of palisades are planted there, and mines are prepared so as to overthrow the enemy if he should seize the work, and attempt to construct a lodgement there. The gorge of a bastion is usually an open space between the extremities of the flanks of the bastion. The larger this gorge is, the better is the defence; for when the ruined bastion is about to fall by siege into the hands of the enemy, the defenders can construct defensive works or dig small ditches in the gorge of the abandoned bastion. Such resistance sometimes drives the besiegers to the necessity of battering in breach the curtain.

GORGE OF MOUNTAINS—is the passage, more or less compressed, between two mountains which are used as a passage-way into valleys. Gorges are important military points. If they lead to an intrenched camp, it is necessary to fortify them, and post there grand guards; these positions are the principal theatres for affairs of posts. A gorge should never be entered without previous examination.

GOVERNMENT. The Constitution of the United States provides that Congress shall make rules for the government and regulation of armies. By government is understood not only the body of fundamental laws of a State, but also the body of persons charged with the management of the executive power of a country, direction, power or authority which rules a community, administration, rule, management; (WORCESTER'S *Dictionary*.)

Government of the military (says BARDIN, *Dictionnaire de l'Armée de Terre*) is that branch of the code which embraces the creation and regulation of the military *hierarchy*, or the gradual distribution of inferior authority. The power of making rules of government is that of SUPREME COMMAND, and from this living principle proceeds the localization of troops, their organization and distribution; rules for rewards and punishments; and generally all rules of government and *regulation* whatsoever, which the legislature may judge necessary, to maintain an efficient and well-disciplined army.

All authority over the land forces of the United States must therefore be derived from Congress. For, although the President is the commander-in-chief, yet his functions, as such, must be regulated by Congress, under the 17th clause of Sec. 8 of the Constitution, as well

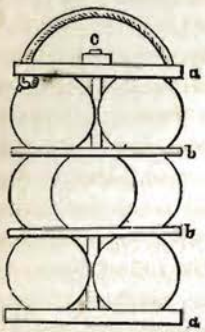
as under the general authority of Congress to make rules for the government and regulation of the land forces. The President cannot be divested of power which Congress may assign to any inferior military commander, because the authority of the greater includes that of the less. But all authority over the land and naval forces save the *appointment* of the commander-in-chief rests with Congress, and no authority can be exercised not delegated by Congress, except such as may be fairly deduced from powers given for the effective discharge of the duties annexed to his office. (*See* ADMINISTRATION, and references under that head; ADJUTANT; ADJUTANT-GENERAL; AID-DE-CAMP; APPOINTING POWER; ARMY; ARMY, (*Regular;*) ARMY REGULATIONS; ARTICLES OF WAR, and references under that head; ARTILLERY; ASSIGNMENT; BOOTY; BOUNTY; BREVET; BRIGADE; BRIGADIER-GENERAL; BRIGADE-INSPECTOR; CADET; CAPTAIN; CAVALRY; COLONEL; COMMAND; COMMANDER OF THE ARMY; COMMANDER-IN-CHIEF; COMMISSARY OF SUBSISTENCE; COMMISSION; CONGRESS; CONSTITUTION; CORPORAL; CORPS; COURT-MARTIAL and references under that head; COURT OF INQUIRY; DEFENCE, (*National;*) DEPARTMENT; DETACHMENT; DISCIPLINE; DIVISION; ENGINEERS CORPS; ENGINEERS, (*Topographical;*) ESPRIT DU CORPS; FIELD OFFICERS; FLAGS; FORAGE MASTER; GARRISON; GENERAL OFFICERS; GRATUITY; GRENADIERS; HIERARCHY; INDEMNIFICATION; INDIAN; INFANTRY; JUDGE-ADVOCATE; LAW, and references under that head; LAW, (*Martial;*) LIEUTENANT; LIEUTENANT-COLONEL; LIEUTENANT-GENERAL; LINE; LOSSES; MAJOR; MAJOR-GENERAL; MARINE CORPS; MEDICAL DEPARTMENT; MILITIA; NON-COMMISSIONED OFFICERS; OATH; OBEDIENCE; OFFICERS; ORDERS; ORDNANCE DEPARTMENT; ORDNANCE SERGEANTS; ORGANIZING; PARDON; PAY; PAY DEPARTMENT; PAYMASTER-GENERAL; PENSION; PLATOON; POST; PRESIDENT; PROMOTION; PUNISHMENT; QUARTERMASTER'S DEPARTMENT; QUARTERMASTER-GENERAL; RAISE, and its references; RANK; REGIMENT; REGULATION, and its references; REMEDY; REPRIEVE; RETAINERS; RIFLEMEN; SAPPERS; SECRETARY OF WAR; SENIOR; SERGEANT; SERVICE, and its references; SOLDIER; STAFF; STATE TROOPS; STANDARDS; STORE-KEEPERS; SUBSISTENCE DEPARTMENT; SUPERIOR; SUPERINTENDENT; SUPERNUMERARY; SURGEON; SURGERY, (*Military;*) SUTLERS; TRADE; TRAIN; TRANSFERS; TRAVELLING ALLOWANCES; TREATY; UNIFORM; VETERAN; VICE-PRESIDENT; VOLUNTEERS; WAR; WARRANT.)

GRAND DIVISION. A division composed of two companies in battalion manœuvres.

GRAPE-SHOT. A certain number of cast-iron balls put together

by means of two cast-iron plates, two rings, and one pin and nut. Canister has superseded the use of grape in field-guns. Grape-shot are used with the 8-in. howitzers and the columbiad of that calibre, by adopting the sabot of the sea-coast howitzer, which serves for both pieces. The grape for these 8-in. pieces is made of 6-pd. shot.

FIG. 136.



GRAPPLING-IRONS—consist of from four to six branches bent and pointed, with a ring at the root. A rope being fastened through this ring, any object at which the grappling-irons are thrown, may be dragged nearer.

GRATUITY. In the French service whenever a non-commissioned officer is promoted, he is given a gratuity, called *Gratification de Première Mise d'Officier*, in order to provide his equipment as officer. In the same manner, at the beginning of a campaign, a sum of money is given to all officers of the French army, according to grade, as an equipment fund; it is called *Gratification d'entrée en Campagne, ou Indemnité d'entrée en Campagne.*

GRAVITY, GRAVITATION. These terms are used to express the mutual tendency which all bodies have to approach each other if not opposed by other resistance.

Force of Gravity—Motion of falling bodies: Let t be the time of descent in seconds, of a body falling freely, in vacuo; h, the space described in the time t; v, the velocity acquired at the end of that time, and g the velocity acquired at the end of one second of time; then:

$$h = \tfrac{1}{2} g t^2; \qquad v = g t = \sqrt{2 g h}$$

The velocity g, which is the measure of the force of gravity, varies with the latitude of the place, and with its altitude above the level of the sea. The force of gravity at the latitude of 45° = 32.1803 feet; at any other latitude L; g = 32.1803 feet — 0.0821 cos. 2 L. If g' represents the force of gravity at the height h above the sea, and r the radius of the earth, the force of gravity at the level of the sea will be $g = g' (1 + \frac{5\,h}{4\,r})$.

In the latitude of London, at the level of the sea, g = 32.191 feet.
do. Washington, do. do. g = 32.155 feet.

GRENADE. A shell thrown by hand or in baskets from stone mortars. A hand-grenade is a small shell about 2½ inches in diameter, which, being set on fire by means of a short fuze and cast among the

enemy's troops, causes great damage by its explosion. They may be thrown 26 yards. Rampart-grenades are larger, and are used to roll down ramparts, &c.

GRENADIERS. The right flank company of a regiment.

GRIEVANCES. (*See* WRONGS.)

GROOVES. Spiral grooves or "rifles" cut into the surface of the bore of fire-arms, have the effect of communicating a rotary motion to a projectile around an axis coincident with its flight. This motion increases the range of the projectile, and also corrects one of the causes of deviation by distributing it uniformly around the line of flight. For expanding projectiles, experiment shows that broad and shallow grooves with a moderate twist give range, endurance, accuracy of fire, and facility in loading and cleaning the bores. The United States have therefore adopted for arms three grooves, each in *width* equal to the lands, or $\frac{1}{3}$ of the circumference of the bore; and uniformly decreasing in *depth* from the breech where it is .015 in., to the muzzle, where it is .005 inch; with a uniform *twist*, one turn in six feet for long barrels or the musket, and one turn in four feet for short barrels or the carbine. The proper twist to be given to the grooves, depends on the length, diameter and initial velocity of the projectile used; but the most suitable twist can only be determined by experiment.

GUARDS—are used for security and police by troops in the field, in camps, garrisons, and quarters. Guards are designated as advance or van, and rear guards; outposts and picket guards; quarter, camp, and garrison guards; and general officers' guards. The tour of service of guards is usually twenty-four hours. Sometimes a guard is detached from a single corps, and sometimes from several corps. In either case during the tour of service, the guard receives orders from the commanding officer and officers of the guard. It is for the time detached from its corps. (The description and duties of guards are given in Army Regulations.)

GUERILLA. (*See* PARTISAN.)

GUIDES. Men employed to give intelligence respecting a country and the various roads intersecting it. All armies employed in an enemy's country find it to their advantage to use guides.

GUIDES, (TACTICAL.) The duties of guides are given in the Tactics.

GUIDONS. Each company of cavalry has a silken guidon prescribed in Army Regulations.

GUN-COTTON—is common cotton, steeped in a mixture of sulphuric acid and nitric acid, and when properly soaked, is well washed

in running water, and then dried. The explosive force of three parts of gun-cotton equals that of eight parts of gunpowder. Major Mordecai's experiments at Washington in the years 1845, 1847, and 1848, to determine the fitness of gun-cotton as a substitute for gunpowder in the military service, show: 1. Explosive cotton burns at 380° Fahr., therefore it will not set fire to gunpowder when burnt in a loose state over it. 2. The projectile force of explosive cotton, with moderate charges, in a musket or cannon, is equal to that of about twice its weight of the best gunpowder. 3. When compressed by hard ramming, as in filling a fuze, it burns slowly. 4. By the absorption of moisture its force is rapidly diminished, but the force is restored by drying. 5. Its bursting effect is much greater than that of gunpowder, on which account it is well adapted for mining operations. 6. The principal residua of its combustion are water and nitrous acid; therefore the barrel of a gun would be soon corroded if not cleaned after firing. 7. In consequence of the quickness and intensity of its action when ignited, it cannot be used with safety in the present fire-arms. 8. An accident on service, such as the insertion of two charges before firing, would cause the bursting of the barrel; and it is probable that the like effect would take place with the regular service-charges if several times repeated.

GUNNERS. For the service of field and heavy ordnance, there is with each piece one man called a gunner, who gives all the executive commands in action. He is answerable that the men at the piece perform their duties correctly. (Consult *Instruction for Field and Heavy Artillery.*)

GUNNER'S CALIPERS. Made of sheet brass, with steel points. The graduations show diameters of guns, shot, &c.

GUNNER'S PERPENDICULAR. This is made of sheet brass; the lower part is cut in the form of a crescent, the points of which are made of steel; a small spirit level is fastened to one side of the plate, parallel to the line joining the points of the crescent, and a slide is fastened to the same side of the plate, perpendicular to the axis of the level. The instrument is useful in marking the points of sight on siege guns and mortars, when the platform is not level.

GUNNER'S PINCERS. Iron with steel jaws, which have on the end of one a claw for drawing nails, &c.

GUNNER'S QUADRANT, (wood.) A graduated quadrant of six inches radius, attached to a rule 23.5 inches long, (Fig. 137.) It has a *plumb-line* and *bob*, which are carried, when not in use, in a hole in the end of the rule covered by a brass plate. The quadrant is applied either by its longer branch to the face of the piece, or this branch

is run into the bore parallel with the axis, and the elevating screw turned or the quoin adjusted until the required degree is indicated.

FIG. 137.

GUNNERY. Laws regulating the resistance of the air are complicated and undetermined. The attempts also made to determine the volume and tension of the gases produced by the combustion of powder have given variable and unsatisfactory results. It accordingly follows, and it is now admitted, that it is impossible to solve the problem of the trajectory described by projectiles by purely theoretical means. Multiplied experiments are therefore resorted to, in order to form *tables of* fire, and such tables are the true guides in practical gunnery.

The maximum range of the largest cannon fired under an angle of 45° does not exceed 8,000 yards; siege guns fired under smaller angles give ranges varying from 3,000 to 4,500 yards. The range of field-pieces in their ordinary fire is from 1,790 to 2,200 yards. Tables of ranges are given in Ordnance and Artillery Manuals, for the mountain howitzers, field-guns and howitzers, heavy ordnance, and Hale's war rockets. These tables give ranges at different elevations, the charges of powder, the weight of the shot, spherical case shot or shell in each case. They show the *time of flight* of the shell, and consequently the length of fuze required; and also at what angles of elevation, in the 8 or 10-in. columbiads, shot cease to ricochet upon the water. (*See*, for such tables, articles: ARTILLERY; BALLISTICS; FIRING; INITIAL VELOCITY; ORDNANCE; RIFLED ORDNANCE; ROCKETS.)

GUNPOWDER. In the United States, the proportion of ingredients for the military service are: 76 or 75 of saltpetre, 14 or 15 charcoal, and 10 of sulphur; for sporting, 78 or 77 saltpetre, 12 or 13 charcoal, and 10 sulphur. The powder is coarse or fine grained. In the United States, to every 10 grains troy weight of powder, there are 150 grains of cannon powder, 1,100 musket powder, 6,000 rifle, and 73,000 sporting. The size of the grain is tested by sieves. Musket power is now recommended for all small arms.

A new powder, invented by Capt. Rodman, Ordnance Dept., shows great ingenuity, and has given most important results. An ordinary grain of powder burns from the surface to the centre, and the largest portion of the gas is evolved in the $\frac{3}{100}$ part of a second. The force of the charge is therefore expended upon the projectile before it is sensibly moved, and there is a corresponding strain upon the gun. Capt. Rodman thought, if powder could be made to burn on an *increas-*

ing instead of a decreasing surface, so that the gas should be evolved completely but not so rapidly before the projectile left the piece, the same velocity would be communicated, and the strain would be distributed uniformly over the whole piece. To accomplish this, he formed the "dust" into a cake, and inserted into it numerous small wires, which, being pulled out, left corresponding avenues for the passage of flame and ignition of the mass; thus making the interior surface of combustion *increasing* instead of *decreasing*. The enormous pressures from large charges of powder have thus been entirely obviated by the introduction into service of Rodman's hollow caked powder, or its substitute, the large-grained powder, each grain being six-tenths of an inch. This discovery, with the idea of Capt. Rodman of cooling cast-iron cannon from the interior by means of a current of cold water flowing through a hollow core, has enabled him to cast a 15-in. columbiad which, after three hundred rounds, with a charge of 40 lbs. of powder, showed no appreciable enlargement of either bore or vent, and causes Capt. Rodman to believe that the piece will bear 1,000 rounds without material injury; (BENTON; *Experiments on Gunpowder by* MAJ. MORDECAI, *Ordnance Dept.*)

GUNS—are long cannon without chambers, having their calibres determined by the weight of their balls. (*See* CALIBRE; ORDNANCE.)

GUNTER'S CHAIN—is the chain commonly used for measuring land. It is 66 feet or 4 poles in length, and is divided into 100 links, each of which is joined to the adjacent one by three rings; and the length of each link, including the connecting rings, is 7.92 inches. The advantage of this measure consists in the facility which it affords for numerical calculations. The English acre contains 4,840 square yards; and Gunter's chain being 22 yards in length, the square of which is 484, it follows that a *square chain* is exactly the tenth part of an acre. A square chain, again, contains 10,000 square links, so that 100,000 square links are equal to an acre; consequently, the contents of a field being cast up in square links, it is only necessary to divide by 100,000, or to cut off the last five figures, to obtain the contents expressed, in acres; (BRANDE'S *Encyclopedia.*)

GUY. A rope used to swing any weight, or to keep steady any heavy body, and prevent it from swinging while being hoisted or lowered.

H

HAIL. A sentinel hails any one approaching his post, with "*Who goes there?*"

HALT. A rest during a march, and a word of command in tactical manœuvres.

HAND. A measure four inches in length. The height of a horse is computed by so many hands and inches.

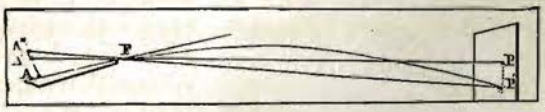
HANDSPIKES. The *trail* handspike for field carriages is 53 inches in length; the *manœuvring* handspike for garrison and sea-coast carriages and for gins is 66 inches; for siege and other heavy work it is made 84 inches long and 12 lbs. weight; the *shod* handspike is particularly useful in the service of mortars and of casemate and barbette carriages; the *truck* handspike for casemate carriages, (wrought iron;) the *roller* handspike, for casemate carriages. It is made of iron, 1 inch round, the point conical, whole length 34 inches.

HARBORING AN ENEMY. Punishable with death or otherwise, according to sentence of a court-martial; (ART. 56.)

HAUSSE OR BREECH SIGHT—is a graduated piece attached to the barrel near the breech, which has a sliding piece retained in its place by a thumb screw, or by the spring of the slider itself. This slider should have an opening through which the gun can be conveniently aimed; and is raised to such a height as we think will give the necessary elevation for the distance. The term coarse sight means a large portion of the front sight, as seen above the bottom of the rear-sight notch; and a fine sight is when but a small portion is seen. The effect of a coarse sight is to increase the range of the projectile.

Graduation of rear-sights.—If the form of the trajectory be known, the rear-sight of a fire-arm can be graduated by calculation; the more accurate and reliable method, however, is by trial. Suppose it be required to mark the graduation for 100 yards: the slider is placed as near the position of the required mark as the judgment of the experimenter may indicate; and, with this elevation, the piece is carefully aimed, and fired, say ten times, at a target placed on level ground at a distance of 100 yards. If the assumed position of the slider be correct, the centre of impact of the ten shot-holes will coincide with the point aimed at; if it be incorrect, or the centre of impact be found below the

FIG. 133.



point aimed at, then the position of the slider is too low on the scale. Let P be the point aimed at, and P' the centre of impact of the cluster

of shot-holes, we have, from close similarity of the triangles, $A'F : FP :: A'A'' : PP'$; from which we can determine $A'A''$ the quantity that must be added to $A\,A'$, to give the correct position of the graduation mark for 100 yards. If the centre of impact had been above P, the trial mark would have been too high. Lay off the distance $A\,A''$ above A'', on the scale, and we obtain an approximate graduation for 200 yards, which should be corrected in the same way as the preceding, and so on. The distance $P\,P'$ is found by taking the algebraic sum of the distances of all the shots from the point P, and dividing it by the number of shots. It will be readily seen that an approximate form of the trajectory may be obtained by drawing a series of lines through the different graduation marks of the rear-sight, and the top of the front-sight, and laying off from the front-sight, on each line, the corresponding range; (BENTON.)

HAVERSACK. Bag issued to soldiers for carrying rations.

HAY. The forage ration is fourteen pounds of hay, and twelve pounds of oats, corn, or barley. Cattle will eat many sorts of herbage when cut small, but refuse it if uncut. They will eat reeds, seaweed, leaves, &c.

FIG. 139.

To cut Chaff, (Fig. 139.)—Tie a sickle against a tree, with its blade projecting; then, standing in front of the blade, hold a handful of reeds across it with both hands, one hand on either side of the blade; pull it towards you, and the reeds will be cut through; drop the cut end, seize the bundle afresh, and repeat the process. In this way, after a little practice, chaff is cut with great ease and quickness. A broken sickle does as well as a whole one, and a knife may be used, but the curve of its edge is ill adapted for the work. (*See* FORAGE.)

HEIGHT. Elevation, as to occupy or to crown a height; the height of a soldier, &c. (*See* DISTANCES; SURVEYING.)

HELMET. Defensive armor or covering for the head used by heavy cavalry.

HIERARCHY, (MILITARY.) The essential element for the government and service of an army is a military hierarchy, or the creation of different grades of rank, to which different functions and powers are assigned, the lower in regular subordination to the next higher in the ascending scale. It should be founded on the principle that every one acts in an army under the orders of a superior, who exercises his authority only within limits established by law. This authority of the superior should be greater or less according to rank and position, and be proportioned to his responsibilities. Orders should be executed without hesitation; but responsibilities should be confined to him who gives orders in virtue of the superior authority with which he is invested; to him who takes the initiative in an order; to him who does not execute an order that he has received; and to him who usurps a command or continues illegally to exercise its functions.

The grades of the military hierarchy are: 1. The President of the United States; 2. The Lieut.-general; 3. Major-generals; 4. Brigadier-generals; 5. Colonels; 6. Lieutenant-colonels; 7. Majors; 8 Captains; 9. Lieutenants; 10. Cadets; 11. Sergeants; 12. Corporals; 13. Privates. The military hierarchy is determined and consecrated within its sphere of action by: 1. Grades of rank created by military laws; 2. By other laws regulating the exercise of rank; 3. By military insignia; 4. By military honors; and 5. By the military oath. (*See* PRESIDENT OF THE UNITED STATES, AND OTHER GRADES OF THE HIERARCHY; BREVET; COMMISSION; COMMAND; GOVERNMENT; LINE; OATH; OBEDIENCE; OFFICER; ORDERS; RANK; REGULATION.)

HIRING OF DUTY. Punishable at the discretion of a regimental court-martial; (ART. 47.)

HOLSTERS. Cases attached to the pommel of the saddle, to hold a horseman's pistols.

HONORS, (MILITARY)—have been prescribed by the orders of the President, and are paid by troops to the President and other public functionaries, to military officers according to grade, to the colors of a regiment and when two regiments meet. (Consult *Army Regulations.*)

HONORS OF WAR. This expression is used in capitulations; and the chief of a post, when compelled to surrender, always demands the honors of war in testimony of the vigor of his defence. As these terms depend on the disposition of the victorious general, their limits vary; but in some instances garrisons have been allowed to march out, with colors flying, drums beating, some field-pieces, caissons loaded,

and baggage. In other cases the garrison marches out to a certain distance, and piles its arms, and is either released as prisoners upon parole, or then becomes prisoners in fact.

HOOF. (*See* HORSE.)

HORN WORK—is a work composed of two half bastions and a curtain or a front of fortification, with two long sides called branches or wings, directed upon the faces of the bastions or ravelins, so as to be defended by them. This work is placed before a bastion or ravelin, and serves to inclose any space of ground or building, which could not be brought within the enceinte.

HORSE. In selecting a horse choose one from 5 to 7 years old, (the latter age preferable,) and from 15 to 16 hands high.

The saddle horse should be free in his movements; have good sight; a full, firm chest; be surefooted; have a good disposition, with boldness and courage; more bottom than spirit, and not be too showy.

The draft horse should stand erect on his legs, be strongly built, but free in his movements; his shoulders should be large enough to give support to the collar, but not too heavy; his body full, but not too long; the sides well rounded; the limbs solid, with rather strong shanks, and feet in good condition.

To these qualities he should unite, as much as possible, the qualities of the saddle horse; should trot and gallop easily; have even gaits, and not be skittish. The most suitable horse for the pack-saddle is the one most nearly approaching the mule in his formation. He should be very strong-backed, and from 14 to 15 hands high.

Horses with very long legs, or long pasterns, should be rejected, as well as those which are poor, lank, stubborn, or vicious.

The mule is preferable to the horse in a very rough country, where its surefootedness is an important quality. There are two kinds: the mule proper, or product of the jackass and mare, which is preferable to the product of the horse and ass. The former brays, the latter neighs.

The mule may be usefully employed from its fourth year to beyond its twenty-fifth. It is usually from 13½ to 15 hands high; is hardy, seldom sick, fears heat but little; is easy to keep; is very surefooted, and especially adapted for draught or packing.

Before choosing horses, their attitudes and habits should be examined in the stable. Leaving the stable, they should be stopped at the door in order to examine their eyes, the pupils of which should contract when struck by the light. Out of the stable, they should neither be allowed to remain quiet, nor to be worried. Care should be taken against being deceived by the effects of the whip, cries, &c. The

positions of a horse, his limbs, age, and height, should be examined at different times. He should be walked about with a long rein, observing the action of his rear extremities when he moves off, of his fore ones when approaching, and of both when moving with his flank towards you. The examination should be repeated at a trot, observing in what manner the horse gathers himself; whether he interferes, rocks in his motions, or traverses his shoulders or haunches. Rein him backwards, make one of the men get on him, and see if he is difficult to mount, and whether or not he bears too hard on the bit. Make him gallop a little, to judge of his wind, and see whether his flanks heave. Have his feet washed and examined carefully. Strike upon the shoe to determine whether he is easily shod or not.

Age.—The age of a horse is determined by the appearance of his teeth. When he is 5 years old, his mouth is nearly perfect with a full set (40) of teeth, 20 in each jaw; six of these are in front, and called *nippers*, or cutting teeth; a tush on each side of these, and on each side of the back part of the jaws six molars, or grinding teeth.

At the birth of the colt, the 1st and 2d grinders have appeared, and in the course of seven or eight days after, the two central nippers force their way through the gums. In the course of the first month, the 3d grinder appears above and below, and shortly after another of the incisors on each side of the first two.

At the end of two months, the central nippers reach their full height, and before another month the second pair will overtake them. They then begin to wear away a little, and the outer edge, which was at first somewhat raised and sharp, is brought to a level with the inner one. So the mouth continues until some time between the 6th and 9th month, when two other nippers begin to appear, making 12 in all, and completing the colt's mouth. After this, the only observable difference, until between the 2d and 3d year, is the wear of these teeth.

These teeth are covered with a polished and very hard enamel, which spreads over that portion above the gum. From the constant habit of nipping grass, and gathering up the animal's food, a portion of the enamel is worn away, while in the centre of the upper surface of the teeth, it sinks into the body of the tooth, forming a little pit. The inside and bottom of this pit, being blackened by the food, constitute the *mark* of the teeth, by the gradual disappearance of which, from the wearing down of the edge, we are enabled, for several years, to judge of the age of the animal.

The teeth, at first presenting a cutting surface, with the outer edge rising in a slanting direction above the inner, soon begin to wear down,

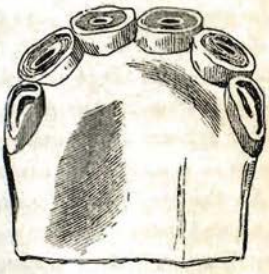
until both surfaces are level; and the *mark*, originally long and narrow, becomes shorter, wider, and fainter. Fig. 140 represents the appearance of the animal's mouth at 12 months. The four middle teeth are almost level, and the corner ones becoming so. The mark in the two middle teeth is wide and faint; in the two next, darker, longer, and narrower; and in the extreme ones it is darkest, longest, and narrowest. This appearance of the nippers, together with the coming of four new grinders, enables the age of the colt to be pretty nearly calculated.

Six months after, the mark in the central nippers will be much shorter and fainter; that in the two other pairs will have undergone an evident change, and all the nippers will be flat.

At two years old, this change will be still more manifest, and the lower jaw of the colt will present the appearance represented in Fig. 141. About this period, too, a new grinder appears, making 20 in all,

Fig. 140.

Fig. 141.



and a still more important change takes place. This consists in the formation of the permanent teeth which gradually come up from beneath, *absorb*, and take the place of the temporary, or milk teeth, as they are called, and finally push the top parts of these latter out of their places. These permanent teeth are much larger and stronger than the first ones.

The teeth are replaced in the same order that they originally appeared, and consequently, at the end of the second year, the first grinders are replaced by permanent and larger ones; then the central nippers, and so on. At the end of the third year, the colt's mouth will present the appearance shown in Fig. 142. The central teeth are larger than the others, with two grooves in the outer convex surface, and the mark is long, narrow, deep, and black. Not having yet attained their full growth, they are rather lower than the others. The mark in the two next nippers is nearly worn out, and it is wearing away in the extreme ones.

A horse at three years old ought to have the central permanent nippers growing; the other two pairs wasting; six grinders in each jaw, above and below—the first and fifth level with the other, and the sixth protruding. The sharp edge of the new incisors will be very evident when compared with the neighboring teeth.

As the permanent nippers wear, and continue to grow, a narrower portion of the cone-shaped tooth is exposed to attrition, and they look as if they had been compressed. The mark, of course, gradually disappears as the pit is worn away.

At three years and a half, or between that and four, the next pair of nippers will be changed. The central nippers will have attained nearly their full growth. A vacuity will be left where the second stood, or they will begin to peep above the gum, and the corner ones will be diminished in breadth, worn down, and the mark becoming small and faint. At this period, too, the second pair of grinders will be shed.

At four years, the central nippers will be fully developed; the

FIG. 142.

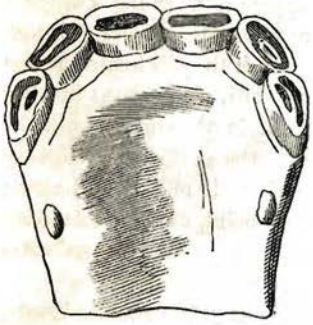
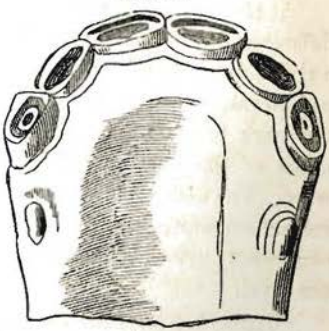


FIG. 143



sharp edge somewhat worn off, and the mark shorter, wider, and fainter. The next pair will be up, but they will be small, with the mark deep, and extending quite across them. The corner nippers will be larger than the inside ones, yet smaller than they were, flat, and the mark nearly effaced. The sixth grinder will have risen to a level with the others, and the tushes will begin to appear. See Fig. 143. The small size of the corner nippers, the want of wear in the others, the little growth of the tush, the smallness of the second grinder, the low forehand, the legginess of the colt, and the thickness and little depth of the mouth, will prevent the horse from being passed off as over four years old.

The tushes are much nearer the nippers than the grinders, but this distance increases with the age of the animal. The time of their ap-

pearance is uncertain, and it may vary from the fourth year to four years and six months.

At four years and a half the last important change takes place in the mouth. The corner nippers are shed, and the permanent ones begin to appear. The central nippers are considerably worn, and the next pair are commencing to show signs of usage. The tush has now protruded, and is generally a full half-inch in height. After the rising of the corner nippers the animal changes its *name*—the colt becomes a horse, and the filly a mare.

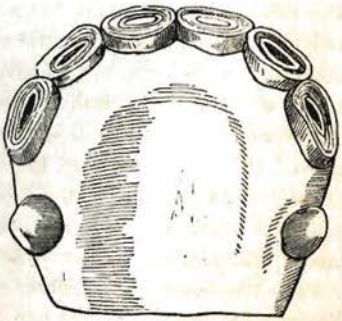
At five years the corner nippers are quite up, with the long deep mark irregular on the inside, and the other nippers bearing evidence of increased wear. The tush is much grown, the grooves have nearly disappeared, and the outer surface is regularly convex, though the inner is still concave, with the edge nearly as sharp as it was six months before. The sixth molar is quite up, and the third wanting, which last circumstance will be of great assistance in preventing deception. The three last grinders and the tushes are never shed. Fig. 144 represents the mouth of a 5-year old horse.

At six years the mark on the central nippers is worn out, though a difference of color still remains in the centre of the tooth, and although a slight depression may exist, the deep hole with the blackened surface and elevated edge of enamel will have disappeared. In the next incisors the mark is shorter, broader, and fainter; and in the corner teeth the edges of the enamel are more regular, and the surface is evidently worn. The tush has attained its full growth of nearly an inch in length; convex outwards, concave within, tending to a point, and the extremity somewhat curved. The third grinder is fairly up, and all the grinders are level.

At seven years, the mark is worn out in the four central nippers,

Fig. 144.

Fig. 145.



and fast wearing away in the corner ones. The tush is becoming rounded at the point and edges; still round outside, and beginning to get so inside. (Fig. 145.)

At eight years old, the tush is rounded in every way; the mark is gone from all the bottom nippers, and nothing remains in them that can afterwards clearly show the age of the horse.

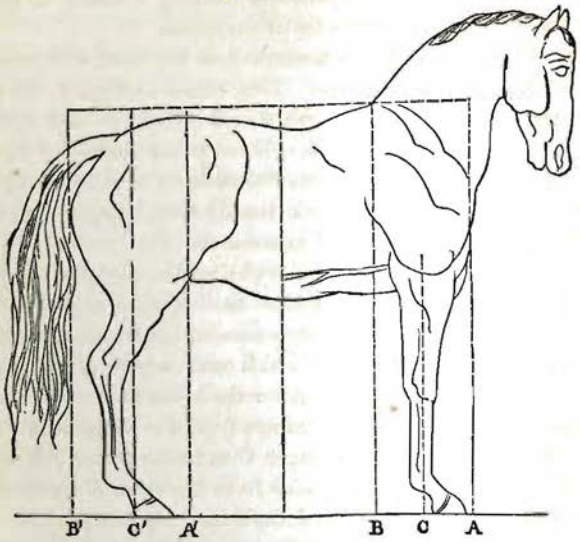
An operation is sometimes performed on the teeth of horses, to deceive purchasers in regard to age. This, called *bishoping*, after the inventor, consists in throwing a horse, 8 or 9 years old, and with an engraver's tool digging a hole in the almost plane surface of the corner teeth, of the same shape and depth of those seen in a 7-year old horse. The holes are then burned with a heated iron, leaving a permanent black stain. The next pair of nippers are also sometimes lightly touched. An inexperienced person might be deceived by the process; but a careful examination will disclose the irregular appearance of the cavity—the diffusion of the black stain around the tushes, the sharpened edges and concave inner surface of which can never be given again—and the marks on the upper nippers. After the horse is 8 years old, horsemen are accustomed to judge of his age from the nippers in the upper jaw, where the mark remains longer than in the lower jaw teeth; so that at 9 years of age it disappears from the central nippers; at 10 from the next pair, and from all the upper nippers at 11. During this time, too, the tushes are changing, becoming blunter, shorter, and rounder; but the means for determining accurately the age of a horse, after he has passed 8 years, are very uncertain.

The general indications of old age, independent of the teeth, are deepening of the hollows over the eyes, and about the muzzle; thinness and hanging down of the lips; sharpness of the withers; sinking of the back; lengthening of the quarters; and the disappearance of windgalls, spavins, and tumors of every kind.

The perpendicularity with which a horse habitually stands, determines his good qualities and endurance. Viewed in profile, his front legs should be comprised between two verticals: the one, A, (Fig. 146,) let fall from the point of his shoulder, and terminating at his toe; the other, B, from the top of the withers, and passing through the elbow. A line, C, passing through the fetlock-joint, should divide the limb into two equal parts. The hind legs should be comprised between two verticals, A′ falling from the hip, and B′ falling from the point of the buttock; the foot at very nearly equal distances from these two lines. A line, C′, let fall from the hip-joint, should be equally distant from these two lines A′, B′.

Viewed in front, a vertical let fall from the point of the shoulder, should divide the leg along its central line. In rear, a vertical from the point of the buttock, should divide the leg equally throughout its entire length.

Fig. 146.



The height of the horse, measured from the top of the withers to the ground, should be equal to his length from the point of the shoulder to the point of the buttock. His chest, looking at him from the front, should be broad; and viewed from the rear, he should be broad, with good muscle, and strongly built.

"The thoroughbred horse enters into every other breed, and *adds or often gives to it its only value.* For a superior charger, hunter, or saddle horse, three parts or one-half should be of pure blood; but for the horse of all work, less will answer. The road horse, according to the work required of him should, like the hunter, possess different degrees of blood. The best kind of coach horse is foaled by mares of some blood, if the sire is a three-fourth or thoroughbred stallion of sufficient size and substance. Even the dray horse, and every other class of horse, is improved by a partial mixture of the thoroughbred.

"The first point of a good hunter is that he should be light in hand. For this purpose, his head must be small; his neck thin, especially beneath; his crest firm and arched, and his jaws wide. The head will then be well set on. It will form a pleasant angle with the neck, which gives a light and pleasant mouth."

"The road horse or hackney should be a hunter in miniature, with these exceptions: his height should rarely exceed fifteen hands and an inch. He will be sufficiently strong and more pleasant for general work below that standard. He should be of more compact form than the hunter, of more bulk according to his height. It is of essential consequence that the bones beneath the knee should be deep and flat, and the tendon not *tied in*. The pastern should be short, and less oblique or slanting than that of the hunter or race-horse. The foot should be of a size corresponding with the bulk of the animal, neither too hollow nor too flat, and open at the heels. The forelegs should be perfectly straight; for a horse with his knees bent will, from a slight cause and especially if overweighted, come down. The back should be straight and short, yet sufficiently long to leave comfortable room for the saddle between the shoulders and the *huck*, without pressing on either. Some persons prefer a hollow-backed horse. It is generally an easy one to go. It will canter well with a lady; but it will not carry a heavy weight, or stand much hard work. The road horse should be high in the forehead, round in the barrel, and deep in the chest."

A horse travels the distance of 400 yards at a walk, in 4½ minutes; at a trot, in 2 minutes; at a gallop, in 1 minute. He occupies in the ranks a front of 40 inches, a depth of 10 feet; in a stall from 3½ to 4½ feet front; at a picket, 3 feet by 9. Average weight of horses 1,000 lbs. each. A horse carrying a soldier and his equipments, (say 225 lbs.,) travels 25 miles in a day, (8 hours.) A *pack* horse can carry 250 to 300 lbs. 20 miles a day. A *draught* horse can draw 1,600 lbs. 23 miles a day, weight of carriage included. Artillery horses should not be made to draw more than 700 lbs. each, the weight of the carriage included. The ordinary work of a horse for 8 hours a day may be stated at 22,500 lbs. raised one foot in a minute. In a *horse* mill, the horse moves at the rate of 31 feet in a second. The diameter of the path should not be less than 25 or 30 feet. Daily allowance of water for a horse is four gallons. A horse-power in steam engines is estimated at 33,000 lbs. raised 1 foot in a minute; but as a horse can exert that power but 6 hours a day, one steam horse-power is equivalent to that of four horses.

The actual mode of taking wild horses is by throwing the lasso, whilst pursuing them at full speed, and dropping a noose over their necks; by which their speed is soon checked, and they are choked down. Mr. Rarey's sixpenny book tells all that can be told on the subject of horse-breaking; but far more lies in the skill and horse-knowledge of the operator, than in the mere theory. His way of mas-

tering a vicious horse, is by taking up one fore-foot, and bending his knee, and slipping a loop over the knee until it comes to the pastern-joint, and then fixing it tight. The loop must be caused to embrace the part between the hoof and the pastern-joint firmly, by the help of a strap of some kind, lest it should slip. The horse is now on three legs, and he feels conquered. If he gets very mad, wait leisurely till he becomes quiet; then caress him, and let the leg down, and allow him to rest. Then repeat the process. If the horse kicks in harness, drive him slowly on three legs. In breaking-in a stubborn beast, it is convenient to physic him until he is sick and out of spirits, or to starve him into submission. Salt keeps horses from straying, if they are accustomed to come up to the camp and get it. But it is a bad plan, as they are apt to hang about, instead of going off to feed. They are so fond of it, that they have been known to stray back to a place where they had been licking it, in front of the doors. (Consult GIBBON; SKINNER'S *Youatt;* BRANDE'S *Encyclopedia; Memorial des Officiers d'Infanterie et de Cavalerie. See* PAY; VETERINARY.)

HORSEMANSHIP—consists in perfect mastery of the horse. The principles laid down by *Baucher* in his method of horsemanship, published in Philadelphia in 1851, profess to give *any* horse in less than three months:

1. General suppling; 2. Perfect lightness; 3. Graceful position; 4. A steady walk; 5. Trot, steady, measured, extended; 6. Backing as easily and as freely as going forward; 7. Gallop easy with either foot, and change of foot by the touch; 8. Easy and regular movement of the haunches, comprising ordinary and reversed *pirouettes;* 9. Leaping the ditch and the bar; 10. Making the horse raise his legs diagonally as in a trot, but without advancing or receding; 11. Halt from the gallop by the aid of, first, the pressure of the legs, and then a light support of the hand. "The education of the men's horses, being less complicated than that of those intended for the officers, would be more rapid. The principal things will be the supplings and the backing, followed by the walk, the trot, and the gallop, while keeping the horse perfectly in hand."

Horsemanship in war consists in address in the exercise of arms while skilfully using the proper paces of the horse in different accidents of ground, with ability in the rider to obtain immediate obedience in all movements that may be rationally demanded. To accomplish this, constant exercise is required of both horse and cavalier, and the individual instruction now prescribed in the French army gives this skilfulness, and habituates horses to separations from each other, and to instant yielding to the will of the rider. (Consult BAUCHER; *Cavalry Tactics; Travail Individuel.*)

HORSE EQUIPMENTS.

STATEMENT OF THE COST OF HORSE EQUIPMENTS, PATTERN 1859, FURNISHED BY THE ORDNANCE DEPARTMENT.

The regulations require that requisitions for Horse Equipments shall follow the form prescribed for ordnance requisitions. Stirrups, saddle-bags, girths, and surcingles, to be entered separately instead of under the head SADDLE in the following list. CURB BRIDLES to embrace the various kinds of curb bits, scutcheons, curb chains, and leather fittings complete. WATERING BRIDLES to include every thing else instead of using separate heads for halters, blankets, &c., &c.

	Price per piece.	Price per set.	Amount.
SADDLE.	$ cts.	$ cts.	
Saddle tree covered with raw hide with metal mountings attached.	4 13	4 13	
Saddle flaps with brass screws, each	1 10	2 20	
Back straps, with screws, rivets, and D's, each	58	1 16	
Girth strap, long	50	50	
" " short	30	30	
Cloak straps, each	25	1 50	
Stirrup leathers, each	70	1 40	
Sweat leathers, each	70	1 40	
Stirrups with hoods, each	60	1 20	
Carbine socket and strap	72	72	
Saddle-bags	3 75	3 75	
Crupper	1 75	1 75	
Girth	80	80	
Surcingle	1 17	1 17	
Total cost			$21 98
BRIDLE.			
*Bit, No 1, $5 / " Nos. 2, 3, and 4, $4 } average per 100 sets	4 20	4 20	
Brass scutcheon with company letter, each	5	10	
Reins	80	80	
Headpiece	85	85	
Front	10	10	
Curb chain with hooks	20	20	
Curb chain safe	8	8	
Total cost			6 83
HALTER.			
Headstall, complete	2 00	2 00	
Hitching strap	50	50	
Total cost			2 50
WATERING BRIDLE.			
Snaffle bit, chains, and toggles	90	90	
Watering rein	80	80	
Total cost			1 70
Spurs	45	90	
Spur straps	10	20	
Total cost			1 10
Curry comb	20	20	
Horse brush, wooden back	94	94	
Picket pin	20	20	
Lariat rope	1 15	1 15	
Total cost			2 49
Total cost of equipment			36 10
Blanket for cavalry service, dark, with orange border, 3 lbs., at 70 cents per lb	2 10	2 10	
Blanket for artillery, scarlet, with dark blue border, 3 lbs., 70 cents per lb	2 10	2 10	
Nose-bag	75	75	
Hitching strap	20	20	

* No. 1 is Spanish; Nos. 2, 3, and 4, are American.

HOSPITALS—are under the immediate direction of their respective surgeons. The general regulations of the army prescribe the allowance of attendants; the issues to hospitals, &c., &c. (*See* AMBULANCE; SURGEON; SURGERY.)

HOT SHOT. The charges for hot shot are from $\frac{1}{4}$ to $\frac{1}{8}$ the weight of the shot. With small velocities, the shot splits and splinters the wood, so as to render it favorable for burning. With great velocity, the ball sinks deep into the wood, is deprived of air by the closing of the hole, and chars instead of burning the surrounding wood. It should not penetrate deeper than 10 or 12 inches. Red-hot balls do not set fire to the wood until some time after their penetration. They retain sufficient heat to ignite wood after having made several ricochets upon water. The wads are made of clay or hay. Clay wads should consist of pure clay, or fuller's earth free from sand or gravel well kneaded with just enough moisture to work well. They are cylindrical and one calibre in length. Hay wads should remain in the tub to soak, at least ten or fifteen minutes. Before being used, the water is pressed out of them. When hay wads are used, vapor may be seen escaping from the vent on the insertion of the ball; but as this is only the effect of the heat of the ball on the water contained in the wad, no danger need be apprehended from it. With proper precautions in loading, the ball may be permitted to cool in the gun without igniting the charge. The piece, however, should be fired with as little delay as possible, as the vapor would diminish the strength of the powder. FURNACES FOR HEATING SHOT are erected at the forts on the sea-coast. These furnaces hold sixty or more shot. The shot being placed, and the furnace cold, it requires one hour and fifteen minutes to heat them to a red heat; but after the furnace is once heated, a 24-pdr. shot is brought to a red heat in twenty-five minutes; the 32-pdr. and 42-pdr. shot require a few minutes longer. Three men are required to attend the furnace: one takes out the hot shot, and places them on the stand to be scraped; another scrapes them and puts them in the ladle; and the third supplies cold shot and fuel; (GIBBON.)

HOURS OF SITTING. (*See* COURTS-MARTIAL.)

HOUSINGS. The cloth covering for saddles prescribed as part of the uniform of the army in regulations.

HOWITZER. A chambered cannon. (*See* CALIBRE.)

HURDLES. Pickets three feet high united by pliable twigs, so as to make a breadth of two feet. They are used to render batteries firm; to pass over boggy ground or muddy ditches. (*See* REVETMENT.)

HURTER. The hurter is a piece of timber, from six to ten inches

square, placed along the head of a gun platform, at the foot of the interior slope of the parapet, to prevent the latter from being injured by the wheels of the gun-carriage.

HUSSARS. Light cavalry.

HUTS—are frequently constructed by troops on retiring to winter-quarters. The quarters occupied by United States troops on our frontiers are generally huts made by the troops. There have recently been built portable houses, the parts of which correspond, and which are readily put up. The experiment is not yet a success. (*See* ADOBE; CAMP; CARPENTRY; SAW-MILL.)

I

ICE. Ice two inches thick will bear infantry; four inches thick, cavalry or light guns; six inches heavy field-guns; 8 inches 24-pdr. guns on sledges; weight not more than 1,000 lbs. to a square foot. Water that is slightly frozen is made to bear a heavy wagon by cutting reeds, strewing them thickly on the ice, and pouring water upon them. When the whole is frozen into a firm mass, the process must be repeated.

IMPRISONMENT. Officers may be sentenced to imprisonment by a general court-martial in any case where the court may have discretionary authority. General, garrison, and regimental courts-martial may sentence soldiers to imprisonment, solitary or otherwise, with or without hard labor for various offences enumerated in the Articles of War. A garrison or regimental court-martial, in awarding imprisonment, is limited to a period not exceeding thirty days. When a court awards solitary imprisonment as a punishment, it is necessary that the words "Solitary Confinement" should be expressed in the sentence.

INDEMNIFICATION. In the French and English armies, there is an indemnification established for losses in the military service, and other allowances are also made in the nature of indemnifications; as for *furniture; fuel* and *light; forage; expenses of divine worship; command money* to general and field officers; *quarters; expenses upon routes; provisions; gratuity at the beginning of a campaign; field allowances; mess; carriage of baggage; blood money; permanent pensions; temporary pensions*, or *gratuities* in lieu thereof; *rewards* for meritorious conduct; and pensions to widows and children of officers.

In the United States service, the law provides that if a horse be lost in battle, an officer may receive not exceeding two hundred dollars for

his horse, and allowances are made for quarters, fuel, forage, provision, and transportation of baggage, and command money in certain cases.

INDIANS. The red man of America is so called, and as the troops of the United States have always been the pioneers of civilization, their contact with the Indians is always more or less immediate. The problem of the disappearance of the race is fast being solved; and every humane mind must contemplate with sorrow the destitution to which the Indians have been driven. Something, it is believed, may be done for them by the system of policy proposed in the article on national defence, and that policy would be greatly promoted if the United States maintained on our frontier a few Indian regiments, officered by details from the army. The successful adoption of this policy in India by the English, and in Algiers by the French, proves its practicability, and no men would make better light cavalry and light infantry than the Indians on our western frontier.

The President is authorized to cause army rations to be issued to Indians; (*Act* June 30, 1834.)

All purchases on account of Indians, and all payments to them of money or goods, shall be made by such person as the President shall designate for that purpose. And the superintendent, agent, or sub-agent, together with such military officer as the President may direct, shall be present, and certify to the delivery of all goods and money required to be paid or delivered to said Indians. And the duties required by any section of this act of military officers, shall be performed without any other compensation than their actual travelling expenses; (*Act* June 30, 1834.)

Army surgeons may be employed by the Secretary of War to vaccinate Indians; (*Act* May 5, 1832.)

A foreigner going into Indian territory without a passport from the War Department, superintendent, agent, sub-agent, or from the officer commanding the nearest military post, or remaining intentionally therein after the expiration of his passport, is subject to forfeit and pay the sum of one thousand dollars; (*Act* June 30, 1834.)

It shall be lawful for the military force of the United States to be employed, in such manner and under such regulations as the President may direct, in the apprehension of every person found in the Indian territory in violation of any of the provisions of this act, and cause him to be conveyed for trial to the nearest civil authority; and the military force may also be employed in the examination and seizure of stores, packages, and boats, with spirituous liquor or wine, and in preventing the introduction of persons and property into the Indian country con-

trary to law. Provided that no person apprehended by the military force as aforesaid shall be detained longer than five days after arrest, and before removal for surrender to the civil authority; (*Act* June 30, 1834.)

When goods or other property are seized under this act, the process of prosecutions shall be the same as in the case of goods, &c., brought into the United States in violation of the revenue laws; (*Act* June 30, 1834.)

Persons attempting to settle in Indian territory may be removed by military force; (*Act* 1832. *See* TREATY.)

INFANTRY. Its depth of formation has progressively diminished since the centre and wings have been armed alike, and the use of pikes discontinued. The formation in lines has fitted infantry for action on all kinds of ground, and the invention of *massing*, the condensation of ranks, and formations by size, have given it a perfect *ensemble*. Its march has gained in rapidity by the simplification of evolutions, the resort to guides, and turning upon PIVOTS; it acts more skilfully in affairs of plains and outposts, by the rapidity of its changes of direction, formations in order of battle, and alternate ployments and deployments. The general adoption of tactical inversions, it is thought, would add still more to this skilfulness.

The improved rifle-musket, with thorough target practice, gives to infantry immense advantages over cavalry and artillery. The effective range of the new musket permitting skirmishers to open fire at 1,000 yards, fields of battle will cover more ground than formerly, and the use of smaller columns than battalions of eight and ten companies will probably be resorted to. An organization of battalions of six companies of 100 men each, in two ranks, in lieu of the former, would be an improvement; and in the United States service this might be accomplished by adding two companies with two battalion-adjutants and sergeant-majors to each regiment. The front of each battalion would not be too great. Columns would be formed by division in mass. There would be three such divisions, and the square formed would have $\frac{1}{3}$ its rifles in the first and fourth fronts, and $\frac{1}{6}$ each in the other two fronts. Such well-instructed men, in firing, would be perhaps able to show, as in the experiment at Hythe, that a piece of artillery with its men and horses might, at 810 yards, be completely disabled by 30 riflemen in three minutes, and also be an overmatch for cavalry.

Infantry has always guarded the frontier in war; it supports cavalry in great reconnoissances; furnishes swimmers when the cork jacket is resorted to; is employed both in the attack and defence of fortresses;

slings the musket and throws grenades; mounts heights by escalade; escorts and attacks convoys; supports foraging parties; defends abatis; is at home in all accidents of ground; finishes operations begun by artillery; crowns heights which horses and pieces of artillery cannot reach; decides the fate of battles, sometimes with the aid of cavalry, and sometimes alone. Costing little, active, occupying relatively little ground; readily lodged, maintained, and renewed, it is easily subsisted, and often finds in its knapsacks, haversacks, and utensils carried by the men, all its wants supplied, when separated from baggage trains.

It has been made a question whether excellent cavalry may not beat mediocre infantry, and whether excellent infantry would not be overthrown by mediocre cavalry?

There is this great difference between infantry and cavalry: infantry has always changed its tactics at the same time with its arms, whereas cavalry cannot change its manner of fighting, although it has more than once attempted the forms of infantry tactics.

Cavalry cannot operate as a whole, except upon unbroken ground; it is unsuited to firing; the *order of battle* is its great means of action; the sabre or lance is its only reliance; the invention of powder has not improved the art it exercises. Squares of cavalry are useless; the circular formation which has been conceived is a chimera; defence is not its strength; movement is its life, an unbroken field its element, and the charge its principal means of offence. But within range of the rifle, at 1,000 yards, it must be destroyed before reaching its object.

The elementary tactics of infantry consists in securing its rear and its flanks; in never being entirely disfurnished of its fire; in attacking with the bayonet; in defending itself by firing within proper range, and progressively, rather than simultaneously; using the aid of the grenade and rocket, and in resorting to the bayonet, as prescribed in the bayonet exercise. In the offensive movements of a field of battle, infantry ought never to be disfurnished of its fire, except when the enemy falls back, and it is known that his retreat is not a stratagem to draw the fire of the assailants, in order to push down upon them masked cavalry.

Infantry being suited for close or distant combat, the aim of its tactics is to prescribe the best order for the shock, and the best orders for firing. The chef-d'œuvre of art consists in the most rapid and successful transformations of these orders; in the mechanism of changes of front; and in the ployments and deployments of columns of attack and the formation of squares against cavalry.

In campaign, infantry preferably occupies broken ground, woods, &c. A trench, abatis, or chevaux-de-frise is sufficient to secure its

safety. In crossing plains, its head and flanks should be covered by cavalry; in retreat, the infantry forms the rear guard, to protect the column of cavalry. For this purpose it occupies hills or ravines, or, standing firm in heavy masses, the cavalry defiles until it has gained ground suited to cavalry operations. When the cavalry has reached such a position, it deploys, faces to the rear to cover in its turn the retreat of the infantry.

Didactic authors, as well as historians, recognize the superiority of infantry. VOLTAIRE calls it the *soul* of armies; MACHIAVEL, the *sinew;* it is the principal force and lever of power in time of war; it can act alone; other arms move to second it: thus good infantry is the true strength of nations; every one in an army feels its importance; its posts guard the army; its duties are, of all others, the most constant, the most simple, the most easily regulated, and the most certain and most important.

The duties of engineers and artillery require more learning; those of cavalry, in war, are sometimes more dashing and brilliant; but the services of infantry are always in demand. In attack and defence of all kinds; the descent into the ditch; or the defence of the breach, the trench, and the rampart; the insult of palisades, or the fire from the parapet; in ambuscades; or on any field of battle whatever, infantry must exercise its skilfulness and attest its valor. Valleys, fords, defiles, water-courses, ravines, abatis, forests, heights, plains, parallels, camps, outworks, covered ways, advance guards, and rear guards, are all in turn its theatre of action. All kinds of troops mutually aid each other, and it is the skilful combination of their efforts which constitutes, in part, the science of the general-in-chief. To make good infantry, it is essential that it should pass some months in a *camp of instruction.* The soldier must be taught to take care of his arms and accoutrements, to march, to fire well, to build huts, to handle the axe, spade, and shovel, to make cartridges, fascines, hurdles, and gabions, suited to field-works, to cook, and to consider his knapsack, haversack, &c., as part of himself. (*See* DISCIPLINE; ARTICLES OF WAR; TACTICS; MANŒUVRES IN COMBAT. Consult BARDIN.)

INFORMANT. In case a civil person is the complainant, he becomes the principal witness before a court-martial, and after giving his evidence may remain in court, in order that the judge-advocate may refer to him; (HOUGH.)

INITIAL VELOCITY. The velocity with which a projectile leaves the piece, that is, the space in feet then passed in a second, is called its *initial* velocity; the space passed over in a second at any suc-

ceeding point of the trajectory its *remaining* velocity, and the *terminal* velocity is the velocity with which it strikes the object. The greatest initial velocities do not exceed four or five hundred yards, and are given by charges not exceeding one-third the weight of the ball; the feeblest are produced by charges of about one-twenty-fourth the weight of the ball. The musket pendulum used at Washington Arsenal has shown the initial velocity of the elongated ball for the rifle-musket to be 963 feet per second, and that of the pistol-carbine 603. For ordinary practice, where the weight of the powder and the projectile alone vary, initial velocities may be considered *directly proportional to the square root of the weight of powder divided by the square root of the weight of the projectile.*

In the experiments made at Washington by Major Mordecai with the gun and ballistic pendulums combined for the purpose of ascertaining the initial velocities produced by equal charges of powder in the same piece of ordnance on balls of different weights, it was found that, with a 24-pounder gun and a charge of 4 lbs. of powder, the windage being .175 inch, the initial velocity of a shell filled with lead and weighing 27.68 lbs., was 1,325 feet; of a marble ball weighing 9.29 lbs., was 2,154 feet; and of a lignum vitæ ball weighing 4.48 lbs., was 2,759 feet. The two first of these velocities are nearly in the inverse ratio of the square roots of the weights of the shot; but the two last are nearly as the cube roots of the weights inversely. (Consult BENTON. *See* BALLISTICS.)

TABLE OF INITIAL VELOCITIES WITH SERVICE CHARGES.

KIND OF CANNON.	Charge of Powder.	KIND OF PROJECTILE.			REMARKS.
		Shot.	Shells.	Spher'l Case.	
	lbs.	feet.	feet.	feet.	
6-pdr. Field	1.25	1,489		1,357	When the initial velocities of shot, shell, and spherical case shot are given, the weight of the charge refers to shot.
12-pdr. Field	2.50	1,486		1,486	
12-pdr. Field Howitzer	1.00			953	
24-pdr. Siege Gun	6.00	1,680	1,054		
	8.00	1,870	1,670		
8-inch Siege Howitzer	4.00		907		
32-pdr. Sea-coast Gun	8.00	1,640	1,450		
15-inch Columbiad	40.00		1,328		

INJURIES, LIABILITY FOR PRIVATE INJURIES. In the exercise of professional duty by military officers, injuries may frequently be occasioned to other officers, or to private individuals, whose legal remedies are here considered. As between officers themselves, the language of the Articles of War is sufficiently comprehensive to bring most of such cases within the cognizance of a court-martial; but a court-martial

has no power to award pecuniary damages for injurious conduct. Its jurisdiction is criminal, and its judgments are penal. It may happen, too, that the common feeling of the service, to which the offending or the complaining party belongs, would in many cases render an application to such a tribunal utterly fruitless; as the general sentiment of the members of a particular profession or class of society, respecting a matter of professional or corporate right or conduct, is often found to be at variance with the public law of the land. Civil actions are therefore maintainable against commissioned officers, for exceeding their powers, or for exercising them in an oppressive, injurious, and improper manner, whether towards military persons or others. Extreme difficulties, however, lie in the way of plaintiffs in actions of this nature; for no such action is maintainable for an injury, unless it be accompanied by malice or injustice: and the knowledge of this, (says Mr. Baron Eyre,) while it can never check the conduct of good men, may form a check on the bad. Where an officer (says the same learned judge) makes a slip in form, great latitude ought to be allowed; but for a corrupt abuse of authority none can be made.

It will be convenient to consider the law upon this subject: 1st, as it applies to wrongs committed by officers towards persons under military authority; and, 2dly, as it applies to persons not subject to such authority. Some of the decisions that will be quoted were pronounced in cases where naval officers were concerned; but the principle of the decisions applies equally to both services. I. *Wrongs towards Persons under Military Authority.*—A notion appears to have at one time extensively prevailed that an officer could have no remedy against ill treatment received from his superiors in the course of professional duty, except by bringing the offending party to a court-martial, and subjecting him to the penalties of the Articles of War. This opinion, however, was quite unfounded in point of law; and such a state of things might often be productive of the worst consequences. The question was distinctly raised in Grant *v.* Shand, where an action was brought by an officer in the army against his superior officer for oppressive, insulting, and violent conduct. The plaintiff was directed to give a military order: and it appeared that he sent two persons, who failed. The defendant thereupon said to the plaintiff, "What a stupid person you are," and twice struck him; and although the circumstances occurred at Gibraltar, and in the actual execution of military service, it was held by the learned judge at the trial that the action was maintainable; and a verdict was found for the plaintiff. An application was afterwards made to the Court of King's

Bench to set aside the verdict; and Lord Mansfield, the chief-justice, was very desirous to grant a new trial; but the court, after argument, refused to disturb the verdict. So also an action will lie for unjust treatment under the form of discipline, as in Swinton *v.* Molloy, where the defendant, who was captain of the *Trident* man-of-war, put the purser into confinement, kept him imprisoned for three days without inquiring into the case, and then released him on hearing his defence. The purser brought his action against Captain Molloy, for this unlawful detention in custody; and, upon the evidence, Lord Mansfield said, that such conduct on the part of the captain did not appear to have been a proper discharge of his duty, and therefore that his justification under the discipline of the navy had failed him. The jury gave £1,000 damages. In the foregoing case no want of uprightness was attributed to Captain Molloy; and the decision rested wholly on the circumstance of his having committed an injustice, although without a corrupt intention. Cruelty or unnecessary severity, when wilfully committed in the exercise of superior authority, are also good causes of action. Thus in Wall *v.* Macnamara, the action was brought by the plaintiff, as captain in the African corps, against the defendant, Lieutenant-governor and Military Commandant of Senegambia, for imprisoning the plaintiff for the space of nine months at Gambia, in Africa. The defence was a justification of the imprisonment under the Mutiny Act, for the disobedience of orders. At the trial it appeared that the imprisonment of Captain Wall, which was at first legal, namely, for leaving his post without leave from his superior officer, though in a bad state of health, was aggravated with many circumstances of cruelty, which were adverted to by Lord Mansfield, in the following extract from his charge to the jury: "It is admitted that the plaintiff was to blame in leaving his post. But there was no enemy, no mutiny, no danger. His health was declining, and he trusted to the benevolence of the defendant to consider the circumstances under which he acted. But supposing it to have been the defendant's duty to call the plaintiff to a military account for his misconduct, what apology is there for denying him the use of the common air in a sultry climate, and shutting him up in a gloomy prison, when there was no possibility of bringing him to a trial for several months, there not being a sufficient number of officers to form a court-martial? These circumstances, independent of the direct evidence of malice, as sworn to by one of the witnesses, are sufficient for you to presume a bad, malignant motive in the defendant, which would destroy his justification, had it even been within the powers delegated to the defendant by his commission." The jury thereupon found a verdict, for Captain

Wall, with £1,000 damages. An undue assumption of authority in matters not within the range of military discipline, is also a good ground of action against a superior officer. This appears from the case of Warden *v.* Bailey, where the plaintiff was a permanent sergeant in the Bedford regiment of local militia, of which the defendant was the adjutant. In November, 1809, the lieutenant-colonel issued a regimental order for establishing an evening school at Bedford. He appointed the sergeant-major the master, and ordered all sergeants and corporals, including the plaintiff, to attend and pay eight-pence a week towards the expenses of the school. The plaintiff and some other of the scholars having afterwards omitted to attend, several were tried by court-martial and punished. The plaintiff, however, was only reprimanded, and he promised regular attendance in future. Shortly afterwards he was ordered to attend a drill on parade, when the defendant, who appears to have been a shopkeeper, shook his fist at the plaintiff, called him a rascal, and told him he deserved to be shot. The defendant then directed a sergeant to draw his sword and hold it over the plaintiff's head, and if he should stir to run him through; and, by the defendant's direction, a corporal took off the plaintiff's sash and sword. The plaintiff was then conducted, by the defendant's order, to Bedford gaol, with directions that he should be locked up in solitary confinement, and kept on bread and water. He was thus imprisoned for three days. He was then brought up before the colonel and the defendant, and other officers of the regiment, and again remanded to the gaol. The plaintiff's health having been impaired by the continuance of this treatment for several weeks, he was afterwards conducted to his own house, and there kept a close prisoner until January, 1810, when he was escorted by a file of corporals from Bedford to Stilton, to be tried by court-martial for mutinous words spoken on parade at the time of his arrest, and for thereby exciting others to disobedience. He was tried accordingly, but liberated in March, 1810. Upon this he brought his action against the adjutant for the wrongful imprisonment, when an objection was taken that the question of the propriety of the arrest was not within the jurisdiction of the civil courts The Court of Common Pleas, however, overruled this objection. Sir James Mansfield, C. J.: "It might be very convenient that a military officer might be enabled to make the men under his command learn to read and write,—it might be very useful, but is not a part of military discipline. Then, further, there is a tax of 8*d.* a week for learning to read and write. . . . . The subject cannot be taxed, even in the most indirect way, unless it originates in the Lower House of Parliament." Mr. Justice Lawrence:

"It is no part of military duty to attend a school, and learn to write and read. If writing is necessary to corporals and sergeants, the superior officers must select men who *can* write and read; and if they do not continue to do it well, they may be reduced to the ranks. Nor is it any part of military duty to pay for keeping a school light and warm: this very far exceeds the power of any colonel to order." In a subsequent stage of the same case, when it was attempted to justify or defend the mutinous expressions used by Warden on parade as above stated, on the ground of the illegality of the order which gave rise to them, the court held, that although Warden had been unlawfully arrested for disobedience to that order, such a circumstance afforded no warrant for insubordinate language on Warden's part, and therefore no exemption from military arrest and punishment for the same. "Nor will he (said Lord Ellenborough, C. J.) be less an object of military punishment, because the order of the lieut.-colonel, to which this language referred, might not be a valid one, and such as he was strictly competent to make. . . . . There may be disorderly conduct to the prejudice of good order and military discipline, in the manner and terms used and adopted by one soldier in dissuading another soldier not to obey an order not strictly legal. If every erroneous order on the part of a commanding officer would not only justify the individual disobedience of it by the soldier, but would even justify him in making inflammatory and reproachful public comments upon it to his fellow-soldiers, equally the objects of such order with himself, is it possible that military order and discipline could be maintained?" The common defence of officers, against whom actions of this nature are brought, is a justification of their conduct as agreeable to the discipline of the service, and contributory to the maintenance of that discipline. And there can be no doubt, that where the conduct brought into question is not an oppressive, malicious, or unreasonable exercise of power, and does not amount to an excess or abuse of authority, an action is wholly unsustainable. The principles upon which the Courts of Law proceed in actions arising out of the abuse of military power, will receive further illustration from the language of Lord Mansfield, in summing up the evidence to the jury in Wall *v.* Macnamara. His lordship thus expressed himself: "In trying the legality of acts done by military officers in the exercise of their duty, particularly beyond the seas, where cases may occur without the possibility of application for proper advice, great latitude ought to be allowed; and they ought not to suffer for a slip of form, if their intention appears by the evidence to have been upright. It is the same as when complaints are brought against inferior civil

magistrates, such as justices of the peace, for acts done by them in the exercise of their civil duty. There the principal inquiry to be made by a court of justice is, *how the heart stood?* and if there appear to be nothing wrong there, great latitude will be allowed for misapprehension or mistake. But, on the other hand, if the heart is wrong,—if cruelty, malice, and oppression appear to have occasioned or aggravated the imprisonment, or other injury complained of, they shall not cover themselves with the thin veil of legal forms, nor escape under the cover of a justification the most technically regular, from that punishment, which it is your province and your duty to inflict on so scandalous an abuse of public trust." It is no legal objection to an action for the abuse of military authority, that the defendant has not been tried and convicted by a court-martial, for that argument holds in no case short of felony. The infliction of an unjust or illegal sentence, pronounced by a court-martial, is a good cause of action by the prisoner, against all or any of the members of the court, and all persons concerned in the execution of the sentence; such a sentence, if it exceeds the authorized measure of punishment, being not merely invalid for the excess, but absolutely void altogether. The most remarkable case on record of this kind is that of Lieutenant Frye, of the Marines, who, after an unnecessary previous imprisonment for fourteen months, was brought to trial before a naval court-martial at Port Royal in the West Indies, and sentenced to be imprisoned for fifteen years, for disobedience of orders, in refusing to assist in the imprisonment of another officer, without an order in writing from the captain of Her Majesty's ship *Oxford*, on board of which Lieutenant Frye was serving. At the trial the written depositions of several illiterate Blacks were improperly received in evidence against him, in lieu of their oral testimony, which might have been obtained and sifted by cross-examination; and the sentence pronounced was itself illegal for its excessiveness, the Act 22 George II., which contains the naval Articles of War, not allowing any imprisonment beyond the term of two years. On the return to England of Admiral Sir Chaloner Ogle, the president of the court-martial, Lieutenant Frye brought an action against him in the Court of Common Pleas for his illegal conduct at the trial, when the jury, under the direction of the Lord Chief-Justice Willes, gave a verdict for the plaintiff, with £1,000 damages. The Chief-Justice at the same time informed Lieutenant Frye that he might have an action against all or any of the other members of his court-martial; and Lieutenant Frye accordingly issued writs against Rear Admiral Mayne and Captain Renton, upon whom the same were served as they were coming ashore at the conclusion of the proceedings of the

day at another court-martial, of which they were acting members, for the trial of Vice-admiral Lestock, for his conduct in a naval engagement with the French fleet off Toulon, in the early part of the same year. This was deemed a great insult by the members of the sitting court-martial, who accordingly passed some resolutions or remonstrances in strong language, highly derogatory to the chief-justice, which they forwarded to the Lords of the Admiralty, by whom the affair was reported to the king. His Majesty, through the Duke of Newcastle, signified to the Admiralty "his great displeasure at the insult offered to the court-martial, by which the military discipline of the navy is so much affected; and the king highly disapproved of the behavior of Lieutenant Frye on the occasion." The Lord Chief-Justice, as soon as he heard of the resolutions of the court-martial, ordered every member of it to be taken into custody, and was proceeding to uphold the dignity of his court, in a very decided manner, when the whole affair was terminated in Nov., 1746, by the members of the court-martial signing and sending to his lordship a very ample written apology for their conduct. On the reception of this paper in the Court of Common Pleas, it was read aloud, and ordered to be registered among the records as a "memorial," said the Lord Chief-Justice, "to the present and future ages, that whoever set themselves up in opposition to the laws, or think themselves above the law, will in the end find themselves mistaken." The proceedings and the apology were also published in the *London Gazette* of 15th Nov., 1746. At a naval court-martial for the trial of Mr. Crawford, a midshipman of Her Majesty's ship *Emerald*, for contempt and disobedience to the orders of his superior officer, Captain Knell, the court inadvertently found Mr. Crawford guilty only of having been *disorderly when a prisoner at large*, which formed *no part of the offence of which he was accused;* and he was reprimanded accordingly. Mr. Crawford thereupon brought an action against the captain for damages; and the learned judge who presided at the trial, having made some severe animadversions on the illegality of the proceedings, the jury awarded heavy damages. A similar action was brought against Colonel Bailey, colonel of the Middlesex militia, for improperly flogging a private in the militia, and the jury gave £600 damages. In Moore *v.* Bastard also, an action was brought against the president of a court-martial for imprisoning the plaintiff upon an alleged charge of subornation of perjury. The jury gave £300 damages. An action was tried in 1793 before Mr. Barron Perrot, at the spring assizes for the county of Devon, against the officers of the Devon militia, for inflicting 1,000 lashes on the plaintiff, in pursuance of their sentence pronounced against him at a

court-martial, held to try him upon a charge of mutiny; the only act proved being that the plaintiff had written a letter to the colonel of the regiment, which was not communicated to any one else, telling him that the men of the regiment were discontented. The jury gave £500 damages; and the case is quoted with approbation by Mr. Justice Heath, who also intimated, that if the plaintiff had died under the punishment, all the members of the court-martial would have been liable to be hanged for murder. There was also another case of an action against Captain Touyn, a naval officer, in which the plaintiff recovered damages for the infliction of several dozen lashes without a court-martial, for a single offence, thereby exceeding the custom which had prevailed in the navy, that commanding officers might inflict one dozen lashes (called a starting) without a court-martial. No action, however, will lie for merely bringing a man to a court-martial, nor for the previous arrest or suspension; such acts being clearly within the limits of military authority, and exercisable, like all other such powers, in a discretionary manner, under the safeguards and at the risks provided by the Articles of War. A commanding officer has, of necessity, a discretionary power to arrest, suspend, and bring to trial by court-martial, any person under his orders. But though this power is indispensable, and its limits cannot, like those of the power of punishment, be exceeded in point of extent, it may, nevertheless, be oppressively, or improperly used; and therefore, by the Articles of War, such conduct is of itself a distinct military offence, triable by a military jurisdiction. This was the opinion of the Judges of the Exchequer Chamber, in the case of Sutton *v.* Johnstone, and it seems also to be a just inference from the judgment in the same case, that when an officer is expressly charged and found guilty before a court-martial, of having improperly brought another to trial before a similar tribunal, an action is sustainable for the special damage resulting from the offence; but that, until the officer procuring the first trial has been found guilty of improper conduct by a court-martial, a court of law cannot interfere; no civil tribunal being capable of appreciating, with sufficient delicacy, the circumstances which attend the exercise of military power, or of accurately discriminating the grounds of its application. *Want of probable cause* for the accusation is the only basis on which an action for a malicious prosecution before a court-martial can rest; and when that is shown, malice will be inferred by the law. An acquittal, however, by the court-martial, of the party who brings the action, is not conclusive as to the want of probable cause. At the same time, such an acquittal is an essential preliminary to the action, for though the accuser may have been actuated by the most clear

and undisguised malice, yet if he substantiates his original charge to the satisfaction of a court-martial, the accused has no *locus standi* in a civil court, even upon the fullest evidence of his prosecutor's malice, it being impossible to say that there was a want of probable cause, after a court-martial has adjudged that there was a positive cause. Innocence and uprightness of intention will therefore, on the one hand, be no defence to an action of this nature, when there appears to have been a want of probable cause for the prosecution before the court-martial; while, on the other hand, the most malicious, or even corrupt intention, will not subject the accuser to a civil action, where he succeeds in establishing the criminal charge before the military tribunal. A wrongful imprisonment being, in the language of the law, a *tort*, savoring of crime, it is held that if two commit a *tort*, and the plaintiff recovers against one, he cannot recover against the other for the same *tort*. This rule was applied in the above-mentioned case of Warden *v.* Baily, where another action was brought against the colonel of the Bedford militia for the same transaction, and the court held that the imprisonment inflicted by the defendant, the adjutant, terminated on the plaintiff being brought up before the colonel on the third day, and being then remanded by him, so that the adjutant was held not liable for more than the first three days' imprisonment, and the colonel not liable, except from the time of the commencement of the remand ordered by himself. It should be observed, however, that no civil action will lie, in the first instance, against a commissioned officer for a discretionary exercise of military authority while in the performance of actual duty in the field in time of war. Where a discretionary power is clearly vested by military usage in the officer whose conduct is impeached, questions as to the exercise of such authority are so essentially military, that the civil tribunals decline to consider them without the previous judgment of a court-martial. This was settled in the case of Barwis *v.* Keppel, in which the plaintiff was a sergeant in the second battalion of the first regiment of foot guards. The defendant, Colonel Keppel, was the second major of that battalion; and in the absence of his superior officers he had the command of it. In 1760, the battalion was ordered to Germany, under the command of the defendant, to form part of the king's forces serving under Prince Ferdinand. In September, 1761, the prince, being in hourly expectation of a battle, issued an order that all deserters from the enemy should be immediately sent to head-quarters without a moment's delay. The plaintiff had full notice of this order; and three French deserters having surrendered to him, he detained them six hours without bringing them to head-quarters or reporting their arrival. For

this neglect of orders the plaintiff was tried by court-martial, and sentenced to be suspended from his rank of sergeant for a month, and to do the duty and receive the pay of a private soldier during the same time. On the sentence being reported to Colonel Keppel, he did not confirm it, but made an order at the foot of the sentence in the following terms:— "But, as Sergeant Barwis could not be ignorant of the duke's order concerning deserters, and Colonel Keppel thinking his neglect might have been attended with the utmost bad consequences, orders that he be broke, and that Corporal Billow be appointed sergeant in his room." This order was carried into execution, and the plaintiff served accordingly as a private until his battalion returned to England. Colonel Keppel was appointed, in 1762, to command an expedition against the Havannah; and, on his return to England, Barwis brought an action against him for maliciously and improperly reducing him (Barwis) to the ranks. A verdict was found for the plaintiff, with £70 damages, subject to the opinion of the Court of Common Pleas, upon the question, whether the action was maintainable. The court held, that as the whole matter took place abroad, and in the field, in open war, the conduct of the defendant, Colonel Keppel, could not be tried in a civil court. *Per curiam:* "By the Act of Parliament to punish mutiny and desertion, the king's power to make articles of war is confined to his own dominions. When his army is out of his dominions, he acts by virtue of his prerogative, and without the Statute or Articles of War, and, therefore, you cannot argue upon either of them, for they are both to be laid out of this case; and, *flagrante bello*, the common law has never interfered with the army; *silent leges inter arma.* We think (as at present advised) that we have no jurisdiction at all in this case; but if the plaintiff's counsel think proper to speak more fully to this matter, we are willing to hear him." The report contains the following memorandum:—"But plaintiff, seeing the opinion of the court against him, acquiesced, and the judgment was for the defendant, *ut audivi.*"

It was intimated, however, by the two Chief-Justices, Lord Mansfield and Lord Loughborough, on a subsequent occasion, that if the conduct of Colonel Keppel had been previously condemned by a court-martial, an action at law would have been maintainable against him, although the transaction in question took place in the field, and in open war.

Again, with respect to the exercise of military power by commanding officers in the execution of actual service, and the right of action against them on such grounds, the following observations fell from the court in Sutton *v.* Johnstone: "Commanders, in a day of battle, must

act upon delicate suspicions; upon the evidence of their own eye; they must give desperate commands; they must require instantaneous obedience. In case of a general misbehavior, they may be forced to suspend several officers, and put others in their places. A military tribunal is capable of feeling all these circumstances, and understanding that the first, second, and third part of a soldier's duty is obedience. But what condition will a commander be in, if upon the exercising of his authority he is liable to be tried by a common-law judicature? . . . . . Not knowing the law, or the rules of evidence, no commanding or superior officer will dare to act; their inferiors will insult and threaten them. . . . . Upon an unsuccessful battle, there are mutual recriminations, mutual charges, and mutual trials. . . . . Party prejudices mix. If every trial is to be followed by an action, it is easy to see how endless the confusion, how infinite the mischief must be. The person unjustly accused is not without his remedy. He has the properest among military men. Reparation is done to him by an acquittal; and he who accused him unjustly is blasted forever, and dismissed the service. These considerations induce us to turn against introducing this action."

It may be gathered, also, from the case of Sutton *v.* Johnstone, which was an action between naval officers, that, unless a court-martial shall first expressly decide that it was physically impossible for an officer to execute the orders delivered to him in the field or on actual duty, he has no right of action against his commanding officer for bringing him to a court-martial on a charge of disobedience to those orders, even though the court-martial may have acquitted him of misconduct.

Delay in bringing an officer to a court-martial, after he has been put under arrest, is also no ground of action against the officer ordering the arrest; this being a point of purely military conduct and authority, of which a court-martial alone can properly judge. But if a court-martial should condemn the commanding officer's conduct on such an occasion, an action against him would probably lie. Captain Sutton, of H. M. S. *Isis*, brought an action against Commodore Johnstone, for maliciously bringing him to a court-martial on charges of disobedience to orders during an engagement with a French force in 1781. It appeared that Captain Sutton, after his arrest at the close of the engagement, was carried with the squadron to India, where he was detained in arrest for two years, during a lengthened cruise and various naval operations, before he was eventually sent to England by Admiral Sir Richard Hughes, to be tried. His trial was thus delayed for two years and a half; and great stress was laid on these circumstances,

as an unnecessary aggravation of his arrest. But the court said: "The delay is charged to be contrary to the defendant's duty as commander-in-chief. There is no rule of the common or statute law applicable to this case. It is a mere military offence. It is the abuse of a military discretionary power; and the defendant has not been tried for it by court-martial. A court of common law cannot in such a case assume an original jurisdiction. It is like the case of Barwis *v.* Keppel; this objection we think fatal."

But, although questions regarding the use or abuse of military discipline can thus in some instances be discussed in the civil courts, the learned judges of those tribunals have deprecated the resort to such proceedings in ordinary circumstances; and in Warden *v.* Bailey, where the court entertained the case, and ordered a new trial, the Chief-Justice, Sir James Mansfield, said, "I must express the strongest wish that the cause will not be again tried, for all disputes respecting the extent of military discipline are greatly to be deprecated, especially in time of war; they are of the worst consequence, and such as no good subject will wish to see discussed in a civil action; they ought only to be the subject of arrangement among military men." In the case which gave rise to the foregoing observations, the learned judges allowed that a considerable amount of unnecessary violence and indignity had taken place.

A recent case of Walton *v.* Major Gavin of the 16th Lancers, for alleged false imprisonment, gave rise to a very important question with reference to the Article of War which directs that no officer commanding a guard, or provost-marshal, shall refuse to receive or keep any prisoner committed to his charge by any officer or non-commissioned officer belonging to the queen's forces, which officer or non-commissioned officer shall, at the same time, deliver an account in writing signed by himself, of the crime with which the prisoner is charged. And, after very elaborate argument, it was held by Lord Campbell, C. J., and Mr. Justice Coleridge and Mr. Justice Wightman, (Erle, J. dissenting,) that a commanding officer, receiving into his custody a person subject to military law and accused of desertion by a non-commissioned officer who signed the charge, was justified in detaining the prisoner, notwithstanding any irregularity in the proceedings antecedent to his own reception of the prisoner, and was not bound to inquire into the legality of such proceedings. Judgment was therefore given for the defendant. The principle appears to be the same which is applied to the governor or keeper of any ordinary prison, who on receiving a prisoner with a warrant, regular in point of form, for his detention, is

justified in receiving him without inquiring whether the magistrate who signs the warrant is duly qualified to act as a justice, or whether in a poaching case the bird mentioned in the warrant, as the *corpus delicti*, was properly designated a partridge.

Negligence in the use of military arms or weapons is also a good cause of action. In Weaver *v.* Ward, the case was, that the plaintiff and defendant were both soldiers of the trained bands of London. While Ward's band was skirmishing, by way of military exercise, with their muskets charged with powder, against another train-band to which Weaver belonged, Ward's musket was discharged in such a manner as to wound the plaintiff, who thereupon brought an action of trespass against Ward. The defence made by Ward was, that he was in training by order of the Lords of the Council, and skirmishing in obedience to military command, and that the injury happened casually, by misfortune, and against his will. But this was decided not to be enough. *Per curiam:* "No man shall be excused of a trespass except it may be judged utterly without his fault. As if a man by force take my hand and strike you, or if here the defendant had said that the plaintiff ran across his piece when it was discharging, or had set forth the case with the circumstances, so as that it had appeared to the court that it had been inevitable, and that the defendant had committed no negligence to give occasion to the hurt."

As a general rule, all language traducing or defaming a man in the way of his profession or calling is actionable, as it tends to his pecuniary damage or loss.

The communication to the Judge-advocate General, by the president of a court-martial, of their opinion, in the form of a censure, respecting the prosecutor's charges, and his conduct in preferring them, is not a libel, and cannot be made the subject of an action at law. This point was decided in 1806, in the case of Jekyll *v.* Moore. Captain Jekyll, of the 43d regiment, had preferred certain charges against Colonel Stewart of the same regiment, who was accordingly tried by a general court-martial, of which Sir John Moore was president. The judgment of the court was, that "the court do most fully and most honorably acquit him:" but to this sentence the following remarks were subjoined: "The court cannot pass without observation the malicious and groundless accusations that have been produced by Captain Jekyll against an officer whose character has, during a long period of service, been so irreproachable as Colonel Stewart's; and the court do unanimously declare that the conduct of Captain Jekyll, in endeavoring falsely to calumniate the character of his commanding officer, is most

highly injurious to the good of the service." Captain Jekyll contended that the foregoing passage formed no part of the matter submitted to the judgment of the court, and was, therefore, a libel on him. He accordingly brought his action for it in the Court of Common Pleas, against Sir John Moore, but the whole court was of opinion that no such action could be maintained. Sir James Mansfield, chief-justice: "In order to enable the court-martial to decide upon the charges submitted by the king, they must hear all the evidence, as well on the part of the prosecution as of the defence; and after hearing both sides, are to declare their opinion whether there be any ground for the charges. If it appear that the charges are absolutely without foundation, is the president of the court-martial to remain perfectly silent on the conduct of the prosecutor, or can it be any offence for him to state that the charge is groundless and malicious? It seems to me that the words complained of in this case form part of the judgment of acquittal, and consequently no action can be maintained upon it."

It may perhaps be fairly inferred from the foregoing decision, that if a court-martial pass a censure upon the prosecutor, with reference to a matter which is not expressly connected with the charge under trial before such court-martial, or with the proceedings of the court, the case would stand upon a different footing, and would probably be held actionable on the principle of Mr. Crawford's case already noticed.

Confidential communications from the members of a military court of inquiry to the superior military authorities are likewise privileged, and furnish no ground of action to the officer whose conduct is implicated in the documents.

Neither is the promulgation of a sentence in the gazette by a competent official person to be deemed a libel on the officer named in the paper. In 1807 Lord Wm. Bentinck, governor of Madras, issued the following public order: "The Honorable the Court of Directors having resolved to dismiss Colonel Oliver of this establishment from the service of the Honorable Company, for gross violation of the trust reposed in him as Commanding Officer of the Molucca Islands, the Right Honorable the Governor in Council directs that the name of Colonel Oliver be erased from the Army List of this Presidency, from the 20th June last." In 1811, Colonel Oliver brought an action at Westminster against Lord William Bentinck for the publication of this order, on the ground of its containing libellous matter injurious to the plaintiff. But the Court of Common Pleas decided it to be no libel. Sir James Mansfield, chief-justice.: "How should an officer in India know why he was dismissed, if the reason assigned is not to be made known? If

the Court of Directors were peremptorily to dismiss him, without assigning a reason, that would be a greater hardship on the defendant. . . . One should be very sorry to have any thing like a judgment in favor of a plaintiff in such an action as this, than which a more foolish or a more mischievous one cannot easily be imagined; it is much better for the Company, for the country, and for the plaintiff himself, that the cause of his dismissal should be stated, than that it should be supposed that the East India Company did it *suo arbitrio*."

"On the same principle, (says Mr. Justice Heath, in the same case,) when a delinquent, guilty of some enormity, has been brought to a court-martial, the commander-in-chief is not chargeable with libel for directing the sentence to be read at the head of every regiment."

It is decided also, that any communications made by private individuals to superior officers, for the *bona fide* purpose of obtaining redress of grievances, or otherwise invoking the exercise of authority over other officers, will be deemed privileged communications, and no libels.

The principle of the law on this subject, was declared by the court, in Cutler *v.* Dixon, to be this, that, "if actions should be permitted in such cases, those who have just cause of complaint, would not dare to complain for fear of infinite vexation."

But where the author of a written communication traducing another person in his professional character has himself no interest in the matter, the *bona fides* of the proceeding will be no defence against an action. In Harwood *v.* Green, the plaintiff was master of the *Jupiter* transport; and the defendant, a lieutenant in the navy acting as government agent on board, wrote a letter to the secretary at Lloyd's, imputing to Harwood misconduct and incapacity in the management of the vessel. In consequence of this letter, Harwood brought an action against Lieutenant Green for a libel. Lieutenant Green defended himself on the ground that his letter was a privileged communication. But the Lord Chief-Justice Best declared his opinion to the jury, that an officer in the navy had not, as such, the right to make any communication to Lloyd's, but only to the government, by whom, if the matter were important, it might be again communicated to Lloyd's; and the jury gave Harwood a verdict with £50 damages.

It may be useful to mention here, as a legal point giving rights of redress between military men, that a superior officer cannot safely deal for his own advantage, in money matters, with a junior officer under his command. The influence which a senior officer can exercise over his junior is such as to destroy, or at least to control, in the purview of a Court of Equity, that entire freedom which is essential to the per-

fection of a bargain or contract; and if a regimental officer places himself in a position where such influence may operate to the prejudice of the junior, the transactions between them are liable to be set aside for want of fairness or conscientiousness. This is the rule applied to dealings between a guardian and his ward, a physician and his patient, a landlord and his steward, a clergyman and a penitent, and all other cases where the existence of a just and unavoidable influence may lead to abuse.

II. *Wrongs towards Persons not under Military Authority.*—Injuries may be occasioned to persons not subject to military authority, by officers mistaking or exceeding their powers, or exercising them with malice, negligence, or unskilfulness; but for acts of this kind a remedy lies only in the civil courts; the military tribunals, as already observed, having no power to grant pecuniary compensation by way of damages, and non-military persons having no *locus standi* as prosecutors before such courts, which are instituted solely for the maintenance of order and discipline among the armed forces.

In cases of the kind now under consideration, it is quite immaterial whether the cause of action has arisen within the realm, or beyond the seas; though this proposition was not finally established until the year 1774, when the great case of Fabrigas *v.* Mostyn was determined in the Court of King's Bench, and put an end to all further question or doubt upon the subject. The plaintiff was a native of Minorca, of which island the defendant, General Mostyn, was governor. The general had by his own absolute authority imprisoned the plaintiff and banished him from the island without a trial. The defence was, that in the peculiar district of Minorca, where the offence occurred, no ordinary court or magistrate had jurisdiction. But the proof of this defence failed, and the jury gave the plaintiff £3,000 damages. The objection, however, was taken that the action did not lie, by reason of the foreign locality of the cause of it, and the point was twice argued at great length; but judgment was eventually pronounced against General Mostyn, in accordance with the verdict of the jury. It should be noticed also that, as General Mostyn happened to be a governor, his appointment gave him the character of a viceroy, so that *locally and during his government* no civil or criminal action lay against him. On principles of public justice, therefore, it was necessary that a remedy should be had in England.

The *undue assumption* or *mistaken* exercise of authority by officers towards non-military persons, is a clear ground of action against them in the civil courts, even though there be no malice accompanying the transaction.

Captain Gambier, of the navy, under the orders of Admiral Boscawen, pulled down the houses of some sutlers on the coast of Nova Scotia, who supplied the seamen of the fleet with spirituous liquors. The act was done with a good intention on the part of the admiral; for the health of the sailors had been affected by frequenting these houses. Captain Gambier, on his return to England, incautiously brought home in his ship one of the sutlers whose houses had been thus demolished. The man would never otherwise have got to England; but on his arrival he was advised to bring an action against Captain Gambier. He did so, and recovered £1,000 damages. But as the captain had acted by the orders of Admiral Boscawen, the representatives of the admiral defended the action, and paid the damages and costs. This was a favorable case, unaccompanied by any malicious feeling; but the parties concerned did not attempt to disturb the verdict.

Admiral Sir Hugh Palliser was defendant in a similar action for destroying fishing huts on the Labrador coast. After the treaty of Paris, the Canadians, early in the season, erected huts for fishing, and by such means obtained an advantage over the fishermen who came from England. It was a nice question upon the rights of the Canadians. But the admiral, on grounds of public policy, ordered the huts to be destroyed. An action was brought against him in England by one of the injured parties, and the case ended in arbitration. But on the part of the admiral it was never contended that the action did not lie by reason of the subject-matter of it having occurred beyond the seas.

"I remember," said Lord Mansfield, "early in my time being counsel in an action brought by a carpenter in the train of artillery against Governor Sabine, who was governor of Gibraltar, and who had barely confirmed the sentence of a court-martial, by which the plaintiff had been tried and sentenced to be whipped. The governor was very ably defended, but nobody ever thought that the action would not lie; and it being proved that the tradesmen who followed the train were not liable to martial law, the court were of that opinion, and the jury found the defendant guilty of the trespass, as having had a share in the sentence, and gave £700 damages."

The following case, involving the same principle, occurred in India, and was there tried before the Supreme Court of Madras. Mr. H. Smith was agent, at Secunderabad, of a mercantile house at Madras, from whom he received a very handsome salary. He became indebted to a soldier of H. M.'s 33d regiment for some work intrusted to him, and a dispute having arisen between them as to the amount, this led to a violent altercation between Mr. Smith and the superintendent of the

bazaar acting under local military regulations. Lieutenant-colonel Gore thereupon sent a file of men to arrest the plaintiff, who was accordingly seized about six o'clock in the evening, and marched from his house through the streets of the cantonment to the main guard at Secunderabad, where he was kept till twelve o'clock the next day. In consequence of these proceedings, he brought an action against Colonel Gore for false imprisonment. Secunderabad was an open cantonment for a part of the subsidiary force serving in the territories of the Nizam; the force consisting partly of British and partly of native troops. It had barracks, and the men were hutted. It was also upon a field establishment, constantly ready for immediate service. The Article of War then in force, being the 22d in the 11th section of the Statute 27 Geo. II., was thus intituled, "Of duties in quarters, in garrison, and in the field;" and it enacted, "that all sutlers and retainers to the camp, and all persons whatsoever serving with forces *in the field*, though not enlisted soldiers, are to be subject to orders, according to the rules and discipline of war." Sir Thomas Strange, C. J.: "The question was, whether the troops, *being cantoned*, were in the state to which the cited Articles of War applied. The court thought they were not. It might have been a field force, being upon a field establishment, so as to be ready to move at the shortest notice. There might be great similarity in the arrangements adopted for an army, whether in the field or cantoned. A respectable witness, Brigade-major Lyne, intimated as much. Still, so far as the court could form a judgment upon a question of this nature, there seemed to be a difference between a camp and a cantonment, which appeared material. . . . . When in the field, not only the army, but its appendages, must be under the immediate control of the officer commanding it, according to the rules and discipline of war. So situated, the sutler, who chose to follow the camp, identified himself in a manner with the soldier for every purpose almost but that of fighting. . . . . The plaintiff called upon the court to say, whether the force in question, under the command of the defendant, was at the time in the field. It seemed impossible to say that it was, without confounding ideas apparently very distinct. . . . . The defendant appeared to have acted under a mistake of his authority, for which he was liable to answer, as it had been productive of serious injury to the plaintiff." Judgment was therefore given against Colonel Gore, with fifty pagodas damages.

In the foregoing case reference was made to an action brought by Mr. Robert Bailie, an up-country trader in the province of Bengal, against Major-general Robert Stewart, for an assault and false imprison-

ment. Mr. Bailie had resided within the cantonments of Cawnpore for many years, and dealt in European articles, which he principally disposed of to the military stationed there. In October, 1797, upon a complaint made to him by one of the people of his Zenanah, he tied up and very severely flogged one of his *chowkydars*. For this act Major-general Stewart ordered Mr. Bailie to be tried by court-martial; and as he acknowledged to have used no less than six switch whips in the flogging, alleging as his reason, that as they were new whips, he was afraid of breaking them and spoiling their sale, the court-martial sentenced him to five days' imprisonment, and to make an apology to the commanding officer. This sentence General Stewart, though he did not approve of it, confirmed; and issued orders for Mr. Bailie to depart the camp as soon after his enlargement as possible. The Supreme Court of Calcutta held Mr. Bailie to be a sutler within the meaning of the Articles of War, so as to render him amenable to military law. But in the above-mentioned action of Smith *v.* Lieut.-col. Gore, the chief-justice, Sir T. Strange, declined to be governed by the decision in General Stewart's case, as the note furnished to the court did not clearly show whether or not the army was in the field when the transaction occurred.

An *unreasonable* or *malicious* exercise of power will, in like manner, render an officer liable to an action for damages. An instance of this occurred in the year 1783, when an action was brought against General Murray, governor of Minorca, for improperly suspending the judge of the Vice-admiralty Court of that island. The general had professed himself ready to restore the judge on his making a particular apology; and, on reference to the home authorities, the king approved of the suspension, unless the governor's terms were complied with. There was no doubt as to General Murray's power to suspend the judge for proper cause; yet, on the proof of his having unreasonably and improperly exercised the authority, and notwithstanding the king's approbation of his proceedings, damages to the amount of £5,000 were awarded against him by a jury; and, as Mr. Baron Eyre observed, it never occurred to any lawyer that there was any pretence for questioning the verdict.

Negligence or *unskilfulness* in the exercise of an officer's duty may also be a cause of action for damages in respect of private injuries thus occasioned; and in such cases the approval of an officer's conduct by the government, or by the superior military authorities, will neither relieve him from liability to an action, nor have any influence upon the decision of the courts of Westminster Hall. Those tribunals investigate such matters on independent evidence, according to their own rules, and pay no regard to the previous conclusions of official functionaries, however high their rank may be.

It is a rule of English law, in unison with the law of nations, by which all civilized states are governed, that no officer engaged in military operations in his country's cause, by the order or with the sanction of the constituted authorities, shall incur any individual or private responsibility for acts done by virtue of his commission or official instructions. Such transactions being of a public nature, redress or satisfaction for injuries to which they give birth, is to be sought by public means alone, from the sovereign power of the belligerent or offending state, according to the principles of international law, and the general usages of civilization, which never suffer such matters to be litigated before ordinary tribunals.

If, in time of peace, the citizens of a friendly foreign state sustain a private injury at the hands of a naval or military officer serving under the orders of the British government, but unauthorized by his commission or instructions to do the act complained of, the ordinary tribunals of England afford the same redress against him as in the case of a British subject similarly aggrieved; and this rule applies even in those cases where the violated rights of the foreigner are such as the law of England denies or prohibits to its own subjects.

But if the British government have expressly instructed the officer to commit the act which constitutes or gives occasion to the grievance, the matter becomes an affair of state which is not cognizable by the courts of law, and must be adjusted by diplomatic arrangement between the two governments concerned. In such cases also it is quite sufficient, if the officer's proceedings, though not originally directed or authorized by the terms of his instructions, are afterward sanctioned and adopted by the government; for this renders them public acts, over which courts of law have no jurisdiction. (Consult PRENDERGAST'S *Law relating to Officers of the Army.*)

INJURING PRIVATE PROPERTY. (*See* WASTE or SPOIL.)

INLYING PICKET. A body of infantry or cavalry in campaign, detailed to march, if called upon, and held ready for that purpose in camp or quarters.

INSPECTORS-GENERAL. There are two inspectors-general of the army with the rank of colonel. Assistant adjutants-general are ex-officio assistant inspectors-general. The duties of inspectors-general are prescribed by Army Regulations. In the French army, a certain number of general officers are annually designated to make inspections, and such inspections embrace every thing relative to organization, recruiting, discharges, administration, accountability for money and property instruction, police, and discipline of the several corps of the army. At

these inspections all wrongs are redressed, and each inspection is continued from eight to ten days. The inspector examines and studies the condition of the corps under arms, as well as off parade; he receives all applications for discharge, and for the retired list. He notes those who merit promotion, rewards, or reprimands. He assembles the council of administration, and verifies their accounts; visits the storehouses, quarters, hospitals, prisons; inspects the clothing, arms, &c., &c., and, in fine, scrutinizes every thing which it is desirable should be known. He gives his orders to the regiment for the ensuing year, and makes a detailed report of what he has seen and done.

INSURRECTION. (*See* CALLING FORTH MILITIA.) It will be observed that whenever the President of the United States is authorized by law to *use* the military force in cases of insurrection or obstruction to the laws, he must first, by proclamation, have commanded the insurgents to disperse and retire peaceably to their respective abodes within a limited time; (*Act* Feb. 28, 1795. *See* OBSTRUCTIONS TO THE LAWS.)

INTERIOR FLANKING ANGLE—is formed by the line of defence and the curtain.

INTERIOR SIDE—is the line drawn from the centre of one bastion to that of the next, or the line of the curtain produced, to the two oblique radii of the front.

INTRENCHED CAMP. A position is so called when occupied by troops, and fortified for their protection during the operations of a campaign.

INTRENCHMENT. A ditch or trench with a parapet; field-works. In permanent fortification, intrenchments are made in various parts of the works to prolong the defence, as a breast-work and ditch at the gorge of the bastion, &c.

INUNDATION. An inundation or collection of water is produced by forming across a stream one or more dams.

INVASION. (*See* CONSTITUTION; CALLING FORTH MILITIA; NATIONAL DEFENCE.)

INVERSION. In case a column, marching right in front, shall be under the necessity of forming into line faced to the reverse flank by the promptest means, the command is given: Halt! By inversion right into line wheel, battalion guide right. This movement will give an order of battle with the left company occupying the right of the battalion, and the right the left.

Inversions are very important in the field, and they offer such great advantages, that Bonaparte strongly advised their employment in many circumstances. Our tactics admit the employment of inversions in the

formations to the right and left in line of battle, and also in the successive formations, except in that of *faced to the rear into line of battle.* When used, the first command always begins, *By inversion.* (*See* INFANTRY.)

INVEST. To take the initiatory measures to besiege a town, by securing every road and avenue leading to it, to prevent ingress or egress.

IRON PLATES. In the experiments made against the "Undaunted," at Portsmouth, the following results were obtained:—Six wrought-iron 68-lb. shot were fired with a charge of 16 lbs. at 200 yards, the iron plates being 4½ in. thick; four of these shot broke the plates, but did not penetrate the timber; two passed entirely through both plates and timber. Forty-three cast-iron 68-lb. shot were fired against other plates of similar thickness. Of these, four passed through the plates but not the timber. Nine passed through both; but there was only one case of a shot taking good effect after striking an uninjured plate. Thus of the four shots that passed through the plates without penetrating the timber, only one went through a plate that had not been previously weakened.

The shot that penetrated entirely through the plates and the timber had all passed through plates previously weakened. No penetration was effected by red-hot 68-lb. shot, with a charge of 10 lbs. The 3 and 2½-in. plates were all penetrated by 68-lb. shot and shells.

The following conclusions have been drawn from experiments:—

1st. That thin plates of wrought iron are proof against any shells; for, though the shells may pass through the plates, they will be in a broken state.

2d. That being proof against shells will avail little, unless vessels are likewise proof against solid shot; for shells would, of course, not be fired against ships proof against them, whereas the destructive effects produced by fragments of shot and of plates, and the great damage done to the scantling of the ship by solid shot, appear more like the result of a shell than of a shot.

3d. That rifled projectiles produce greater effect than spherical projectiles of the same weight at long than at short ranges, on account of the rifled elongated projectiles—the resistance to which is a minimum—retaining more of their initial velocity than spherical projectiles at the same distance.

4th. That the thickness of plates required to resist shot fired from the heaviest nature of guns, must not be less than 4½ in.

5th. That, to secure the resistance of the plates and the impenetrability of the sides of a ship, it is indispensable that the plates be strongly backed by masses of the strongest and most resisting timber, as, in all

the cases to which reference has just been made, it appears that the plates are easily broken when the support is removed from behind them, by the crushing, fracturing, and damaging effects of the impacts of the shot; (Sir Howard Douglas.)

With the knowledge of these data, an iron-clad ship, "Le Gloire," has been built in France, carrying 38 rifled 50-pounders, and France, it is said, will soon have 300 rifled guns in such vessels.

In England, the iron-clad "Warrior," 420 feet long and over 6,000 tons' burden, has been built. The new principle introduced in England, of inclining the iron-clad sides inwardly, so as to make an angle with the horizontal of from 35° to 40°, will cause the shot to glance off, with little injury to the sides. In addition to this, it is proposed to suppress the port-holes, and place the guns in rotating iron cupolas, from which, by a rotatory of 180°, they fire over the bulwarks on either broadside —the gunners being perfectly sheltered under these shot-proof covers; (Barnard's *Sea-coast Defence.*) The great objection to such an arrangement is its unwieldiness, and the opinion of distinguished officers—that iron plates are only practicable for floating batteries, gunboats, and other vessels of small draft of water, for special purposes, may prove the better opinion, notwithstanding the great outlay made by the French and English governments.

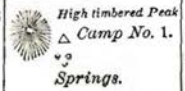
J

JOISTS. The timbers of a floor, whereto boards or lathing for ceiling are nailed. They either rest on the wall or on girders, or sometimes on both. (*See* Carpentry.)

JOURNAL, or Itinerary. *Directions for keeping the journal of a march west of the Mississippi.*—The journal should be kept in a pocket note-book; or, if one cannot be obtained, in a book made of sheets of paper folded to half the letter size. The record is to run from the bottom to the top of each page. The horizontal divisions in the column headed "*Route*," represent portions of a day's march. The distance, in miles, between each of the horizontal divisions, will be noted in the column headed "*Distance*," which will be summed up at the top of each column, and the sum carried to the bottom of the next column. The notes within each horizontal division are to show the general directions of the march, and every object of interest observed in passing over the distance represented thereby; and all remarkable features, such as hills, streams with their names, fords, springs, houses, villages, forests, marshes, &c., and the places of encampment, will be sketched in their relative positions. The "*Remarks*" corresponding to each division

will be upon the soil, productions, quantity and quality of timber, grass, water, fords, nature of the roads, &c., and important incidents. They should show where provisions, forage, fuel, and water can be obtained; whether the streams to be crossed are fordable, miry, have quicksands or steep banks, and whether they overflow their banks in wet seasons; also the quality of the water; and, in brief, every thing of practical importance. When a detachment leaves the main column, the point on the "*Route*" will be noted, and the reason given in the *Remarks*. The commander of the detachment will be furnished with a copy of the journal up to that point, and will continue it over his new line of march.

JOURNAL of the march of [*here insert the names of the regiments or companies composing the column,*] commanded by —— ——, from [*here insert the point of departure*] to [*the stopping place,*] pursuant to [*here give the No. and date of order for the march.*]

Date.	Hour.	Weather.	Distance.	Route.	REMARKS.
1860.		Cloudy, with wind.—Cold early in morning.—Cloudy.	Total, 19		
			3		Road rocky; but little grass; good water. Plenty of timber on summit of hills, extending 3 miles; road to right of hills.
July 8.	5. A. M.		8		Good shelter for camp at foot of peak; fuel plenty. Springs of sweet water, with good grass near. Road to this point rather more sandy.
	1 P. M.				
	10.		3		Road runs through a cañon ½ mile long, to right of a small stream; marsh on left of stream; water sweet; grass excellent. Halted to graze two hours. No Indian signs.
	6.30.		1		Companies F, G, and I, 3d ——, detached at Mt. P——, under command of —— ——, (see par. 3, General Orders, No. ——,) to take road to ——. A small creek, easily forded.
	6.		4		Road turns short to right at top of hill after crossing river; crossing good, but a little boggy on right bank. This bottom shows signs of recent overflow, when it must have been impassable; banks low; water sweet; no wood near crossing; road hard and good up to river.
July 7.	4.30.				

JOURNAL, (*Continued.*)

Date.	Hour.	Weather.	Distance.	Route	REMARKS.
1860.		Rain. Very pleasant; cloudy in the P. M.	Total, 47		
			5	*Fork in Road.*	At the point where the road forks, turn to the right. The left-hand road leads to a deep ravine, which cannot be crossed.
July 9.	4.30 A. M.				
	4.30 P. M.		3	△ *Camp No. 2.* *Springs* *Ravine* *S.S.E.*	After the road strikes the ravine, it runs one mile along its bank before coming to the crossing place. The camping ground is at springs, half a mile beyond the ravine. Old Indian signs at the springs.
	3 P. M.		15	× *Grave.* *Mt. T—* *S.S.E.*	Road less rocky; last three miles rather sandy; no water. Passed at the point marked + an Indian grave.
	9.		5	*Springs.* *S.S.W.*	Road still rocky; good springs, where casks should be filled. No more water for twenty miles after leaving springs. Occasional hills to left of road; no wood or grass.
July 8.	6.30 A. M.				
			19		

JUDGE-ADVOCATE. There is one judge-advocate selected from the captains of the army with the brevet rank and pay of a major of cavalry. The judge-advocate, or some person deputed by him, or by the general, or officer commanding the army, detachment, or garrison, shall prosecute in the name of the United States, but shall so far consider himself as counsel for the prisoner, after the said prisoner shall have made his plea, as to object to any leading question to any of the witnesses, or any question to the prisoner, the answer to which might tend to criminate himself. The judge-advocate administers the prescribed oaths to the court and witnesses; (ART. 69.)

The appropriate functions of the judge-advocate, as an essential officer in all general courts-martial, are various in their nature; and as the Articles of War do not describe them with much precision, it is proper to resort to the less positive, though equally binding authority, of established usage and practice.

The Articles of War are silent on the subject of the judge-advocate's assisting the court with his counsels and advice as to any matters of form or law; it nevertheless is his duty, by custom, to explain any doubts which may arise in the course of its deliberations, and to prevent any irregularities or deviations from the regular form of proceedings. The duty assigned the judge-advocate by ART. 69, is more especially incumbent on him in cases where the prisoner has not the aid of professional counsel to direct him, which generally happens in the trials of private soldiers, who, having had few advantages of education, or opportunities for mental improvement, stand greatly in need of advice under circumstances often sufficient to overwhelm the acutest intellect, and embarrass or suspend the powers of the most cultivated understanding. It is certainly not to be understood that, in discharging this office, which is prescribed solely by humanity, the judge-advocate should, in the strictest sense, consider himself as bound to the duty of counsel, by exerting his ingenuity to defend the prisoner, at all hazards, against those charges which, in his capacity of prosecutor, he is, on the other hand, bound to urge, and sustain by proof; for, understood to this extent, the one duty is utterly inconsistent with the other. All that is required is, that in the same manner as in civil courts of criminal jurisdiction, the judges are understood to be counsel for the person accused, the judge-advocate, in courts-martial, shall do justice to the cause of the prisoner, by giving full weight to every circumstance or argument in his favor; shall bring the same fairly and completely into the view of the court; shall suggest the supplying of all omissions in exculpatory evidence; shall engross in the written proceedings all matters which, either directly or by presumption, tend to the prisoner's defence; and finally, shall not avail himself of any advantage which superior knowledge or ability, or his influence with the court may give him, in enforcing the conviction, rather than the acquittal, of the person accused.

When a court-martial is summoned by the proper authority, for the trial of any military offender, the judge-advocate, being required to attend to his duty, and furnished with articles of charge or accusation, on which he is to prosecute, must, from the information of the accuser, instruct himself in all the circumstances of the case, and by what evi-

dence the whole particulars are to be proved against the prisoner. Of these, it is proper that he should prepare, in writing, a short analysis, or plan, for his own regulation in the conduct of the trial, and examination of the witnesses. He ought then, if it has not been done by some other functionary, to give information to the prisoner of the time and place appointed for his trial, and furnish him, at the same time, with a copy of the charges that are to be exhibited against him, and likewise a correct detail of the members of the court. The judge-advocate ought then to hand in to the adjutant-general, or staff-officer charged with the details, a list of witnesses for the prosecution, in order that they may be summoned to give their attendance at the time and place appointed.

It is proper, likewise, that he should desire the prisoner to make a similar application, to insure the attendance of the witnesses necessary for his defence. These measures ought to be taken as early as possible, that there may be sufficient time for the arrival of witnesses who may be at a distance. When the court is met for trial, and the members are regularly sworn, the judge-advocate, after opening the prosecution by a recital of the charges, together with such detail of circumstances as he may deem necessary, proceeds to examine his witnesses in support of the charges, while at the same time he acts as the recorder or clerk of the court, in taking down the evidence in writing at full length, and as nearly as possible in the words of the witnesses. At the close of the business of each day, and in the interval before the next meeting of the court, it is the duty of the judge-advocate to make a fair copy of the proceedings; which he continues thus regularly to engross till the conclusion of the trial, when the whole is read over by him to the court, before the members proceed to deliberate and form their opinions. The sentence of the court must be fairly engrossed and subjoined to the record copy of the proceedings; and the whole must be authenticated by the signature of the president of the court, and that of the judge-advocate.

It is required by the Articles of War, (ART. 90,) that "every judge-advocate, or person officiating as such, at any general court-martial, shall transmit, with as much expedition as the opportunity of time and distance of place can admit, the original proceedings and sentence of such court-martial, to the Secretary of War; which said original proceedings and sentence shall be carefully kept and preserved in the office of the said secretary, to the end that the persons entitled thereto, may be enabled, upon application to the said office, to obtain copies thereof." The judge-advocate sends the proceedings to the Secretary of War through the adjutant-general.

The judge-advocate cannot be challenged. He may be relieved at any time. He should, in complicated cases, arrange and methodize the evidence, applying it distinctly to the facts of the charge. Besides applying the evidence fairly to each side of the question, he should inform the court as to the *legal* bearing of the evidence, for there may have been admitted evidence which ought to be rejected from their minds as illegal; (HOUGH'S *Military Law Authorities.*)

JURISDICTION. All officers, conductors, gunners, matrosses, drivers, or other persons whatsoever, receiving pay, or hire, in the service of the artillery, or corps of engineers of the United States, shall be governed by the aforesaid rules and articles, and shall be subject to be tried by courts-martial, in like manner with the officers and soldiers of the other troops in the service of the United States; (ART. 96.)

The officers and soldiers of any troops, whether militia or others, being mustered and in pay of the United States, shall at all times and in all places, when joined or acting in conjunction with the regular forces of the United States, be governed by these Rules and Articles of War, and shall be subject to be tried by courts-martial, in like manner with the officers and soldiers in the regular forces, save only that such courts-martial shall be composed entirely of militia officers; (ART. 97.)

No person shall be liable to be tried and punished by a general court-martial for any offence which shall appear to have been committed more than two years before the issuing of the order for such trial, unless the person, by reason of having absented himself, or some other manifest impediment, shall not have been amenable to justice within that period; (ART. 88.)

JURISDICTION, (CONCURRENT.) Can courts-martial and civil courts have concurrent jurisdiction over offences committed by soldiers? Or, in other words, if a soldier is guilty of an offence which renders him amenable for trial before the civil courts of the land, can he also be tried for that offence (if its specification should establish a violation of the Rules and Articles of War) by a court-martial?

By the Constitution of the United States Congess is authorized "to make rules for the government and regulation of the land and naval forces;" and Congress, pursuant to this authority, has established rules and articles for the government of the armies of the United States. These rules are an additional code, to which every citizen who becomes a soldier subjects himself for the preservation of good order and military discipline. The soldier, however, is still a citizen of the United States. He has not, by assuming the military character, become, as in many European countries, a member of a privileged body who may

claim trial for all offences by courts-martial. He is still amenable to the ordinary common law courts for any offences against the persons or property of any citizen of any of the United States, such as is punishable by the known laws of the land; (ART. 33.) An examination of the Rules and Articles of War will show that the offences therein described, and against which punishment is denounced, are purely military. They are crimes which impair the efficiency of the military body, and even in cases, in which they would be recognized as offences by the ordinary common law courts, they could not be considered the *same offences.*

Take, for instance, Article 9, which inflicts the punishment of death or other punishment, according to the nature of his offence, upon any officer or soldier who shall strike his superior officer. Here is an offence punishable under the known laws of the land as an assault and battery, and, as such, it could be tried by the common law courts. But such trial would not prevent a court-martial from afterwards taking cognizance of it under Article 9; for the offence before the common law court would be striking an *equal*, while before the military court it would have essentially changed its character.

Again, suppose an officer had been guilty of stealing, he might be prosecuted before the common law court for the felony, and afterwards charged with conduct unbecoming an officer and a gentleman, and dismissed the service. It can hardly be contended that the offences in either of the cases cited would be the *same* before the different courts; and if not, Article 87, which forbids a trial a second time for the same offence, could not be pleaded in bar of trial. Recognizing, then, the principle that the soldier, as citizen, is subject to the common law courts for offences committed against the well-being of the State, it must also be recollected that he is subject to trial by a court-martial for any violation of the Rules and Articles of War.

In the case of "Eels, plaintiff in error, *v.* the People of the State of Illinois," it was urged that the act of the State of Illinois under which Eels was tried was void, as it would subject the delinquent to a double punishment for the same offence, the crime with which he was charged being actionable under a law of the United States. The Supreme Court decided that, admitting the plaintiff in error to be liable to an action under the act of Congress, it did not follow he would be twice punished for the same *offence*, and gave the following definition of that term:

"An offence in its legal signification means the transgression of a law. A man may be compelled to make reparation in damages to the injured party, and be liable also to punishment for a breach of the pub-

lic peace in consequence of the same act, and may be said, in common parlance, to be twice punished for the same offence. Every citizen of the United States is also a citizen of a State or Territory. He may be said to owe allegiance to two sovereigns and may be liable to punishment for an infraction of the laws of either. The same act may be an offence or transgression of the laws of both. Thus an assault upon the marshal of the United States and hindering him in the execution of legal process is a high offence against the United States, for which the perpetrator is liable to punishment; and the same act may also be a gross breach of the peace of the State, a riot, assault, or a murder, and subject the same person to a punishment under the State laws for a misdemeanor or felony. That either or both may, if they see fit, punish such an offender cannot be doubted. Yet it cannot be truly averred that the offender has been twice punished for the same offence, but only that by one act he has committed two offences, for each of which he is justly punishable. He could not plead the punishment by one in bar to a conviction by the other; consequently, this court has decided, in the case of Fox *v.* the State of Ohio, (5 Howard, 432,) that a State may punish the offence of altering or passing false coin as a cheat or fraud practised on its citizens; and, in the case of the United States *v.* Marigold, (9 Howard, 560,) that Congress, in the proper exercise of its authority, may punish the same act as an offence against the United States.

K

KEEP. To keep troops is to maintain organized forces.

KIT. A cant word among soldiers to express the necessary articles provided for them, and which they are obliged to keep in order.

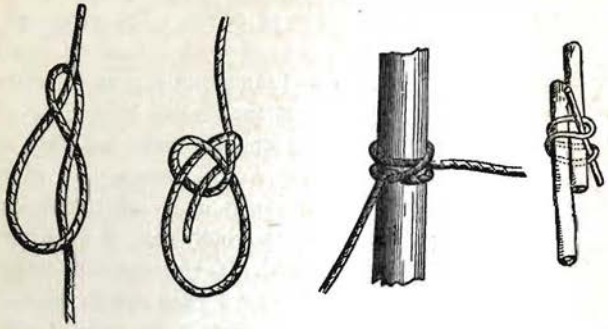
KITCHEN. For proposed kitchen-cart for field service *see* WAGON.

KNAPSACK. A square frame covered with canvas carried on an infantry soldier's back, containing his clothing and other necessaries, but not his rations.

KNOTS. The three elementary knots, which every one should know, are here represented (Fig. 147)—viz., the Timber-hitch, the Bowline, and the Clove-hitch. The virtues of the timber-hitch are, that, so long as the strain upon it is kept up, it will never give; when the strain is taken off, it is cast loose immediately. The bowline makes a knot difficult to undo; with it the ends of two strings are tied together, or a loop made at the end of a single piece of string, as in the drawing. For slip-nooses, use the bowline to make the draw-loop. The clove-hitch binds with excessive force, and by it, and it alone, can a weight

be hung to a smooth pole, as to a tent-pole. A kind of double clove-hitch is generally used, but the simple one suffices, and is more easily recollected.

FIG. 147.



The following additional remarks deserve attention:—A timber-hitch had better have the loose end twisted more than once; it is liable to slip, if not. To tie a bowline, or any other knot for temporary purposes, insert a stick into the knot before pulling tight. The stick will enable you, at will, to untie the knot—to break its back, as the sailors say—with little difficulty. A bowline is firmer, if doubled; that is, if the lower loose end in the figure be made to wrap round a second time. A double clove-hitch is firmer than a single one; that is, the rope should make two turns, instead of one turn, round the pole beneath the lowest loose end in the figure. To make a large knot at the end of a piece of string, to prevent it from pulling through a hole, turn the end of the string back upon itself, so as to make it double, and then tie a common knot. The string may be quadrupled instead of doubled, if required. A *toggle and strap* is a tourniquet. A single or a double band is made to inclose the two pieces of wood it is desired to lash together. Then a stick is pushed into the band and forcibly twisted round. The band should be of soft material, such as the strands of a rope that has been picked to pieces on purpose. The strands must, each of them, be untwisted and well rubbed with a stick to take the kink out of them, and finally twisted in a direction opposite to their original one; (GALTON'S *Art of Travel.*)

L

LADDER BRIDGE—may be formed by running a cart or gun limber into the stream and securing it there, with the shafts in a vertical position, by ropes from both sides of the river; one end of a ladder

from each bank resting upon it, and covering the steps or rungs with planks.

LADDERS. (*See* ESCALADE.)

LANCE. The lance is composed of a sharp steel blade, from 8 to 10 inches long, grooved like a common bayonet with a socket at its base and two iron straps for attaching it to the handle. The handle is of strong light wood, with a tip of iron at its lower end and a leathern loop at its centre of gravity to support and guide the lance. It is usually from 8½ to 11 feet long, and weighs about 4½ lbs. This weapon is not used in the United States service. The Russians have their regular and irregular Cossacks armed with the lance. The Austrians, also, have lancers; but the Polish cavalry use the lance better than any other people. The lance, when not in use, rests in a leather boot attached to the stirrup, the right arm being passed through the leather loop of the lance; or by putting the lower end in the boot and strapping the handle to the pommel of the saddle. Lancers are more formidable than other cavalry because they are able to reach further. Skill in combating a lancer, consists in keeping to his left, in order to shun his lance. Pressed too nearly, the lancer must have recourse to his sabre and let his lance rest upon his arm. The moment in which he attempts to seize his sabre is dangerous to him. The Mexican cavalry are generally lancers.

LANDING. (*See* DISEMBARKATION and EMBARKATION.)

LASHES. A general court-martial may sentence a soldier to receive fifty lashes for desertion. No other crime is punishable with lashes.

LAW—is a rule of action prescribed by a superior power.

Natural law is the rule of human action prescribed by the Creator, discoverable by the light of reason.

Divine law is the law of nature revealed by God himself.

The law of nations is that which regulates the conduct and mutual intercourse of independent nations with each other, according to reason and natural justice. (*See* WAR.)

Municipal or civil law is the rule of civil conduct prescribed by the supreme power in a State, commanding what is right, and prohibiting what is wrong.

The parts of a law are: 1. The declaratory; which defines what is right and wrong. 2. The directory; which consists in commending the observation of right, or prohibiting the commission of wrong. 3. The remedial; or method of recovering private rights, and redressing private wrongs. 4. The vindicatory sanction of punishments for public wrongs; wherein consists the most forcible obligation of human laws.

To interpret a law, we must inquire after the will of the maker; which may be collected either from the words, the context, the subject matter, the effects and consequence, or the spirit and reason of the law.

From the latter method of interpretation arises equity, or the correction of that wherein the law (by reason of its universality) is deficient; (BLACKSTONE'S *Commentaries.*)

LAW, (MARTIAL.) By martial law is understood, not laws passed for raising, supporting, governing, and regulating troops, but "it is in truth and reality *no* law, but something *indulged*, rather than allowed as law;" (HALE and BLACKSTONE.) The Constitution of the United States has guarded against the effects of any declaration of martial law within the United States, by providing: "No person shall be held to answer for a capital or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled, in any criminal case, to be witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation," (ART. 5, *Amendments;*) and further, "In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor; and to have the assistance of counsel for his defence;" (ART. 6, *Amendments.*)

Within the United States, therefore, the effect of a declaration of martial law would not be to subject citizens to trial by courts-martial, but it would involve simply a suspension of the writ of *habeas corpus*, under the authority given in the 2d clause of Sec. 9 of the Constitution, viz.: "The privilege of the writ of *habeas corpus* shall not be suspended unless when, in cases of rebellion or invasion, the public safety may require it."

The universal practice of all nations has been to give supremacy to the military commander in all sieges. "*Inter arma silent leges*," is then a maxim universally admitted. The public safety in that case imperiously requires that the orders of the commander of the troops should be obeyed, and a commander in the United States is then only justified, *ex necessitate rei*, in suspending the privilege of the writ of *habeas corpus.*

The suspension of this privilege would enable a commander to incarcerate all dangerous citizens; but when brought to trial, the citizen would necessarily come before the ordinary civil courts of the land.

Beyond the United States, troops take with them the Rules and Articles of War, but not the municipal law, to which they are also subject at home. It is necessary, therefore, for a commander, in the absence of laws made by Congress, to declare his own will, commanding what is right, and prohibiting and punishing what is wrong, in the new relation established between his army and the citizens of the foreign country. The following order was the declaration of martial law by Gen. Scott in Mexico :—

HEAD-QUARTERS OF THE ARMY,
National Palace of Mexico, Sept. 17, 1847.

GENERAL ORDERS—No. 287.

The General-in-Chief republishes, with important additions, his General Orders, No. 20, *of February* 19, 1847, (*declaring* MARTIAL LAW,) *to govern all who may be concerned.*

1. It is still to be apprehended that many grave offences not provided for in the act of Congress "establishing rules and articles for the government of the armies of the United States," approved April 10, 1806, may be again committed—by, or upon, individuals of those armies, in Mexico, pending the existing war between the two republics. Allusion is here made to offences, any one of which, if committed within the United States or their organized territories, would, of course, be tried and severely punished by the ordinary or civil courts of the land.

2. Assassination, murder, poisoning, rape, or the attempt to commit either; malicious stabbing or maiming; malicious assault and battery; robbery; theft; the wanton desecration of churches, cemeteries, or other religious edifices and fixtures; the interruption of religious ceremonies; and the destruction, except by order of a superior officer, of public or private property, are such offences.

3. The good of the service, the honor of the United States, and the interests of humanity, imperiously demand that every crime enumerated above should be severely punished.

4. But the written code, as above, commonly called the Rules and Articles of War, does not provide for the punishment of *one* of those crimes, even when committed by individuals of the army upon the persons or property of other individuals of the same, except in the very restricted case in the 9th of those articles; nor for like outrages, committed by the same class of individuals, upon the persons or property of a hostile country, except very partially, in the 51st, 52d, and 55th Articles; and the same code is absolutely silent as to all injuries which

may be inflicted upon individuals of the army, or their property, against the laws of war, by individuals of a hostile country.

5. It is evident that the 99th Article, independent of any restriction in the 87th, is wholly nugatory in reaching any one of those high crimes.

6. For all the offences, therefore, enumerated in the second paragraph above, which may be committed abroad—in, by, or upon the army, a supplemental code is absolutely needed.

7. That *unwritten* code is *Martial Law*, as an addition to the *written* military code, prescribed by Congress in the Rules and Articles of War, and which unwritten code all armies, in hostile countries, are forced to adopt, not only for their own safety, but for the protection of the unoffending inhabitants and their property, about the theatres of military operations, against injuries on the part of the army, contrary to the laws of war.

8. From the same supreme necessity martial law is hereby declared as a supplemental code, in and about all cities, towns, camps, posts, hospitals, and other places, which may be occupied by any part of the forces of the United States in Mexico, and in and about all columns, escorts, convoys, guards, and detachments of the said forces, while engaged in prosecuting the existing war in and against the said republic, and while remaining within the same.

9. Accordingly every crime enumerated in paragraph No. 2 above, whether committed:—1. By any inhabitant of Mexico, sojourner or traveller therein, upon the person or property of any individual of the United States' forces, retainer, or follower of the same; 2. By any individual of the said forces, retainer or follower of the same, upon the person or property of any inhabitant of Mexico, sojourner or traveller therein; or 3. By any individual of the said forces, retainer or follower of the same, upon the person or property of any other individual of the said forces, retainer or follower of the same, shall be duly tried and punished under the said supplemental code.

10. For this purpose it is ordered that all offenders in the matters aforesaid shall be promptly seized, confined, and reported for trial, before *Military Commissions*, to be duly appointed, as follows:

11. Every military commission, under this order, will be appointed, governed, and limited, as nearly as practicable, as prescribed by the 65th, 66th, 67th, and 97th of the said Rules and Articles of War, and the proceedings of such commissions will be duly recorded in writing, reviewed, revised, disapproved or approved, and the sentences executed; all, as near as may be, as in the cases of the proceedings and sentences

of courts-martial, *provided*, that no military commission shall try any case clearly cognizable by any courts-martial, and *provided*, also, that no sentence of a military commission shall be put in execution against any individual belonging to this army, which may not be, according to the nature and degree of the offence, as established by evidence, in conformity with known punishments, in like cases, in some one of the States of the United States of America.

12. The sale, waste, or loss of ammunition, horses, arms, clothing, or accoutrements, by soldiers, is punishable under the 37th and 38th Articles of War. Any Mexican, or resident, or traveller in Mexico, who shall purchase of an American soldier either horse, horse-equipments, arms, ammunition, accoutrements, or clothing, shall be tried and severely punished by a military commission, as above.

13. The administration of justice, both in civil and criminal matters, through the ordinary courts of the country, shall nowhere, and in no degree, be interrupted by any officer or soldier of the American forces, except, 1. In cases to which an officer, soldier, agent, servant, or follower of the American army may be a party; and 2. In *political* cases, that is, prosecutions against other individuals on the allegations that they have given friendly information, aid, or assistance, to the American forces.

14. For the ease and safety of both parties in all cities and towns occupied by the American army, a Mexican police shall be established and duly harmonized with the military police of the said forces.

15. This splendid capital—its churches and religious worship; its convents and monasteries; its inhabitants and property, are, moreover, placed under the special safeguard of the faith and honor of the American army.

16. In consideration of the foregoing protection, a contribution of $150,000 is imposed on this capital, to be paid in four weekly instalments of thirty-seven thousand five hundred dollars ($37,500) each, beginning on Monday next, the 20th instant, and terminating on Monday the 11th of October.

17. The Ayuntamiento, or corporate authority of the city, is specially charged with the collection and payment of the several instalments.

18. Of the whole contribution to be paid over to this army, twenty thousand dollars shall be appropriated to the purchase of *extra* comforts for the wounded and sick in hospital; ninety thousand dollars ($90,000) to the purchase of blankets and shoes for gratuitous distribution among the rank and file of the army, and forty thousand dollars ($40,000) reserved for other necessary military purposes.

19. This order will be read at the head of every company of the United States' forces serving in Mexico, and translated into Spanish for the information of Mexicans.

LAW, (MILITARY.) Under the Constitution of the United States, Congress is intrusted with the creation, government, regulation, and support of armies; and all laws passed by Congress for those purposes are military laws. Congress, being also invested with power "to make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this constitution in the Government of the United States, or in any department or officer thereof," is supreme in all military matters. The office of commander-in-chief, intrusted by the constitution to the President, must have its functions first defined by Congress. Such military powers only as Congress confers upon him can be exercised. Excepting that, being the commander-in-chief under the constitution, he of course exercises all authority that Congress may delegate to any military commander whatever, by reason of the axiom that the power of the greater includes that of the less.

Many of the functions, thus devolved by the constitution on Congress, in most governments belong to the executive. The king of Great Britain makes rules and articles for the government of armies raised by him with the consent of parliament. Congress, with us, both raises and governs armies. An army raised in Great Britain is the king's army; with us it is the army of the United States. These most essential distinctions should cause Congress to give more of its attention to the army. It should be borne in mind that our rules for the government of the army have been borrowed almost entirely from Great Britain; that the relation of the army to the people is in the two countries entirely distinct; therefore, that rules adapted to an aristocratic government may not be entirely suited to democratic forms. (*See* ACADEMY, (*Military;*) ACCOUNTS; ACCOUNTABILITY, (*System of;*) ADMINISTRATION, and references; ALLOWANCES; APPOINTING POWER; APPROPRIATIONS; ARDENT SPIRITS; ARREARS OF PAY; ARMORIES AND ARSENALS; ARMY; ARMY, (*Regular;*) ARMY REGULATIONS; ARTICLES OF WAR, and references under that head; ASYLUM, (*Military;*) AUDITORS; AUTHORITY, (*Civil;*) BILLET; BOOTY; BONDS; BOUNTY; BREVET; BRIGADE; CADET; CALLING FORTH MILITIA; CAPTAIN; CLERKS; CLOTHING; COLONEL; COMMISSION; CONGRESS; CONSTITUTION; CONSCRIPTION; CONTRACTS; CORPOREAL PUNISHMENT; CORPS; COUNCIL OF ADMINISTRATION; COURT-MARTIAL, and references under that head; COURTS OF INQUIRY; CUSTOM OF WAR; DAMAGE; DEBT; DEFAULTERS;

DEFENCE, (*National;*) DEPARTMENT; DEPARTMENT OF WAR; DEPÔT; DETACHMENT; DISBURSING OFFICERS; DISCHARGE; DISCIPLINE; DISMISSION; DIVISION; DRAGOONS; EMOLUMENTS; ENGINEER CORPS; ENGINEERS, (*Topographical;*) ENLISTMENTS; EVIDENCE; EXECUTION OF LAWS; EXEMPTS FROM MILITIA DUTY; EXTRA EXPENSES; EXTRA ALLOWANCES; FATIGUE DUTY; FIELD OFFICERS; FLAG; FORAGE MASTER; GARRISON; GENERAL; GENERAL OFFICERS; GOVERNMENT, and references under that head; INDEMNIFICATION; INDIAN; INSURRECTION; JURISDICTION; LAW; LAW, (*Martial;*) LINE; LOSSES; MARINE CORPS; MARSHALS; MAY; MEDICAL DEPARTMENT; MESS; MILEAGE; MILITIA; OATH; OBEDIENCE; OFFICER; ORDERS; ORDNANCE DEPARTMENT; ORDNANCE SERGEANT; PAY; PAY DEPARTMENT; PAYMASTER-GENERAL; PENSION; PONTOON; POST; POSSE COMITATUS; PRESIDENT; PRIZE MONEY; PROMOTION; PURCHASING; QUARTERS; QUARTERMASTER'S DEPARTMENT; RAISE, and references under that head; RANK; RATION; RECRUITING; REDRESSING WRONGS; REGIMENT; REGULATIONS, and references under that head; REPRIEVE; RETAINERS; RETURNS; REVISION; SALE; SAPPERS; SECRETARY OF WAR; SERVANTS; SERVICE, and references under that head; STAFF; STANDARDS; STORES; STOREKEEPERS; STRIPES; SUBSISTENCE DEPARTMENT; SUIT; SUPERINTENDENT; SUPERNUMERARIES; SUTLERS; TRADE; TRANSFERS; TRAVELLING ALLOWANCES; UNIFORM; VICTUALS; VICE-PRESIDENT; VOLUNTEERS; WAGON-MASTERS; WAR; WARRANT; WASTE OR SPOIL; WHIPPING; WILLS, (*Nuncupative;*) WITNESS; WIDOWS AND ORPHANS; WOMEN; WORSHIP; WOUNDS; WRONGS.)

LEAD BALLS—are now generally made by compression, by means of machinery, either at arsenals or at private establishments.

LEAVE. (*See* ABSENCE.)

LEGION. A variable number of men in the Roman army, from four to six thousand, but which always retained its distinctive characteristic of combining all the elements of a separate army. (Consult BARDIN, *Dictionnaire de l'Armée de Terre*, and ARNOLD'S *Rome* for a full account of the Roman legion.)

LEVER. The *effective arm* of a lever is the perpendicular distance from the fulcrum to the line of direction of the power or weight. The power is to the weight inversely as the effective arms of the lever:

$$P\,D = w\,d$$

The pressure on the fulcrum is the resultant of the power and weight. The common balance is a simple lever, the arms of which are equal. If the balance is not accurate, the true weight of a body may be found

by placing the body in one scale and counterpoising it by any weights in the opposite scale; then remove the body and replace it by known weights until the equilibrium is again restored. The sum of the latter weights will be the weight of the body; (*Ordnance Manual.*)

LIEUTENANT. Rank next below captain.

LIEUTENANT-COLONEL. Rank next below colonel, and above major.

LIEUTENANT-GENERAL. Rank above major-general. Created by *Act* May 28, 1798. Revived by brevet by *Act* Feb. 15, 1855. To expire with present incumbent. Appoints in time of peace not exceeding two aides and one secretary with rank, pay, and emoluments of lieutenant-colonel. In war, entitled to four aides and two secretaries.

LIFTING JACK. A geared screw-jack, for lifting heavy weights, used in mechanical manœuvres of heavy artillery. (Consult *Instruction for Heavy Artillery.*)

LIGHT BALL. A projectile of an oval shape formed of sacks of canvas filled with a combustible composition, which emits a bright flame. Used to light up our own works.

LIGHT INFANTRY. (*See* INFANTRY.)

LIMBER. The forepart of a travelling gun carriage to which the horses are attached. The same limber is used for all field-carriages. It has two wheels and carries the same ammunition chest as the caisson.

LINCHPINS—prevent the wheel from sliding off the axle-tree.

LINE. President Fillmore in general orders, No. 51 of 1851, has given the following satisfactory exposition of the use of the word *line* in our statute book: The 62d Article of War provides that—"If, upon marches, guards, or in quarters, different corps of the army shall happen to join, or do duty together, the officer highest in rank of the line of the army, marine corps, or militia, by commission there, on duty, or in quarters, shall command the whole, and give orders for what is needful to the service, unless otherwise specially directed by the President of the United States, according to the nature of the case." The interpretation of this act has long been a subject of controversy. The difficulty arises from the vague and uncertain meaning of the words "line of the army," which, neither in the English service, (from which most of our military terms are borrowed,) nor in our own, have a well-defined and invariable meaning. By some they are understood to designate the regular army as distinguished from the militia: by others, as meant to discriminate between officers by ordinary commissions and those by brevet; and, finally, by others, to designate all officers not belonging to the staff. The question is certainly not without difficulty,

and it is surprising that Congress should not long since have settled, by some explanatory law, a question which has been so fruitful a source of controversy and embarrassment in the service. The President has maturely considered the question, and finds himself compelled to differ from some for whose opinions he entertains a very high respect. His opinion is, that, although these words may sometimes be used in a different sense, (to be determined by the context and subject-matter,) in the 62d Article of War, they are used to designate those officers of the army who do *not* belong to the staff, in contradistinction to those who do, and that the article intended, in the case contemplated by it, to confer the command exclusively on the former. The reasons which have brought him to this conclusion are briefly these: 1st. It is a well-settled rule of interpretation that in the construction of *statutes*, words of doubtful or ambiguous meaning are to be understood in their usual acceptation. Now it must be admitted that, in common parlance, both in and out of the army, the words "line" and "staff" are generally used as correlative terms. 2d. Another rule of construction is, that the same word ought not to be understood, when it can be avoided, in two different senses in different laws, on the same subject, and, especially, in different parts of the same law. Now in another article (74) of this same law, the words "line and staff of the army" are clearly used as correlative and contradistinctive terms. The same remark applies to almost every case in which the words "line" and "staff" occur in acts of Congress. *See*

Act of 1813,	sec.	4,	Cross' Military Laws, p.	165;
1813,	"	9,	"	166;
1814,	"	19,	"	174;
1816,	"	10,	"	190;
1838,	"	7,	"	263;
1838,	"	8,	"	263;
1838,	"	15,	"	264;
1838,	pars. 7 &	9,	"	268;
1846,	sec.	2,	"	283;
1846,	"	7,	"	286.

There are many other instances in which the words are so employed, but I have selected these as the most striking. On the other hand, I find but one act of Congress in which the words "line of the army" have been employed to designate the regular army in contradistinction to the militia, and none in which they have been manifestly used as contradistinctive of brevet. 3d. If Congress had meant by these words to discriminate between officers of the regular army and those of the mili-

tia, or between officers by brevet and by ordinary commission, it is to be presumed that they would have employed those terms, respectively, which are unequivocal, and are usually employed to express those ideas. 4th. If we look at the policy of the law, we can discover no reasons of expediency which compel us to depart from the plain and ordinary import of the terms: on the contrary, we may suppose strong reasons why it may have been deemed proper, in the case referred to by the article, to exclude officers of the staff from command. In the first place the command of troops might frequently interfere with their appropriate duties, and thereby occasion serious embarrassment to the service. In the next place, the officers of some of the staff corps are not qualified by their habits and education for the command of troops, and although others are so qualified, it arises from the fact that, (by laws passed long subsequently to the article in question) the officers of the corps to which they belong, are required to be appointed from the line of the army. Lastly, officers of the staff corps seldom have troops of their own corps serving under their command, and if the words "officers of the line" are understood to apply to them, the effect would often be to give them command over the officers and men of all the other corps, when not a man of their own was present—an anomaly always to be avoided where it is possible to do so. 5th. It is worthy of observation that Article 25, of the first "rules and articles," enacted by Congress for the government of the army, corresponds with Article 62 of the present rules and articles, except that the words "of the line of the army" are not contained in it. It is evident, therefore, that these words were inserted intentionally with a view to a change in the law, and it is probable that some inconvenience had arisen from conferring command indiscriminately on officers of the line or the staff, and had suggested the necessity of this change. It is contended, however, that sec. 10, of the act of 1795, enumerates the major-general and brigadier-general as among the staff officers, and that this construction of the article would exclude them from command, which would be an absurdity. No such consequence would, however, follow. The article in question was obviously designed to meet the case (of not unfrequent occurrence) where officers of different corps of the army meet together with no officer among them who does not belong exclusively to a corps. In such a case, *there being no common superior*, in the absence of some express provision conferring the power, no officer, merely of a corps, would have the right to command any corps but his own: to obviate this difficulty, the article in effect provides that, in such an event, the officer *of the line*, highest in rank, shall command the rest. But if there be a major-

general or brigadier-general present, the case contemplated by the article does not exist. No question can arise as to the right of command, because the general officer, not belonging to any particular corps, takes the command by virtue of the general rule which assigns the command to the officer highest in rank. (*See* RANK; COMMAND; BREVET.)

LINE OF DEFENCE—is the line which extends from the angle of the polygon or extremity of the exterior side, through the inner end of the perpendicular, to the flank, of the bastion.

LINE OF LEAST RESISTANCE (THE)—is that which is supposed to extend, from the centre of the charge of a mine, to the nearest surface of the ground.

LINES. A connected series of field-works, whether continuous or at intervals.

LINES AT INTERVALS—are lines composed of separate field-works, so arranged as to flank and defend one another.

LINES CREMAILLÈRE—are composed of alternate short and long faces, at right angles to each other.

LINES OF BASTION—as the name indicates, are formed of a succession of bastion-shaped parapets, each consisting of two faces and two flanks, connected together by a curtain.

LINES OF TENAILLES—consist of parapets, forming a series of salient and re-entering angles.

LINSTOCK. A pointed forked staff used for lighting fort fires; the lower end pointed and shod with iron.

LITTER. If a man be wounded or sick, and has to be carried along upon the shoulders of the others, make a litter for him in the Indian fashion, (Fig. 148;) that is to say, cut two stout poles, each 8 feet long,

FIG. 148.

to make its two sides, and three other cross-bars of 2½ feet each, to be lashed to them. Then, supporting this ladder-shaped framework *over* the sick man as he lies in his blanket, knot the blanket well up to it; and so carry him off. One cross-bar will be just behind his head, another in front of his feet; the middle one will cross his stomach, and keep him from falling out; and there will remain two short handles for the carriers to lay hold on. The American Indians carry their wounded companions by this contrivance after a fight, and in a hurried retreat, for wonderful distances.

LOAD. Command in infantry and artillery instruction. (Consult Tactics of those arms.) In loading small arms the powder should be well shaken out of the paper, to prevent the formation of gas, which, forcing the paper against the sides of the bore, prevents it from leaving with the charge, and endangers the explosion of the next charge when loading, from the lighted paper. There is no danger of heating the piece by rapid firing so as to cause premature explosions, since long before it reaches 600°, the temperature at which gunpowder inflames, it is entirely too hot to handle. In loading cannon the *vent* should always be kept carefully closed, while the loading is going on, especially when sponging, to prevent the current of air from passing out and collecting there pieces of thread, paper, &c., from the cartridge-bag, which would retain fire in the gun, and cause premature explosion the next time the gun was loaded. This precaution is the more necessary, when the sponge fits the bore tight, and acts as a piston. The sponge should be well pressed down against the bottom of the bore, and turned, so as to leave no remnant of the cartridge-bag. In mortars, where a sponge is seldom used, or when it does not fit tightly, the stopping of the vent is not necessary; but it should always be cleared out with the priming wire before the powder is placed in. Mortar-shells should be let down gently so as not to be forced into the chamber, or crush suddenly any powder they may meet. The use of sabots is avoided when firing over the heads of our own men. It may sometimes become necessary to fire a shell from a mortar too large for it; in which case it is wedged in on different sides with pieces of soft wood, and the space between it and the bore filled in with earth.

LOCK. (*See* ARMS.)

LODGEMENT. In a siege *lodgement* signifies the occupation of a position and the hasty formation of an entrenchment thereon to maintain it against recapture. Thus it is said the besiegers, having carried the demi-lune or bastion, effected a lodgement, or the besieged destroyed the lodgements of the enemy. (*See* SIEGE.)

LOGARITHM. The logarithm of a number is the exponent of the power to which another given invariable number must be raised in order to produce the first number. Thus in the common system of logarithms in which the invariable number is 10, the logarithm of 1,000 is 3, because 10 raised to the third power is 1,000. In general, if $a^x=y$ in which equation a is a given invariable number, then x is the logarithm of y. All absolute numbers positive or negative, whole or fractional, may be produced by raising an invariabe number to suitable powers. This invariable number is called the *base* of the system of logarithms: it may be any number whatever greater or less than unity; but having been once chosen, it must remain the same for the formation of all numbers in the same system. Whatever number may be selected for the base, the logarithm of the base is 1, and the logarithm of 1 is 0. In fact if, in the equation $a^x=y$, we make $x=1$ we shall have $a^1=a$, whence by definition log. $a=1$; and if we make $x=0$ we shall have $a^0=1$, whence log. $1=0$. The chief properties of logarithms are: that the logarithm of a product is equal to the sum of the logarithms of its factor; the logarithm of a quotient is equal to the difference between the logarithm of the dividend and the logarithm of the divisor; and the logarithm of the power of a number is equal to the product of the logarithm of the number by the exponent of the power; and the logarithm of any root of a number is equal to the logarithm of the number divided by the index of the root. These properties of logarithms greatly facilitate arithmetical operations. For if multiplication is to be effected, it is only necessary to take from the logarithmic tables the logarithms of the factors, and then *add* them into one sum, which gives the logarithm of the required product; and on finding in the table the number corresponding to this new logarithm, the product itself is obtained. Multiplication is thus performed by simple addition. In like manner division is performed by simple subtraction, and by means of a table of logarithms numbers may be raised to any power by simple multiplication, and the roots of numbers extracted by simple division. (Consult Babbage, *Logarithms of Numbers;* Farley's *Tables of Six-figure Logarithms.*)

LOGISTICS. Bardin considers the application of this word by some writers as more ambitious than accurate. It is derived from Latin Logista, the administrator or intendant of the Roman armies. It is properly that branch of the military art embracing all details for moving and supplying armies. It includes the operations of the ordnance, quartermaster's, subsistence, medical, and pay departments. It also embraces the preparation and regulation of magazines, for opening a cam-

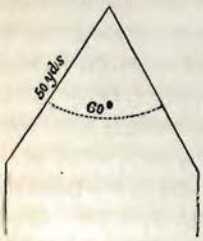
paign, and all orders of march and other orders from the general-in-chief relative to moving and supplying armies. Some writers have, however, extended its signification to embrace STRATEGY.

LOOPHOLED GALLERIES—are vaulted passages or casemates, usually placed behind the counterscarp revetment, and behind the gorges of detached works, having holes pierced through the walls, to enable the defenders to bring a musketry fire from unseen positions, upon the assailants in the ditch. Loopholes, however, are not confined to galleries. In modern fortifications, the revetments, both scarp and counterscarp, are very generally pierced for a musketry fire.

LOOPHOLES—are apertures formed in a wall or stockade, that through them a fire of musketry may be directed on the exterior ground.

LOSSES. In the British army there is a regular provision made for indemnification for losses by fire; by shipwreck; in action with the enemy; by capture at sea; by destruction or capture of a public storehouse; by the destruction of articles or horses, to prevent their falling into the hands of the enemy, or to prevent the spreading of an infectious disorder. In the United States it would seem just that Congress should establish some general rules regulating such matters. The principle of settling all such claims by special legislation cannot but bear hardly on a number of individuals, and also probably in the end imposes greater burdens upon the treasury.

FIG. 149.



LUNETTES—are redans having flanks parallel to their capitals, as in Fig. 149. The faces and flanks may have any moderate extent, according to the purpose for which they are intended; 50 yards for the face, and 25 yards for the flanks, would be a convenient size for many positions.

LYING OUT OF CAMP OR QUARTERS. Punishable, according to the nature of the offence, by a court-martial; (ART. 42.)

M

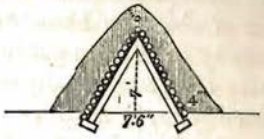
MACHICOULIS. A projecting wooden gallery from the second story of a house to enable the assailed to fire down on their opponents.

MAGAZINE COVER—of Rifle Musket, 1855. (*See* ARMS, *Small.*)

MAGAZINES. Powder magazines ought to secure an unobstructed circulation of air under the flooring as well as above. The magazine should be opened and aired in clear dry weather; the ventilators should be kept free; and no shrubbery or trees should be allowed to grow so near as to protect the building from the sun.

All batteries of attack require magazines capable of holding ammunition for daily consumption. Fig. 150 is a section of two strong splinter-proof timbers, say 8 to 9 feet long, and 9 to 12 inches in breadth and thickness, resting on sleepers, and giving an interior space of about the dimensions seen in the figure, covered with one or two tiers of fascines, and over them 3 or 4 feet of dung or stiff earth; this simple construction would answer in many cases. By some persons it is considered better to have two small magazines in a battery, made of very stout mining cases, and constructed in the epaulements. Sir John Jones, in his work on "Sieges," says: "Splinter-proof timbers for magazines were cut 12 feet in length, and from 8 to 10 inches in breadth and thickness, and were placed against an epaulement, or parapet, at an angle making the base equal to half the height. They were then covered with a tarpaulin, extending well over the top of the epaulement upon which were laid one or two rows of filled sand-bags, so as to prevent the possibility of the tarpaulin being cut by splinters of shells. A second tarpaulin was usually thrown over the exterior in rainy weather. On this construction, the magazines were found to be perfectly dry, and sufficiently spacious, and of the strength no doubt can remain, as the sand-bag covering was frequently knocked off by large shells, and in no instance were the splinter-proofs broken. The best situations for magazines are on the flanks of the batteries. Nothing can be worse than to place them in rear of the centre of a battery, as then every cartridge has to be carried along the most exposed and dangerous part of the battery, and the number of accidents and casualties which arise therefrom is very great indeed. The artillery always preferred having two magazines formed, rather than to have one exceeding 10 or 12 feet in length; when two were made, they were placed one on either flank, a situation which was found to answer extremely well." (Consult HYDE'S *Fortification; Ordnance Manual.*)

FIG. 150.



MAGISTRAL LINE—in a plan, is that which regulates the form of the works. It is that which is first laid down, and from which the other parts of the works are traced. (*See* CORDON.)

MAJOR. Rank between captain and lieutenant-colonel.

MAJOR-GENERAL. Rank between brigadier-general and lieutenant-general.

MALARIA. (*See* SANITARY PRECAUTIONS.)

MALINGERER. A soldier who feigns illness in order to avoid

his duty. Any soldier, in the English army, convicted of malingering, feigning or producing disease or infirmity, or of being detained in hospital in consequence of materially injuring his health by his own vice or intemperance, and thereby rendering himself unfit for the service; or of absenting himself from an hospital whilst under medical treatment; or of being guilty of a gross violation of the rules of the hospital; or of intentionally protracting his cure; or of wilfully aggravating his disease, is liable to be tried by a court-martial for "disgraceful conduct," and to suffer the punishments attached to that crime.

MANŒUVRE. For prescribed manœuvres consult *Cavalry Tactics; Infantry Tactics; Rifle and Light Infantry Tactics; Instruction for Field Artillery, horse and foot; and Instruction for Heavy Artillery, embracing Mechanical Manœuvres.*

The word manœuvre signifies also movements of entire corps in war executed with general views; and by some writers it is confined to that signification, and the word *evolution* is made to designate the particular means, or the elements of manœuvres; (JABRO.) Manœuvres, according to *Bardin*, are operations in war whether really before an enemy, or simulated on a field of exercise. Their precision and aptness depend upon the skill of the general; the intelligence of his aides-de-camp; upon the chiefs of battalions and their adjutants, and the general guides. Evolutions and manœuvres are, however, often applied in the same sense, and indeed it may well be questioned whether there be any propriety in retaining in books of instruction evolutions which are not used as manœuvres against an enemy.

Manœuvres of Infantry in battle.—The vicious idea that tactical evolutions are not used in war is by no means uncommon, and has frequently caused the loss of battles. It is true that the number of manœuvres used in combats is limited, and that those which are needed can only be judiciously applied by keeping in view moral and physical requirements. The judicious tactician will, therefore, in war eschew: deployments, which cause the soldier to turn his back towards an enemy; countermarches; forming a battalion on the right or left by file into line, and some other movements suited only to parades. One of the most hazardous manœuvres is the formation of columns of great depth and deploying those columns when too near the enemy. Without giving names or places, (says Marshal Bugeaud,) I affirm that I have seen an entire division in column of regiments, which began its deployment within range of the enemy's guns, routed before it finished its manœuvre.

The column is an order of march and manœuvre, rarely an order of

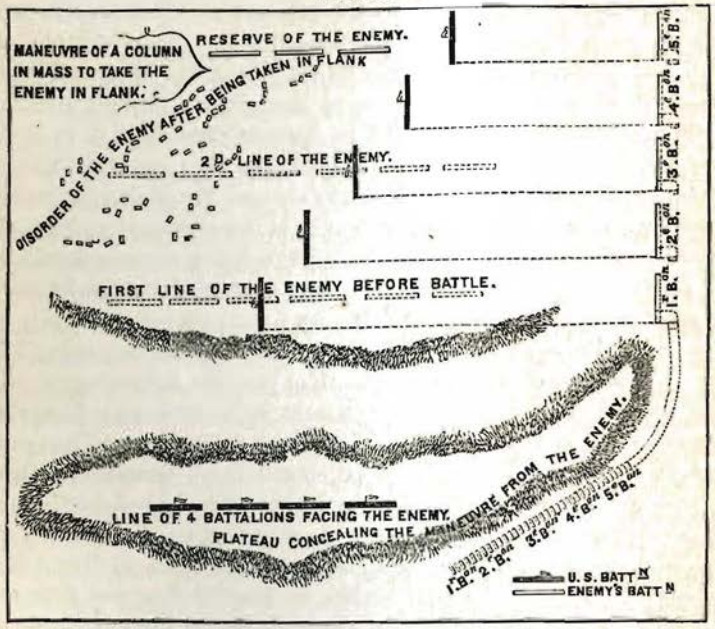
battle.—When beyond the range of cannon, and at a distance from the line of battle to be occupied, if the enemy approach and time permits, it is necessary to close in mass, in order to hold the troops in hand for all possible dispositions.

So, in marches near the enemy the columns should march at half distance, when roads permit, in order that they may be less elongated, and all the troops be ready to act promptly. If surprised in this order by the necessity of forming immediately forward into line of battle, or, if without being under this pressing necessity, there is between us and the enemy ground admitting an easy march in line of battle, the column ought to execute forward into line, according to the principles of the tactics. This movement is more prompt and greatly better than closing column in mass, in order to deploy afterwards. In the first case troops only pass over one side of the triangle, whilst by massing the column to deploy afterwards, they must pass over two sides by a complicated manœuvre, which is dangerous from the beginning. In general, it is necessary to shun as much as possible the deployment of great massed columns, for this movement is badly executed even in exercises. It can only be performed far from the enemy, and it is even there inconvenient. It should be renounced in all formations whose object is to take the enemy in flank or reverse, if he be sufficiently near to take measures to prevent success. In that case, the formation of the close columns in mass upon the right or left into line of battle is a necessary manœuvre. This movement, as Marshal Bugeaud suggests, is most important in war; (Fig. 151.) It would have an influence upon battles by the simplicity and rapidity of its execution, and accidents of ground would often be found to conceal the movement from the enemy. It admits of an attack in echelons of battalions against an enemy being commenced as soon as one battalion or the half of a battalion has formed on the right or on the left of the line of the enemy. It also offers the advantage of giving to the line, with the greatest facility, every form that may be wished, and protecting the successive formations by a mass that may be disposed of at pleasure, whether at the extremity of the line to form square against cavalry, or to occupy in advance upon the right or left a commanding position, protecting the flanks of our line. When circumstances, then, compel a march in heavy mass, it is better to present to the enemy a flank of columns, in order to deploy them by formations on the right or on the left into line of battle.

When a line has to pass over a great distance, it is commonly formed into columns of attack. The formation by company in column, in rear of

the grenadiers of each battalion, is preferred by Marshal Bugeaud, because it is thus easier to make good dispositions against cavalry. The grenadiers of each battalion make a half wheel, and each battalion, after

FIG. 151.



being closed in mass, forms square. But neither the column by companies or divisions ought to be used within range of cannon, whenever there is a possibility of marching in line of battle. It is time that the fact should be admitted, that although the moral effect of the column may be considerable, yet this may be paralyzed by a little manœuvring on the part of the enemy's *line*, which would necessarily obtain great advantage from the superiority of its fire. Small columns, at distances of three battalions from each other marching under cover of the line, may render great services. They would be ready promptly to fill the holes made in the line of battle, and the best means of doing this would be to take the enemy in flank who had pierced them, whenever they could. It is desirable that these columns should each not exceed a half battalion, and be commanded by energetic officers.

The depth of the column adds nothing to the strength of the first battalion composing it, and diminishes that of the mass.—It is, then, vicious to employ more than one battalion, except in the small number

of cases where it is necessary to fight in mass, as in carrying a bridge, a defile, an entrenchment, a breach, &c. The other battalions ought to follow at such a distance that they may sustain the attacking battalion without sharing in its disaster or rout, if such should take place. With an interval the chiefs of battalions have time to prepare their troops, and make necessary dispositions; with a single mass the disorder at the head of the column is communicated to the rear almost as readily as an electric spark.

Flank marches, in presence of the enemy, ought always to be made in open column. In this order we are always ready to fight by a simple wheel of each subdivision of the column. Nothing is deranged in the order of battle, whatever may be the strength and number of the lines. Without derangement an excellent disposition may also be made against cavalry. The column will be halted, and each battalion will be closed in mass upon its grenadiers, who make a half wheel. The field-officers, staff, and the officers of grenadiers will be previously warned. Each battalion will form then Marshal Bugeaud's square. The first order will be resumed by taking distances by the head of each battalion; the grenadiers retaking their direction at once.

If deep columns are condemned as an order of attack, those barbarous columns employed in some of the last battles of Napoleon, and particularly at Waterloo, ought to be condemned still more. That column, which appeared to announce the decline of art, consisted in employing all the battalions of a division one behind the other, and thus marching towards the enemy.

Every column has for its object to pass rapidly, and without confusion, into the order of battle, to pass over lightly a given space, and to make prompt dispositions against cavalry. The column against which these remarks are made does nothing of that kind, and if it be attacked upon its flanks, whether by cavalry or infantry, it cannot fail to be destroyed.

Order of battle, march in line of battle, and changes of front.—The line of battle is the true order of battle. It is also the best order of march when in range of cannon, and not exposed to cavalry. It is only in this order that infantry can make use of its fire. If battalions consist of 800 men they will, in a formation of two ranks, be too much extended for most chiefs of battalions. Two companies of each battalion ought then to be formed as columns of reserve. The order in two ranks is beyond question best suited, in oblique attacks, for that part of the line not to be engaged; and with rifle muskets now used the two-rank formation will be found better for that part of the line which is to

strike also. Even with old muskets the two-rank formation was used by the British very successfully at Waterloo in squares against cavalry. The fire in two-rank formation is made with more order, more easily, and is better aimed. The march in line of battle ought to be employed whenever the ground permits it, within 1,000 yards of the enemy. We lose then fewer men by cannon, and even if it be desirable to approach the enemy in column, (which is very rare, and should even then be in columns of single battalions,) the march ought still to be in line of battle until within two hundred yards, and then the column of attack ought to be formed while marching. Troops cannot be too much exercised in marching in line of battle. This march is no more difficult than the march of many heads of columns upon the same line, perhaps even less so, for it is difficult to maintain between the columns the intervals necessary for deployments.

Changes of front very near the enemy are rarely perpendicular. The new front nearly always forms with the line of battle an acute angle. In this case, it is necessary to guard against breaking the battalions into column. It is better to use the changes of direction for the line of battle prescribed by the tactics. The two pivot battalions may be thrown upon the new line by companies half faced to the right or left. The other battalions ought to be directed upon the new line by changes of direction which would least expose them to artillery. If, however, we have to guard against cavalry during the execution of the movement, it will be better to break into column the battalions of the leading wing. They will thus form the stem of the battery, and would rapidly make good dispositions against cavalry, as they would only be obliged to close in mass upon the grenadiers and form square.

Changes of front forward are possible under fire, but changes of front to the rear are not so. I believe, (says Marshal Bugeaud,) that the loss of one of our battles in Spain may, in great part, be attributed to a change of front in rear of the left wing, which was attempted at a moment when warmly engaged. The movement rapidly degenerated into a rout; and it could not be otherwise. There are no troops with sufficient *sang-froid* and self-possession to make that movement under the fire of ball and grape. To make the movement, it is necessary first to stop the enemy, and the means of doing that vary with circumstances, and the resources within our command. Charges of cavalry—above all if they threaten the flanks of the enemy's line, would cover the change of front to the rear. If cavalry be not at hand, there is no better means than to advance the second line to the position that it is desired that the front should occupy after its change of front, and with-

draw the first line at a run, directing it to form the second line, passing through the intervals of the battalions, now become the first line.

If a line is about coming up with the enemy at the moment of receiving the order to change front, it would be better to finish the charge, by putting the first line of the enemy in rout before executing the movement to the rear. This last principle is applicable to retreats generally: it is often necessary to overthrow an enemy who is too nigh before retiring.

Running movements may, in many cases, save us from destruction. It is necessary, then, to exercise troops in such movements, and make them run in disorder, and re-form at some given point.

Echelons.—The order in echelons is the manœuvre of oblique attacks. By that means we approximate those troops only who are to fight. The remainder are at once threatening and defensive. They hold in check one or many parts of the order of battle of the enemy, and present the best possible protection to the attacking portion. Some echelons to the right and left of that which attacks, are greatly better than any other support. They render, if not impossible, at least very difficult, an attack upon the flank of the attacking portion, as that cannot be assailed without the enemy in turn being taken in flank by echelons. And the latter cannot be turned, except by strong movements, which must weaken the army executing them, and also afford necessary time to guard against them.

Instead of placing flank brigades in advance of the front of the columns or lines that they protect, it is better to place them in rear. Besides the physical advantages of this disposition, there are moral advantages, inasmuch as the latter position enables the echelons to assail, whereas, if they were immediately on the flank of the attack, they might be assailed.

In theory, echelons are placed at regular distances. In practice, the distance is determined by circumstances, and, above all, by the formation of the ground. The regularity of echelons can, therefore, only exist in broad plains. The greater or less distance between echelons depends upon the number of troops, the distances between those of the enemy, and the ulterior views of the general-in-chief; but in general they ought to be within mutual succor, and if cavalry is to be repulsed, they ought to cross fire at about 150 paces after having formed square. The different movements of echelons, the changes of front in each echelon, with the same angle, are very useful in war; it is necessary, therefore, that troops should be exercised in such movements. (*See* BATTLE; CHARGE; CONVOY; DEFILE; INFANTRY; SQUARES. Con-

sult *Aperçus sur quelques Détails de la Guerre, par* MARSHAL BUGEAUD; *Tactique des Trois Armes, par* DECKER.)

MANTLET—is a musket-proof shield, which is sometimes used for the protection of sappers or riflemen during the attack of a fortress. (*See* PENETRATION.)

MANUAL. Exercise of arms; books of reference, as Ordnance Manual, &c.

MARAUDING. (*See* PLUNDER and PILLAGE.)

MARCH. Recruits are taught to march by explaining the principles of the cadenced step in common, quick, and double-quick time. The march in line of battle is the most difficult and most important of the tactical marches. A regiment which can pass over two hundred paces in line of battle without losing its allignment, is well instructed. Marches may be divided into: marches in time of war; marches in route, in time of peace; and tactical marches. Those in time of war are either movements to pass over ground, or else manœuvres to obtain an advantageous position. When an army moves forward to meet an enemy who is still very distant, it will be sufficient to have advanced and rear guards, some flankers, and march in parallel columns over the best routes, each column having its squadrons of cavalry, batteries of artillery, and wagon trains. If the enemy is, however, in the neighborhood, if we march along the front of his camp, or his line of posts, every precaution must be redoubled to gain information of his movements and guard against surprise.

When the march is only a manœuvre, it is often made across fields; through by-roads; then it is necessary to reconnoitre in advance, clear away obstacles, and sometimes even construct little bridges; guides are taken, and information gained from them as well as by *reconnaissances*. Armies are collected together by routes of march, the troops usually marching about 17 miles a day. In general, the marches are made by battalions echeloned at intervals one day's distance from each other. Cavalry ordinarily marches alone and follows the least direct roads, but it is difficult to subsist a numerous cavalry without retarding military operations. Artillery follows the cavalry, or if it has a large convoy, it marches by another route alone. The troops begin to concentrate on the base of operations. Still advancing, the echelons converge, and the troops are cantoned together by *lines* one day's march from each other. The nearer we approach the enemy, the more columns are used; if the country offers parallel debouches, it is always advantageous to march an army corps on many routes, if they are within distance for deployments; but if there is only one means of communication, the different

arms are kept 200 yards distant from each other, and the cavalry marches in rear of the column.

On these marches, when a defile is to be passed, the successive passage of each echelon is commanded in advance; and it is a general rule never to crowd troops, so as to paralyze their action, or even render movements difficult; but care must be taken always to keep troops within easy supporting distance of each other.

Sometimes an army is collected very near the enemy. It is necessary then nicely to calculate distances, &c., in order to combine marches for a *simultaneous* convergence of columns on the offensive point.* To bring troops suddenly together, forced marches are made by some of the troops; relays and railways are also used. By forced marches the ordinary day's march is doubled, but under extraordinary circumstances 62 miles have been made in 26 hours. Relays are the use of wagons, &c., obtained by requisition. 250 wagons may carry from 2,000 to 2,300 men. Sometimes the march is made entirely in wagons, and each echelon passes over three days' march in 8 hours. This is done by the troops taking new wagons twice, the old returning empty for other troops.

It is but seldom that any one arm is exclusively employed when near the enemy; it is usual to operate with a combined force of cavalry, infantry, and artillery, so that it may be always possible to employ one or the other arm, according to circumstances and locality. If the main body of the army is composed of the different arms, then the advanced guard is similarly constituted, that it may be able to act in all localities.

The composition of such an advanced guard depends—

1st. Upon the object and nature of its intended operations. During marches in pursuit, it is reinforced by cavalry; but if it is to make an obstinate resistance, it is strengthened with much infantry and artillery. In general, light cavalry are the best for advanced guards, wherever the nature of the ground permits them to operate, but infantry are necessary to support them. Mounted rifles and mounted engineer troops are of great service in advanced guards.

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* To calculate exactly the time T necessary for the execution of a march:—A column of infantry will generally pass over about five miles in two hours, halts included. A column of cavalry at a walk and trot alternately makes about six miles per hour. Let D then be the distance to be accomplished, d the distance that the men comprising the column pass over in an hour, halts included; l the length of the column; o the delay caused by obstacles; then $t = \frac{l}{d}$ will be the time that passes until the left arrives at its destination, and the formula $T = t + o + D$ will give the time sought. One of the elements of o is the lengthening l' of a column in a defile; it is considered by introducing $\frac{l'}{d}$ into the formula; o is also the delay caused by marching across fields. These elements may all be estimated and introduced into the formula.

2d. The composition of the advanced guard depends also upon the locality; if the ground is broken, much infantry is required; if it is open, much cavalry; and, in general, light troops.

The order of march of an advanced guard depends principally upon its composition, the order of march of the main body, the locality, &c. The main rule is, that it should never be too much divided, so that there may always be a considerable force in hand to seek the enemy more boldly, and detain him longer. Therefore, even when the main body moves in several columns, the principal part of the advanced guard marches on the main road, sending only small parties on the others to watch the enemy and detach patrols as far as possible in all directions. In an open, level country, the cavalry marches at the head; in a broken country, there is only a small detachment of cavalry at the head, to furnish advanced detachments and patrols. An advanced detachment of cavalry, which sends out patrols in front and on its flanks, moves at the distance of a few miles in front of the advanced guard. Small detachments of cavalry move in a line with it on the other roads; also others on the flanks of the main advanced guard, to secure it against being turned. All the front and flank detachments maintain constant mutual communication by means of patrols, and thus guard the whole space in front of the main body over a great extent. But if the flank columns of the main body march at a great distance from the main road, followed by the advanced guard, then, in addition to this last, each flank column detaches a small advanced guard for its own security.

If the advanced guard is composed of different arms, its distance from the main body depends not only upon its strength, but also on the following circumstances: 1. On its composition. Cavalry may advance much further than infantry. 2. Upon the locality. The more fully the nature of the country secures the advanced guard against being turned, the further may it move from the main body. 3. Upon the object in view. Prior to defensive combats in position, it is advantageous to have the advanced guard as far from the main body as possible, in order to secure time for making the necessary arrangements; but if the main body is already concentrated for a decisive attack upon the enemy, it is sometimes well to be entirely without an advanced guard; during a pursuit, the main body should follow the advanced guard as closely as possible. 4. Upon the order of march of the main body. The longer the time needed by the main body to form in order of battle, on account of the intervals between the columns, the nature of the ground between them, the length of the columns, &c., so much further forward

should the advanced guard be pushed. In general, the distance of the advanced guard from the head of the main body should be a little greater than the interval between the outside columns of the main body.

Fig. 152 gives an example of the arrangement of an advanced guard composed of one brigade of light cavalry, 8 battalions of infantry, one battalion of sappers, 6 pieces of horse artillery, and 12 pieces of foot artillery; the main body following in 3 columns.

Whatever slight changes may be made necessary by the nature of the country, can easily be made with the aid of a map and the special information obtained in other ways.

If the country is partially broken and obstructed, it is advantageous to have four or five companies of infantry just behind the leading detachment of cavalry to examine places that are difficult or dangerous for the latter.

Upon the plains, the patrols are of cavalry; in a mountainous region, of infantry. In the latter case, not only the advanced detachments and patrols are of infantry, but also the head and rear of every column; the cavalry and artillery march in the middle, under the protection of the infantry.

In passing through a village, the infantry enter it first, if there are any with the advanced guard; the cavalry either ride rapidly around it, or, according to circumstances, halt a little before reaching the village, and wait until the infantry have passed through.

The passage of important bridges, ravines, and defiles, should be effected in the same manner, the infantry examining them. As soon as the infantry have crossed and formed on the other side, the cavalry send out patrols to a great distance to examine the ground in front before the main body of the advanced guard begins to cross.

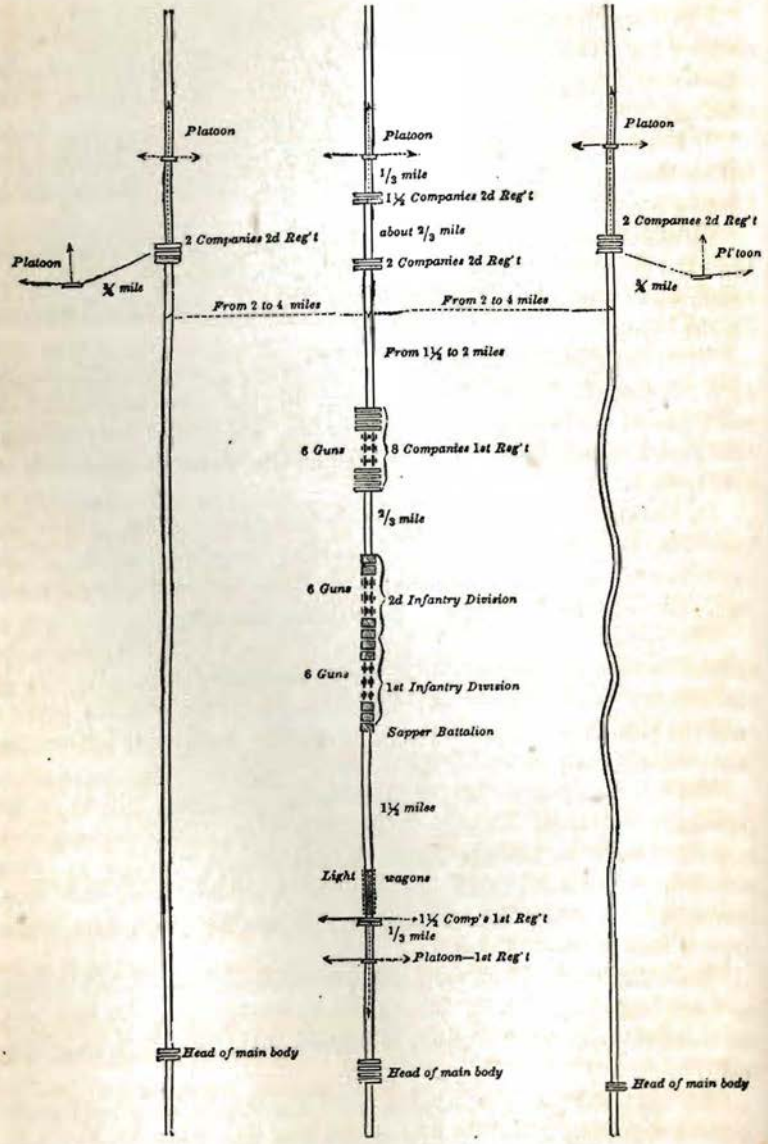
The advanced guard having crossed rapidly, forms in front of the passage, to cover the debouche of the main body. The distance of such a position from the passage should be such that, in the event of being attacked, the advanced guard may not be too quickly forced back upon the main body while debouching, and that the latter may have ample time to form without disorder.

Since attacks should be most expected when passing through defiles, or when issuing from them, they should be traversed rapidly, and with the most extended front possible, to prevent the column from stretching out.

An advanced guard possessing a certain degree of independence, without neglecting any of the precautions here laid down, should not be

FIG. 152.

MARCH OF AN ADVANCED GUARD COMPOSED OF 1 BRIGADE OF CAVALRY, (20 COMPANIES,) 2 DIVISIONS OF INFANTRY, (8 BATTALIONS,) 1 BATTALION OF SAPPERS, 6 PIECES OF HORSE AND 12 OF FOOT ARTILLERY.



too apprehensive, and, in examining the country, ought not to be detained by objects which cannot conceal the enemy in sufficient force to make him dangerous to the advanced guard.

In very mountainous regions, it is necessary to rely upon the infantry alone; the cavalry and train remaining in rear, and not entering the defiles until they have been occupied. Here the infantry patrols are sent out as far as possible, and occupy the heights from which the direction of the columns may be seen, until relieved by the patrols of the rear guard, which is also of infantry. In this manner the cavalry, which the enemy would attack in such places in preference, is protected. Not a gorge or defile should be left unexamind, for in the mountains an attack may be expected at any moment.

In a wooded country, the commander of the advanced guard takes nearly the same precautions as in the mountains.

If the forest is deep but not broad, detachments of cavalry ride along the skirts, which are occupied by infantry skirmishers as supports; if the forest is dense, but not deep, the infantry lead. The infantry place themselves along the skirts of the wood on both sides of the road; the cavalry then passes through at a fast trot, forms on the plain beyond, and there awaits the rest of the column.

When the road passes through a country but little obstructed by defiles, villages, or other obstacles to the movements of cavalry, and there is no infantry with the advanced guard, mounted rifles are very useful; finally, the enemy, in retreating through such a country, leaves infantry at these obstacles to arrest the pursuit of the cavalry, and delay until the arrival of the infantry; in such cases, mounted rifles or dismounted dragoons will produce sure results by acting against the enemy's infantry.

The main body.—It remains to be said, in reference to this, that the nature of the country must determine its order of march, whether cavalry or infantry are to lead. If the country is broken, particularly if it is wooded, there is great danger in placing the cavalry at the head; for it may not only be unable to act, but, if forced to retreat, may carry disorder into the infantry following.

The artillery should march in the midst of the other troops, but a few pieces may move with the head of the column, to protect it in case of meeting the enemy suddenly.

Infantry, in traversing extensive forests, in which parties of the enemy may easily conceal themselves, replace the flank detachments and patrols of cavalry. (Consult *Aide Memoire d'Etat Major;* McCLELLAN'S *Military Companion.*)

MARINE CORPS—when serving with the army, to be supplied by the several officers of the staff of the army; (*Act* Dec. 15, 1814.) The officers of the marine corps may be associated with the officers of the land forces for the purpose of holding courts-martial and trying offenders belonging to either; and in such cases the orders of the senior officer of either corps, who may be present and duly authorized, shall be received and obeyed; (ART. 68.) The marine corps shall at any time be liable to do duty in the forts and garrisons of the United States on the sea-coast, or any other duty on shore, as the President, at his discretion, shall direct; (*Act* July 11, 1798.) The officers, non-commissioned officers, privates, and musicians shall take the same oath and shall be governed by the same rules and articles as are prescribed for the military establishment of the United States and by the rules for the regulation of the navy heretofore, or which shall be established by law, according to the nature of the service in which they shall be employed, and shall be entitled to the same allowance in case of wounds or disabilities, according to their respective ranks, as are granted by the act to fix the military establishment of the United States; (*Act* July 11, 1798.)

MARKER. Soldier who marks the direction of an allignment or pivot points.

MARKSMAN. Good shot; sharp-shooter. (*See* RIFLEMEN; TARGET.)

MARSH POISONS. (*See* SANITARY PRECAUTIONS.)

MARSHALS. The marshals of the several districts and their deputies shall have the same powers in executing the laws of the United States, as sheriffs and their deputies, in the several States, have by law, in executing the laws of the respective States; (*Act* Feb. 28, 1795.) (*See* OBSTRUCTION OF LAWS; POSSE COMITATUS.)

MARTELLO TOWERS—are buildings of masonry, generally circular, and of various dimensions. They are chiefly placed on the sea-coast, having a gun on their summit, mounted on a traversing platform, by which it can fire in any direction.

MARTIAL LAW. (*See* LAW, *Martial.*)

MASKED BATTERY—is when the battery is so concealed or disguised, as not to be seen and recognized by the enemy, until it opens its fire.

MATCH. Slow match is made of hemp, flax, or cotton rope, with three strands slightly twisted. Cotton rope well twisted forms a good match without any preparation, and burns 4½ inches an hour. *Quick* match is made of cotton yarn such as is used in candle-wick,

which, after preparation described in the Ordnance Manual, is dredged with meal powder. One yard burns in the open air 13 seconds. Quick match inclosed in tubes burns more rapidly than in the open air, and more so in proportion as the tubes are smaller.

MATTOCK. A pioneer tool, resembling a pick-axe, but having two broad sharp edges instead of points.

MAY. To be permitted; to be at liberty; to have the power. Whenever a statute directs the doing of a thing for the sake of justice or the public good, the word *may* is the same as *shall*. For example, the 23 H. 6 says, the sheriff may take bail—that is construed he *shall*, for he is compellable to do so; (*Carth.*, 293. *Salk.*, 609. *Skin.*, 370.) The words *shall* and *may*, in general acts of the legislature or in private constitutions, are to be construed imperatively, (3 *Alk.*, 166;) but the construction of these words in a deed depends on circumstances; (3 *Alk.*, 282, sec. 1; *Vern.* 152, Case 142; 9 *Porter*, R. 390.)

MEASURES. (*See* WEIGHTS AND MEASURES.)

MEDICAL DEPARTMENT. (*See* ARMY for its organization.) No person can receive the appointment of assistant-surgeon until he has been examined and approved by an army medical board of not less than three surgeons or assistant-surgeons; and no person can receive the appointment of surgeon unless he shall have served five years as asst.-surgeon, and also have been examined by an army medical board constituted as above; (*Act* June 30, 1834.) (*See* AMBULANCE; LITTER; SURGERY.)

MEDICINE, RECIPES, &c., &c. An officer, unless he be a professed physician, need not take a large assortment of drugs. He wants a few powders, ready prepared; which any physician will prescribe for him, such as:—1. Emetic, mild; 2. ditto, very powerful for poison, (sulphate of zinc.) 3. Aperient, mild; 4. ditto, powerful. 5. Cordial for diarrhœa. 6. Quinine for ague. 7. Sudorific, (Dover's powder.) It will save trouble if these be so prepared, that one measureful of each shall be a full average dose for an adult; and if the measure to which they are adapted be cylindrical, and of such a size as just to admit a common lead-pencil, and three-quarters of an inch long, it can at any time be replaced by twisting up a paper-cartridge. In addition to the above powders take cold cream; heart-burn lozenges; lint; a small roll of diachylon; lunar-caustic, in a proper holder, to touch old sores with, and for snake bites; a scalpel and a blunt-pointed bistoury, to open abscesses with, (the blades of these should be waxed, to keep them from rust;) a good pair of forceps, to pull out thorns; a couple of needles, to sew up gashes; waxed thread. A mild effervescing aperient is very convenient.

Seidlitz-powders are perhaps a little too strong for frequent use in a tropical climate. The medicines should be kept in zinc pill-boxes, all of the same diameter, with a few letters punched both on their tops and bottoms, to indicate what they contain, as Emet., Astr., &c.; and the pill-boxes should slip one above another into a long zinc box lined with flannel, and lie there like sovereigns in a *rouleau*. The sulphate of zinc may be invaluable as an eyewash; for ophthalmia is a scourge in many countries. The taste, which should be strongly astringent, is the best guide to the strength of its solution.

For emetics, drink a charge of gunpowder in a tumblerful of warm water or soap-suds, or even tickle the throat.

Vapor-baths are used in many countries, and the Russian plan of making them is often the most convenient. They heat stones in the fire, and put them on the ground in the middle of their cabin or tent; on these they pour a little water and clouds of vapor are given off. Elsewhere, branches are spread on hot wood-embers, and the patient placed on these, wrapped in a large cloth; water is then sprinkled on the embers, which soon covers the patient with a cloud of vapor. The traveller who is chilled or over-worked, and has a quiet day before him, would do well to practise this simple and pleasant remedy.

Ointment.—Simple cerate is equal parts of oil and wax; lard and wax will do.

Seidlitz-powders are made as follows:—

1½ oz. Carbonate of Soda 3 oz. Tartarized Soda	For the blue papers.
7 drachms Tartaric Acid	For the white papers.

These quantities make 12 sets.

DISEASES.—Fevers of all kinds, diarrhœa, and rheumatism, are the plagues that most afflict soldiers; ophthalmia often threatens them. Change of air, from the flat country up into the hills, as soon as possible after the first violence of the illness is past, works wonders in hastening and perfecting a cure. With a bad diarrhœa, take nothing but broth, and it may be rice, in very small quantities at a meal, until quite restored. The least piece of bread or meat causes an immediate relapse.

REMEDIES.—A great discovery of modern days is the power of quinine to *keep off* fever while travelling across a fever district. It is a widely-corroborated fact, that a residence on the banks of the river, or in low land, is often less affected by malaria than the low hills that overlook it. There are certain precautions which should be borne in mind in unhealthy seasons—as, never to encamp to the leeward of a marsh; to sleep close in between large fires, with a handkerchief gathered round

your face, (natural instinct will teach this;) not to start off too early in the morning; to avoid unnecessary hunger, hardship, and exposure.

Drowning.—A half-drowned man must be put to bed in dry, heated clothes; hot stones, &c., to his feet; his head must be raised moderately. Human warmth is excellent, such as that of two strapping men made to lie close up against him, one on each side. All rough treatment is hurtful.

For Snake-bites, tie a string tight above the part, suck the wound, and apply caustic as soon as you can. Or, for want of caustic, cut away with a knife, and afterwards burn out with the end of your iron-ramrod, heated as near a white heat as you can readily get it. The arteries lie deep, and as much flesh may, without much danger, be cut or burnt into, as the fingers can pinch up. The next step is to use the utmost energy, and even cruelty, to prevent the patient's giving way to that lethargy and drowsiness which is the usual effect of snake-poison, and too often ends in death.

Broken Bones.—It is extremely improbable that a man should die, in consequence of a broken leg or arm, *if the skin be uninjured;* but, if the broken end forces its way through the flesh, the injury is a very serious one. Abscesses form, the parts mortify, and the severest consequences often follow. Hence, when a man breaks a bone, do not convert a simple injury into a severe one, by carrying him carelessly. If possible, move the encampment to the injured man, and not *vice versa.* "When a man has broken his leg, lay him on the other side, put the broken limb exactly on the sound one, with a little straw between, and tie the two legs together with handkerchiefs. Thus, the two legs will move as one, and the broken bone will not hurt the flesh so much, nor yet come through the skin;" (DRUITT.)

Excessive Bleeding.—When the blood does not pour or trickle in a steady stream from a deep wound, but in pulses, and is of a bright-red color, all the bandages in the world will not stop it. It is an artery that is wounded; and, unless there be some one accessible who knows how to take it up and tie it, burn deeply into the part, as you would for a snake-bite; or else pour boiling grease into the wound. It is, of course, a barbarous treatment, and far from being sure of success, as the cauterized artery may break out afresh; still, life is in question, and it is the only hope of saving it. After the cautery, the wounded man's limb should be kept perfectly still, and well raised, and cool, until the wound is nearly healed. A *tourniquet*, which will stop the blood for a time, is made by tying a strong thong, string, or handkerchief, firmly above the part, putting a stick through and screwing it tight.

If you know whereabouts the artery lies which it is the object to compress, put a stone over the place and under the handkerchief. The main arteries follow pretty much the direction of the inner seams of the coat sleeves and trousers.

To cure blistered Feet.—"Rub the feet at going to bed with spirits mixed with tallow dropped from a candle into the palm of the hand; on the following morning no blister will exist. The spirits seem to possess the healing power, the tallow serving only to keep the skin soft and pliant. This is Captain Cochrane's advice, and the remedy was used by him in his pedestrian tour;" (MURRAY'S *Handbook of Switzerland.*) The receipt is excellent; all pedestrians and all teachers of gymnastics endorse it, and it cannot be too widely known. To prevent the feet from blistering, it is a good plan to soap the inside of the stocking before setting out, making a good lather all over it; and a raw egg broken into a boot, before putting it on, greatly softens the leather. After some hours' walking, when the feet are beginning to be chafed, take off the shoes, and change the stockings; putting what was the right stocking on the left foot, and the left stocking on the right foot. Or, if one foot only hurts, take off the boot, and turn the stocking inside out.

Rarefied Air.—On high plateaux or mountains, travellers must suffer somewhat. The symptoms are described by many South American travellers, where it is called the *puna.* The disorder is sometimes fatal to stout plethoric people; oddly enough, cats are unable to endure it. At villages 13,000 feet above the sea, Dr. Tscudi says that they cannot live. Numerous trials have been made, but the creatures die in frightful convulsions. The symptoms of the puna are giddiness, dimness of sight and hearing, headache, fainting-fits, blood from mouth, eyes, nose, lips, and a feeling like sea-sickness. Nothing but time cures it. It begins to be felt at from 12,000 to 13,000 feet above the sea. M. Hermann Schlagintweit—whose large mountain experience in the Alps and in the Himalaya, up to the height of 20,000 feet or more, is only paralleled by that of his brother—says that he found the headache, &c., to come on when there was a breeze, far more than at any other time. His whole party would awake at the same moment, and begin to complain of the symptoms, immediately on the commencement of a breeze. The symptoms of overwork are not wholly unlike those of the puna, and many young travellers who have felt the first, have ascribed them to the second.

Snow-blindness.—In civilized life blue spectacles are, as is well known, an indispensable accompaniment to snow-mountain expeditions. The Esquimaux adopt the following equivalent: They cut a piece of soft

wood to the curvature of the face. It is about two inches thick, and extends horizontally quite across both eyes, and rests on the nose, where a notch is cut to act in the same way as the bridge of a pair of spectacles. This is tied behind the ears. Next a long narrow slit, of the thickness of a thin saw-cut, is made along its middle almost from end to end. Through this slit the wearer can see very fairly. It is narrower than the diameter of the pupil of his eye, and, consequently, the light that reaches his retina is much diminished in quantity.

Scurvy.—Any vegetable diet cures it: lime-juice, treacle, raw potatoes, and acid fruits are especially efficacious. Dr. Kane insists on the value of meat, eaten entirely raw, as a certain anti-scorbutic. It is generally used by the Esquimaux.

Teeth.—Tough diet tries the teeth so severely that a man about to undergo it had much better pay a visit to a dentist before he leaves.

Suffering from Thirst.—Pour water over the clothes of the man, and keep them constantly wet; restrain his drinking, after the first few minutes, as strictly as you can summon heart to do it. In less severe cases, drink water with a tea-spoon; it will satisfy a parched palate as much as if you gulped it down in tumblerfuls, and will disorder the digestion much less.

Suffering from Hunger.—Two or three mouthfuls every quarter of an hour is, to a man in the last extremity, the best thing; and strong broth the best food.

Wasp and Scorpion-stings.—The oil scraped out of a tobacco-pipe is good; should the scorpion be large, his sting must be treated like a snake-bite.

Poisoning.—The first thing is to give a powerful emetic, to throw up whatever poison may still remain unabsorbed in the stomach. Use soap-suds or gunpowder, if proper emetics are not at hand. If there be violent pains and griping, or retchings, give plenty of water to make the vomitings more easy. Nothing now remains to be done but to resist the symptoms that are caused by the poison which was absorbed before the emetic acted. Thus if the man's feet are cold and numbed, put hot stones against them and wrap him up warmly. If he be drowsy, heavy, and stupid, give brandy, and try to rouse him. There is nothing more to be done, save to avoid doing mischief.

Fleas.—"Italian flea-powder," sold in the East, is really efficacious. It is made from the "Piré oti," (or flea-bean,) mentioned in CURZON'S *Armenia*, as growing in that country. It is powdered and sold as a specific.

Vermin on the Person.—"We had now been travelling for nearly

ELLIPSE. *Circumference* $= \frac{1}{2}\frac{9}{0}\frac{8}{0}\ \pi \sqrt{\frac{1}{2}\ (a^2 + b^2)}$, nearly; a and b being the axes.

PARABOLA: *Length of an arc*, commencing at the vertex, $= \sqrt{\left(\frac{4\ a^2}{3} + \sqrt{b}\right)}$, nearly; a being the abscissa, and b the ordinate.

Surfaces.

Triangle. Half the base × the height; or half the product of two sides × the sine of the included angle, $(\frac{1}{2}\ a\ b\frac{\text{sin. } C}{R})$; or, $\sqrt{s\ (s-a)\ (s-b)\ (s-c)}$; a, b, c being the sides, and $s = \frac{a+b+c.}{2}$

Parallelogram. The base × the height.

Trapezoid. Half the sum of the parallel sides × the height.

Any Quadrilateral. Half the product of the diagonals × the sine of their angle.

Any irregular plane figure bounded by curves. Divide the figure into any *even* number of parts by parallel equidistant ordinates; let a be the sum of the first and last ordinates, b the sum of the *even* ordinates, c that of the *odd* ones, except the first and last; d the common distance between them; then will the area $= \frac{1}{3}\ d\ (a + 4\,b + 2\,c)$. *Five* ordinates will generally be found sufficient.

Circle. $\pi\ r^2$; or diam.^{2} × .7854; or, circum.^{2} × .07958.

Circular sector. $\frac{r\ a}{2}$; a being the length of the arc in linear measure.

Circular segment. The difference between the sector, and the triangle formed by the cord and the radii; or $\frac{r\ a - r^2 \text{ sin. } A}{2}$; or nearly $= .4\ v\ (c + \frac{4}{3}\sqrt{\frac{1}{4}\ c^2 + v^2})$; c being the cord and v the versed sine.

Ellipse. .7854 $a\ b$; a and b being the axes.

Parabola. $\frac{2}{3}\ a\ b$; a being the abscissa, and b the double ordinate.

Right prism or cylinder. Curved surface = height × perimeter of base.

Right pyramid or cone. Half the slant height × perimeter of base.

Frustum of a right prism or cylinder. The perimeter of the base multiplied by the distance from the centre of gravity of the upper section to the base. If the prism or cylinder is oblique, multiply this product by the sine of the angle of inclination.

Frustum of a right pyramid or cone. The slant height × half the sum of the perimeters of the two ends.

Sphere. $4\ \pi\ r^2$; or, diam. × circum.; or, diam.^{2} × 3.1416.

Spherical zone or segment. $2 \pi r h$; or, the height of the zone or segment multiplied by the circumference of the sphere.

Circular spindle. $2 \pi (r c - a \sqrt{r^2 - \frac{1}{4} c^2})$; a being the length of the arc, and c its chord, or the length of the spindle.

Spherical triangle. $\pi r^2 \frac{s - 180^\circ}{180^\circ}$; s being the sum of the three angles.

Any surface of revolution. $2 \pi r l$; or, the length of the generating element multiplied by the circumference described by its centre of gravity.

TABLE OF REGULAR POLYGONS.

No. of sides	Name.	Area.	Radius of circumscribing circle.	Side of inscribed polygon.
3	Triangle.	0.4330127	0.5773503	1.732051
4	Square.	1.0000000	0.7071068	1.414214
5	Pentagon.	1.7204774	0.8506508	1.175570
6	Hexagon.	2.5980762	1.0000000	1.000000
7	Heptagon.	3.6339124	1.1523824	0.867767
8	Octagon.	4.8284271	1.3065628	0.765367
9	Nonagon.	6.1818242	1.4619022	0.684040
10	Decagon.	7.6942088	1.6180340	0.618034
11	Undecagon.	9.3656399	1.7747324	0.563465
12	Dodecagon.	11.1961524	1.9318517	0.517638

The column of *areas*, in the foregoing table, gives the number by which the *square of the side* is to be multiplied, to find the area of the polygon.

The next column gives the multiplier for the *side of a polygon*, to find the radius of the circumscribing circle.

The last column gives the multiplier for the *radius of a circle*, to find the side of the inscribed polygon.

Solids.

Prism or cylinder. Area of base multiplied by the height.

Pyramid or cone. Area of base multiplied by one-third of the height.

Frustum of a pyramid or cone. $\frac{1}{3} h (B + b + \sqrt{B b})$; h being the height; B and b the areas of the two ends. Or, for a conic frustum: $\frac{1}{3} h \times .7854 \times \left(\frac{D^3 - d^3}{D - d}\right)$; D and d being the diameters of the two ends.

Frustum of a right triangular prism. The base $\times \frac{1}{3} (H + H' + H'')$.

Frustum of any right prism. The base multiplied by its distance from the centre of gravity of the section.

Cylindrical segment, contained between the base and an oblique plane passing through a diameter of the base: two-thirds of the height multiplied by the great triangular section; or, $\frac{1}{3} r h^2$; r being the radius of the base, and h the area of the height.

Sphere. $\frac{4 \pi r^3}{3}$; or, .5236 d^3; r being the radius and d the diameter.

Spherical segment. $\frac{1}{3} \pi h^2 (3 r - h) = \frac{\pi h}{6} (3 b^2 + h^2)$; b being the radius of the base, h the height of the segment, and r the radius of the sphere: $\frac{\pi}{6} = 0.5236$.

Spherical zone. $\frac{\pi h}{6} (3 B^2 + 3 b^2 + h^2)$; B, b being the radii of the bases.

Spherical sector. $\frac{1}{3} r \times$ the surface of the segment or zone; or, $\frac{2}{3} \pi r^2 h$.

Ellipsoid. $\frac{\pi a^2 b}{6}$; a being the revolving diameter and b the axis of revolution.

Paraboloid. Half the area of the base multiplied by the height.

Circular spindle. $\pi (\frac{1}{6} c^3 - 2 s \sqrt{r^2 - \frac{1}{4} c^2})$; s being the area of the revolving segment and c its chord.

Any solid of revolution. $2 \pi r s$; or, the area of the generating surface multiplied by the circumference described by its centre of gravity.

Any irregular solid, bounded by a curved surface. Use the rule for finding the area of an irregular plane figure, substituting *sections* for *ordinates*.

Cask gauging. 1. — By the preceding rule:

The content of a cask $= \frac{\pi}{24} l (d^2 + D^2 + 4 M^2)$; l being the length, d, D, the head and bung diameters, and M, a diameter midway between them, all measured in the clear, inside; $\frac{\pi}{24} = 0.1309$.

The same formula may be thus stated: $\frac{1}{3} l (A + B + C)$; l being the length; A and B, the areas of the head and bung sections; and C, that of the section midway between them.

2. Contents of a cask, nearly, $= \frac{\pi}{12} l (2 D^2 + d^2)$; or, $l \times$ the area of a circle whose diameter is $\frac{2 D + d}{3}$

CENTRES OF GRAVITY.

Lines.

Circular arc. At a distance from the centre $= \frac{r\,c}{l}$; r being the radius, c the chord, and l the length of the arc.

Areas.

Triangle. On a line drawn from any angle to the middle of the opposite side, at two-thirds of the distance from the angle to the side.

Trapezoid. On a line a joining the middle points of the two parallel sides, B, b; distance from $B = \frac{a}{3}\left(\frac{B + 2\,b}{B + b}\right)$

Semicircle. Distance from the centre $= \frac{4\,r}{3\,\pi}$

Circular segment. Distance from the centre $= \frac{c^3}{12\,A}$; c being the chord of the segment, and A its area.

Circular sector. Distance from the centre $= \frac{2\,r\,c}{3\,l}$; c being the chord, and l the length of the arc.

Parabolic segment. Distance from the vertex = three-fifths of the abscissa.

Surface of a right cylinder, cone, or frustum of a cone. The centre of gravity is at the same distance from the base as that of the parallelogram, triangle or trapezoid, which is a right section of the same.

Surface of a spherical zone or segment. At the middle of the height.

MERLON. The space of the parapet between two embrasures.

MESNE PROCESS. Any writ issued in the course of a suit between the original process and execution. By this term is also meant the writ of proceedings in an action to summon or bring the defendant into court, or compel him to appear or put in bail, and then to hear and answer the plaintiff's claim. (*See* ARREST BY CIVIL AUTHORITY.)

MESS. The law is silent with regard to messes in the army. Executive regulations have been made on the subject, but without law it is impossible to put messes on a proper footing. In England, an allowance is granted by the king in aid of the expense of officers' messes; and every officer on appointment to a corps subscribes one month's pay to the mess fund. All the officers of the corps mess together. In France, the several grades mess separately; lieutenants and sub-lieutenants forming two tables; captains another, and field officers of different grades generally eating separately also. Colonels and general officers of

the French service receive an allowance for table expenses, not sufficient to keep open house, but enough to enable them to entertain guests.

MIASM, MIASMATA. (*See* SANITARY PRECAUTIONS.)

MILEAGE. Travelling allowance or transportation of baggage. (*See* TRAVELLING.)

MILITARY ACADEMY. (*See* ACADEMY.)

MILITARY LAWS. (*See* GOVERNMENT, LAW (MILITARY); REGULATIONS.)

MILITIA.

GENERAL ABSTRACT OF THE MILITIA FORCE OF THE UNITED STATES, ACCORDING TO THE LATEST RETURNS RECEIVED AT THE OFFICE OF THE ADJUTANT-GENERAL.

STATES AND TERRITORIES.	For what year.	General officers.	General staff officers.	Field officers, &c.	Company officers.	Total commissioned officers.	Non-commissioned officers, musicians, artificers, and privates.	Aggregate.
Maine	1854	10	56	13	193	272	2,345	2,617
New Hampshire	1854	11	202	119	895	1,227	32,311	33,538
Massachusetts	1856	10	46	131	521	708	154,323	155,031
Vermont	1843	12	51	224	801	1,088	22,827	23,915
Rhode Island	1854	3	39	24	49	115	1,036	1,151
Connecticut	1856	5	10	59	182	254	51,560	51,814
New York	1855	97	305	1,460	5,402	7,264	326,094	333,358
New Jersey	1852	.....	.....	.....	.....	.....	.....	81,984
Pennsylvania	1854	.....	.....	.....	.....	.....	.....	106,957
Delaware	1827	4	8	71	364	447	8,782	9,229
Maryland	1838	22	68	544	1,763	2,397	44,467	46,864
Virginia	1854	32	76	153	614	875	124,656	125,531
North Carolina	1845	28	133	657	3,449	4,267	75,181	79,448
South Carolina	1856	20	135	535	1,909	2,599	33,473	36,072
Georgia	1850	39	91	624	4,296	5,050	73,649	78,699
Florida	1845	3	14	95	508	620	11,502	12,122
Alabama	1851	32	142	775	1,883	2,832	73,830	76,662
Louisiana	1856	16	129	542	2,084	2,771	87,961	90,732
Mississippi	1838	15	70	392	348	825	35,259	36,084
Tennessee	1840	25	79	859	2,644	3,607	67,645	71,252
Kentucky	1852	43	145	1,165	3,517	4,870	84,109	88,979
Ohio	1845	91	217	462	1,281	2,051	174,404	176,455
Michigan	1854	30	323	147	2,358	2,858	94,236	97,094
Indiana	1832	31	110	566	2,154	2,861	51,052	53,913
Illinois	1855	.....	.....	.....	.....	.....	.....	257,420
Wisconsin	1854	15	88	125	914	1,142	48,119	49,261
Iowa	.....	.....	.....	.....	.....	.....	.....	.....
Missouri	1853	.....	17	4	67	88	117,959	118,047
Arkansas	1851	10	39	128	955	1,132	34,922	36,054
Texas	1847	15	45	248	940	1,248	18,518	19,766
California	1854	12	11	.....	100	123	208,522	208,645
Minnesota Territory	1851	2	5	.....	.....	7	1,996	2,003
Oregon Territory	.....	.....	.....	.....	.....	.....	.....	.....
Washington Territory	.....	.....	.....	.....	.....	.....	.....	.....
Nebraska Territory	.....	.....	.....	.....	.....	.....	.....	.....
Kansas Territory	.....	.....	.....	.....	.....	.....	.....	.....
Territory of Utah	1853	2	.....	48	235	285	2,536	2,821
Territory of New Mexico	.....	.....	.....	.....	.....	.....	.....	.....
District of Columbia	1852	3	10	28	185	226	7,975	8,201
Grand aggregate	.....	636	2,664	10,198	40,611	54,109	2,071,249	2,571,719

Notwithstanding the feudal military service introduced into England by William the Conqueror, ancient Anglo-Saxon laws, making it the duty of every freeman to arm himself and serve for the defence of his country against invasion, remained in full vigor. The force authorized to be raised under these conditions has from the earliest times been called the militia, and was under the command of the alderman or earl, who was at that time the governor of the county. By the 27th Henry II. (1154) this force was regulated and organized, every subject, according to his rank and means, being compelled to furnish himself with arms for the maintenance of the king's peace. A century afterwards this act was confirmed, and a fresh "Assize of arms" ordered by the statute of Wynton, by which it was enacted that every man between the ages of fifteen and sixty should be assessed, and sworn to keep armor according to the value of his lands and goods. For £15 and upwards in rent, or 40 marks in goods, a haubérk, an iron breastplate, a sword, a knife, and a horse; property of less value entailing the possession of arms of a proportionately less expensive character. Constables were also appointed to view the armor twice a year, which constables, the act says, "shall present before justices assigned such defaults as they shall see in the country about armor; and the justices assigned shall present at every parliament unto the king such defaults as they shall find, *and the king shall provide the remedy therein.* The system organized by these statutes was evidently, from the context, intended in the first place for the preservation of internal peace, by the suppression of tumults, and keeping in check the bands of robbers that infested the public ways; the sheriff, as the conservator of the public peace, had always possessed the power of calling out the posse comitatus, or assembly of liegemen of the county, to assist him on such occasions; and it is supposed that it was the object of Edward III. to confirm and extend this authority, and at the same time to organize a force readily capable of being made applicable to resist invasion. In the United States each and every free, able-bodied, white male citizen of the respective States resident therein, who is of the age of 18 years and under 45 years, (except EXEMPTS, which see,) shall be enrolled in the militia by the captain or commanding officer of the company within whose bounds such citizen shall reside. The militia of the respective States shall be arranged into divisions, brigades, regiments, battalions and companies, as the legislature of each State shall direct. If the same be convenient, each brigade shall consist of four regiments; each regiment of two battalions; each battalion of five companies, and each company of sixty-four privates. The said militia shall be officered by the respec-

tive States as follows: to each division, one major-general and two aides-de-camp with the rank of major, one division-inspector with the rank of lieutenant-colonel, and one division-quartermaster, with the rank of major; to each brigade, one brigadier-general, one aide-de-camp with the rank of captain, one quartermaster, with the rank of captain, with one brigade-inspector, to serve also as brigade-major, with the rank of major; to each regiment consisting of two battalions one colonel, one lieutenant-colonel, and one major; where there shall be only one battalion, it shall be commanded by a major; to each regiment one chaplain; to each company one captain, one lieutenant, one ensign, four sergeants, four corporals, one drummer, and one fifer or bugler. There shall be a regimental staff, to consist of one adjutant and one quartermaster, to rank as lieutenants; one paymaster, one surgeon, and one surgeon's mate; one sergeant-major, one drum-major, and one fife-major; to the militia of each State one quartermaster-general; (*Acts* May 8, 1792, March 2, 1803, April 18, 1814, April 20, 1816.)

Out of the enrolled militia, there shall be formed for each battalion one company of grenadiers, light infantry or riflemen; and to each division there shall be at least one company of artillery and one troop of horse; there shall be to each company of artillery, one captain, two lieutenants, four sergeants, four corporals, six gunners, six bombardiers, one drummer, and one fifer. There shall be to each troop of horse, one captain, two lieutenants, one cornet, four sergeants, four corporals, one saddler, one farrier, and one trumpeter. Each troop of horse and company of artillery to be formed of volunteers of the brigade to which they belong; (*Act* May 8, 1792.)

It shall be the duty of the brigade-inspector to attend the regimental and battalion meetings of the militia, inspect their arms, ammunition, &c., superintend their exercise and manœuvres, and introduce the system of military discipline throughout the brigade agreeably to law and such orders as they shall, from time to time, receive from the commander-in-chief of the State; to make returns to the adjutant-general of the State at least once in every year, reporting the actual condition of the arms, accoutrements, and ammunition of the several corps, and every other thing which, in his judgment, may relate to their government and the general advancement of good order and military discipline; (*Act* May 8, 1792.)

Volunteer corps shall retain their accustomed privileges, subject nevertheless to all other duties required by this act, in like manner with the other militia; (*Act* May 8, 1792.)

There shall be an adjutant-general appointed in each State, whose duty it shall be to distribute all orders of the commander-in-chief of the State to the several corps; to attend all public reviews when the commander-in-chief shall review the militia; to obey all orders from him, relative to carrying into execution and perfecting the system of military discipline established by this act; to furnish blank forms of different returns that may be required, and to explain the principles on which they should be made; to receive from the several officers of the different corps throughout the State, returns of the militia under their command, reporting the actual condition of their arms, and every thing which relates to the advancement of good order and discipline; all which the several officers of the divisions, brigades, regiments, and battalions are required to make, so that the adjutant-general may be duly furnished therewith; from all of which returns he shall make abstracts and lay the same annually before the commander-in-chief of the State; and he shall also make an annual return of the militia of the State, with their arms and accoutrements, &c., to the President of the United States; and the Secretary of War shall, from time to time, give directions to the adjutant-generals of States to produce uniformity in such returns; (*Acts* May 8, 1792; March 2, 1803, and May 12, 1820.)

Whenever militia shall be called into actual service of the United States, their pay shall commence from the day of their appearance at the places of battalion, regimental, or brigade rendezvous; allowing to each non-commissioned officer and soldier a day's pay and rations for every fifteen miles from his home to such place of rendezvous, and the same allowances for travelling home from the place of discharge; (*Act* Jan. 2, 1795.)

The militia or other State troops, being mustered and in pay of the United States, shall be subject to the same Rules and Articles of War as the troops of the United States, save only that courts-martial for the trial of militia or other State troops shall be composed entirely of militia officers; (ART. 97.) All officers, serving by commission from the authority of any particular States, shall, on all detachments, courts-martial, or other duty wherein they may be employed in conjunction with the regular forces of the United States, take rank next after all officers of like grade in said regular forces, notwithstanding the commissions of such militia or State officers may be older than the commissions of the officers of the regular forces of the United States; (ART. 98.)

By the act for calling forth the militia, approved Feb. 28, 1795, militia not to serve more than three months after arrival at the place of rendezvous. Every officer, non-commissioned officer, or private of mi-

litia that shall fail to obey the orders of the President of the United States, shall forfeit a sum not exceeding one year's pay, and not less than one month's pay, to be determined and adjudged by a court-martial; and such officer shall, moreover, be liable to be cashiered by sentence of a court-martial and be incapacitated from holding a commission in the militia for a term not exceeding twelve months, at the discretion of the said court; and such non-commissioned officers and privates shall be liable to be imprisoned by a like sentence, on failure of the payment of fines adjudged against them, for one calendar month for every five dollars of such fine.

Courts-martial for the trial of militia, shall be composed of militia officers only.

That all fines to be assessed, as aforesaid, shall be certified by the presiding officer of the court-martial before whom the same shall be assessed, to the marshal of the district in which the delinquent shall reside, or to one of his deputies, and also to the supervisor of the revenue of the same district, who shall record the said certificate in a book to be kept for that purpose. The said marshal, or his deputy, shall forthwith proceed to levy the said fines, with costs, by distress and sale of the goods and chattels of the delinquent; which costs, and the manner of proceeding with respect to the sale of the goods distrained, shall be agreeable to the laws of the State in which the same shall be, in other cases of distress. And where any non-commissioned officer or private shall be adjudged to suffer imprisonment, there being no goods or chattels to be found whereof to levy the said fines, the marshal of the district, or his deputy, may commit such delinquent to gaol, during the term for which he shall be so adjudged to imprisonment, or until the fine shall be paid, in the same manner as other persons condemned to fine and imprisonment at the suit of the United States may be committed.

That the marshals and their deputies shall pay all such fines by them levied, to the supervisor of the revenue in the district in which they are collected, within two months after they shall have received the same, deducting therefrom five per centum as a compensation for their trouble; and in case of failure, the same shall be recoverable by action of debt or information in any court of the United States of the district in which such fines shall be levied, having cognizance thereof, to be sued for, prosecuted, and recovered, in the name of the supervisor of the district, with interest and costs.

That the marshals of the several districts, and their deputies, shall have the same powers, in executing the laws of the United States, as

sheriffs, and their deputies in the several States, have by law in executing the laws of the respective States.

And by a supplementary act approved in Feb. 1813, That, in every case in which a court-martial shall have adjudged and determined a fine against any officer, non-commissioned officer, musician, or private, of the militia, for any of the causes specified in the act to which this act is a supplement, or in the fourth section of an act, entitled "An act to authorize a detachment from the militia of the United States," all such fines, so assessed, shall be certified to the comptroller of the treasury of the United States, in the same manner as the act to which this act is a supplement directed the same to be certified to the supervisor of the revenue.

That the marshals shall pay all fines which have been levied and collected by them, or their respective deputies, under the authority of the acts herein referred to, into the treasury of the United States, within two months after they shall have received the same, deducting five per centum for their own trouble; and, in case of failure, it shall be the duty of the comptroller of the treasury to give notice to the district attorney of the United States, who shall proceed against the said marshal in the district court, by attachment, for the recovery of the same. (*See* CALLING FORTH MILITIA; DEFENCE, *National.*)

MINE. Powder placed in subterranean cavities, by exploding which every thing above it is overthrown. Mines are *offensive* when they are prepared by besiegers, and *defensive* when used by the besieged. The place where the powder is lodged is called the *chamber* of the mine, and it is generally made of a cubical form large enough to contain the wooden box which holds the powder necessary for the charge. The fire is communicated to the mine by means of a pipe or hose made of coarse cloth filled with powder, laid in a wooden case about an inch square, extending from the centre of the chamber to the extremity of the gallery, where a match is fixed so that the miner who applies the fire to it, may have time to retire before the flame reaches the chamber. (*See* FOUGASSE; GALLERY.)

MINORS. The Secretary of War, on demand, is required to grant the discharge from the army of any minor enlisted without the consent of parent or guardian.

MINUTE GUNS. Guns, fired at intervals of a minute, are signals of distress.

MISBEHAVIOR BEFORE THE ENEMY. Punishable with death or otherwise, according to the sentence of a court-martial; (ART. 52.)

MISNOMER. If a prisoner plead a misnomer, the court may ask

the prisoner what is his real name, and call upon him to plead to the amended charge; (HOUGH.)

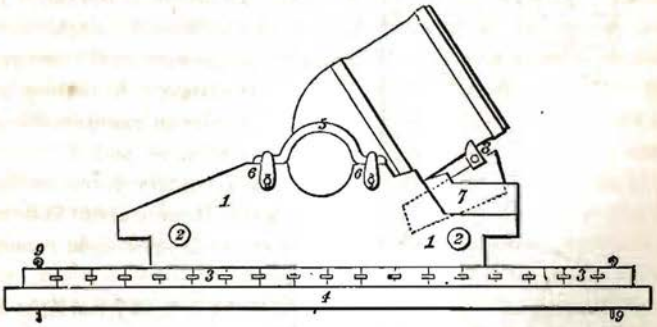
MITIGATION. (*See* PARDON.)

MONEY. The embezzlement or misapplication of public money intrusted to an officer for the payment of men under his command, or for enlisting men into the service, or for other purposes, punishable with cashiering and being compelled to refund the money. In case of a non-commissioned officer, reduction to the ranks and being put under stoppages until the money is refunded, and such corporeal punishment as a court-martial shall direct; (ART. 39.)

MONTHLY RETURNS. (*See* RETURNS.)

MORTAR. The following mortars are used in the United States service: The heavy 13-inch mortar, weighing 11,500 lbs., whole length 53 inches, length of chamber 13 inches, and superior diameter of cham-

FIG. 153.



SIEGE MORTAR.

1. Cheeks.
2. Manœuvring bolt.
3. Deck plank.
4. Sleeper.
5. Cap square.
6. Cap straps.
7. Bolster.
8. Quoin.
9. Eye bolts.

ber 9.5 inches; the heavy 10-inch mortar, weighing 5,775 lbs., whole length 46 inches, length of chamber 10 inches; the light 10-inch mortar, weighing 1,852 lbs., whole length of mortar 28 inches, length of chamber 5 inches; the *light* 8-inch mortar, weighing 930 lbs., whole length of mortar 22.5 inches, length of chamber 4 inches; brass stone mortar, weighing 1,500 lbs., diameter of bore 16 inches, whole length of mortar 31.55 inches, length of chamber 6.75 inches; brass coehorn 24-pounder, diameter of the bore 5.82 inches, weight 164 lbs., whole length 16.32 inches, length of chamber 4.25 inches; iron eprouvette, diameter of the bore 5.655 inches, weight 220 lbs., length of bore exclusive of chamber, 11.5 inches, length of chamber 1.35 inch. Mortars

are mounted on *beds*, and when used, siege mortars are placed on a *platform* of wood made of 6 sleepers; 18 deck planks; and 72 dowels; fastened with 12 iron eye-bolts. (Consult *Ordnance Manual* and *Instruction in Heavy Artillery for Mechanical Manœuvres.* *See* ARTILLERY; ORDNANCE.)

MOUNTAIN ARTILLERY. The mountain howitzer, weight 220 lbs., whole length 37.21 inches, diameter of bore 4.62 inches; length of chamber 2.75 inches, diameter of chamber 3.34; natural angle of sight, 0° 37′; RANGE 500 yards, at an elevation of 2° 30′, with a charge of ½ lb. powder and shell; time of flight, 2 seconds; with same charge and elevation, the range of spherical-case is 450 yards. At an elevation of from 4° to 5° the range with canister is 250 yards. According to elevation the range varies from 150 to 1,000 yards; at the same elevation the range with shell being greater than spherical-case. A battery of six mountain howitzers requires 33 pack-saddles and harness, and 33 horses or mules. A mountain howitzer ammunition chest will carry about 700 musket ball-cartridges, besides eight rounds for the howitzer.

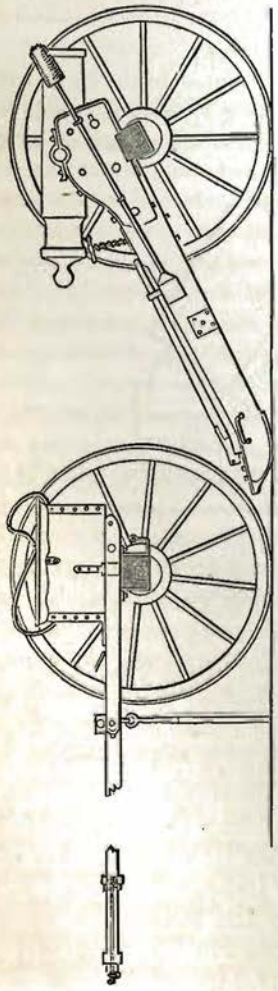


FIG. 154.
MOUNTAIN HOWITZER AND LIMBER.

MOUNTED RIFLEMEN. There is one regiment of mounted riflemen in the United States army. (*See* ARMY for their organization.) The skirmish drill for mounted troops prepared by Capt. D. H. Maury, U. S. A., and used by mounted riflemen, differs from the system of cavalry exercise:

1st. *In prescribing the formation in one rank instead of in two ranks.*—Besides extending the line of front, this change develops individual instruction, and enables the officer to bring his men from column into line, and the reverse, almost as quickly as in infantry. By it a mounted company may be brought

from the full gallop into fighting order *on foot*, the true order for riflemen, within *six seconds* after the command has been given.

2d. *In giving no heed to inversions.*—The effect of this change is to bring men from marching into fighting order in the simplest and most rapid manner.

3d. *The grouping together of men in sets of fours.*—This, besides being convenient for the purposes of police and guards in garrison and camp, teaches the men, when in action, to rely upon each other as near comrades. (*See* CAVALRY.)

MOUNTING. The parade of marching on guard is called *guard-mounting.*

MUSKET. (*See* ARMS.)

MUSTER. At every muster, the commanding officer of each regiment, troop, or company there present, shall give certificates, signed by himself, signifying how long officers who do not appear at muster have been absent, and the reason of their absence. In like manner, the commanding officer of every troop or company shall give certificates, signifying the reasons of the absence of the non-commissioned officers and private soldiers, which reasons and time of absence shall be inserted in the muster-rolls, opposite the names of the respective absent officers and soldiers. The certificates shall, together with the muster-rolls, be remitted by the commissary of musters or other officer mustering, to the Department of War, as speedily as the distance of the place will admit; (ART. 13.) Every officer, who shall be convicted of having signed a false certificate, relating to the absence of either officer or soldier, or relative to his or their pay, shall be cashiered; (ART. 14.) Every officer, who shall knowingly make a false muster of man or horse, and every officer or commissary of musters, who shall willingly sign, direct, or allow, the signing of muster-rolls wherein such false muster is contained, shall, upon proof made thereof by two witnesses before a general court-martial, be cashiered, and shall be thereby utterly disabled to have or hold any office or employment in the service of the United States; (ART. 15.) Any commissary of muster or other officer, who shall be convicted of having taken money or other things by way of gratification, on mustering any regiment, troop, or company, or on signing muster-rolls, shall be displaced from office and shall be thereby utterly disabled to have or hold any office or employment in the service of the United States; (ART. 16.) Any officer, who shall presume to muster a person as a soldier who is not a soldier, shall be deemed guilty of having made a false muster, and shall suffer accordingly; (ART. 17.) Troops are mustered every two months. (*See* ARREARS OF PAY; CERTIFICATE; FALSE; PAY.)

MUTINY. Any officer or soldier, who shall begin, excite, cause, or join in any mutiny or sedition in any troop or company in the service of the United States, or in any party, post, detachment, or guard, shall suffer death, or such other puunishment as by a court-martial shall be inflicted; (ART. 7.) Any officer, non-commissioned officer, or soldier who, being present at any mutiny or sedition, does not use his utmost endeavor to suppress the same, or coming to the knowledge of any intended mutiny, does not, without delay, give information thereof to his commanding officer, shall be punished by the sentence of a court-martial with death, or otherwise, according to the nature of his offence; (ART. 8.) "Mutiny is a combined or simultaneous resistance, active or passive, to lawful military authority." The best authorities admit that a single person, without previous combination or concert with others, cannot commit mutiny. An overt act by one person, in pursuance of a combined plan or conspiracy, is, however, mutiny; and conspiracy or *intended* mutiny is, under the 8th article, punishable in the same degree as an overt act. Where an overt act, therefore, has not been committed, it is proper to base the charge on the 8th article. But all who have *conspired* in intended mutiny are alike guilty of mutiny, consisting in overt acts on the part of one or more of the conspirators.

N

NAIL BALL—is a round projectile with an iron pin projecting from it, to prevent its turning in the bore of the piece.

NATIONAL ANNIVERSARY. The 4th of July. Regulations prescribe the honors to be paid by troops to the National Anniversary.

NATIONAL DEFENCE. (*See* DEFENCE, *National.*)

NEW MATTER. It is not proper that the prosecutor should be allowed to introduce *new matter*, neither should it be admitted on the defence. There is a great difference between new matter of accusation and facts proved by evidence to mitigate the sentence. The latter are not new matter in its strict sense; (HOUGH'S *Military Law Authorities.*)

NITRE. Saltpetre, or nitrate of potassa; 54 nitric acid, 48 potassa. It is spontaneously generated in the soil, and is a necessary ingredient of powder. It has occasionally been produced artificially in *nitre beds*, formed of a mixture of calcareous soil with animal matter; in these, nitrate of lime is slowly formed, which is extracted by lixiviation, and carbonate of potash added to the solution, which gives rise to the formation of nitrate of potassa and carbonate of lime; the latter is precipitated; the former remains in solution and is obtained in crystals by evaporation. Its great use is in the manufacture of gunpowder, and in

the production of nitric acid. It is also employed in the curing or preservation of meat.

NOMENCLATURE. Technical designation. (*See* ARMS; ORDNANCE.)

NON-COMMISSIONED OFFICER. Grades between private and warrant officer, as corporal, sergeant, ordnance-sergeant, sergeant-major, and quartermaster-sergeant.

NOTES. Members of courts-martial sometimes take notes. They are frequently necessary to enable a member to bring the whole body of evidence into a connected view, where the case is complex.

O

OATH. "Every officer, non-commissioned officer, musician, and private, shall take and subscribe the following oath or affirmation, to wit: I, A. B, do solemnly swear or affirm (as the case may be) that I will bear true faith and allegiance to the United States of America, and that I will serve them honestly and faithfully against their enemies or opposers whomsoever; and that I will observe and obey the orders of the President of the United States, and the orders of the officers appointed over me, according to the Rules and Articles of War; (*Act* March 16, 1802.)

OATH, (COURT OF INQUIRY.) The form of the oath to be taken upon courts of inquiry by members and judge-advocate or recorder, is prescribed in ART. 93. Witnesses before courts of inquiry take the same oath as before courts-martial.

OATH, (PROFANE.) Any non-commissioned officer or soldier, who shall use any profane oath or execration, incurs the same penalties as for irreverence at divine worship. (*See* WORSHIP.) A commissioned officer shall forfeit and pay for each and every such offence one dollar, to be applied as forfeitures for irreverence at worship.

OATH OF WITNESSES. (*See* WITNESS.)

OATHS OF MEMBERS OF COURTS-MARTIAL The 69th Article of War prescribes the oath or affirmation to be taken upon courts-martial, by members, and the judge-advocate. (*See* TRIAL.)

OATS. (*See* FORAGE; WEIGHTS.)

OBEDIENCE—to "*any lawful command of his superior officer*" is exacted from all officers and soldiers under penalty of death, or such other punishment as may be inflicted by a court-martial; (ART. 9.)

Two questions, therefore, arise under this article: Who is to judge of the *legality* of the command? and, What constitutes a *superior* officer in the sense of the article?