The Scientific American.

MUNN & COMPANY, Editors and Proprietors.

PUBLISHED WEEKLY

At No. 37 Park Row (Park Building), New York.

O. D. MUNN, S. H. WALES, A. E. BEACH.

TERMS—Three Dollars per annum—One Dollar in advance, for four months.
Single copies of the paper are on sale at the office of publication, and at all periodical stores in the United States and Canada.
Sampson Low, Son & Co., the American Booksellers, No. 47 Ludgate Hill, London, England, are the British Agents to receive subscriptions for the SCIENTIFIC AMERICAN.
☞ See Prospectus on last page. No traveling agents employed.

VOL. IX, NO. 4...[NEW SERIES].....*Nineteenth Year.*

NEW YORK, SATURDAY, JULY 25, 1863.

ARMY BREAD---HEALTH OF SOLDIERS.

Our soldiers, when in active field-service, we have been informed, are subject to dyspepsia and dysentery. When affected with either of these diseases, even for a limited time, a soldier becomes feeble and unfit for duty. The causes and prevention of these maladies should form a subject of earnest inquiry. A person with whom we recently conversed, who has had two years' experience in the army of the Potomac, and who had been a prisoner for some time in Richmond, stated that when our soldiers were fed for several weeks on "hard tack" (the name for army biscuit) and pork, their stomachs became disordered and dysentery followed. He stated that although food was less abundant in the secession army, the men were very healthy, and he attributed this condition to the use of fresh flour as part of the rations of the secession soldiers. For want of bakeries in the South to manufacture biscuit, flour and corn meal were served out to the soldiers, and they were accustomed to make cakes in camp and bake them on griddles—sometimes formed of flat stones. Another person of considerable experience in the army, with whom we have conversed, confirmed the statement as to the frequency of dyspepsia and dysentery in the army, stating his belief that these diseases were due, in a great measure, to inferior bread. He asserted also that the contract taken for this month to provide this bread was as low as 3.94 cents per pound, including boxing, &c., all ready for delivery. Thus the contract calls for bread to be made of *extra State flour*, which, at the rate of $5 80 per barrel, will yield 180 pounds of bread if thoroughly baked, for which $7 10 is the sum that will be received from the Government. Our informant states that it will cost for the flour, packing, and boxing, not including the expenses of baking, $7 77. He therefore concludes that an inferior quality of flour must be used in making the army bread, and that it is not sufficiently baked—a considerable amount of moisture being left in it. He also states that this bread is baked in ovens heated with the products of combustion which pass from the furnaces through perforated flues direct into the ovens. In other words, the bread is baked in a heated atmosphere of carbonic oxide and acid gases. The opinion was given that the bread thus baked absorbed carbonic acid gas, and was thus rendered injurious to the stomachs of the soldiers, tending to "poison their systems." We are also told that it is very difficult to heal the wounds of our soldiers in hospitals, which fact is attributed to the use of unwholesome bread.

We are aware that while carbonic acid gas is poison to the lungs, it is not injurious to the system when taken into the stomach in moderate quantities. It does not, therefore, seem to us probable that the gas in the bread baked as stated can be the cause of the diseases in our army. That the evils stated do exist in our army to some extent there can be no doubt, but we believe that they have been greatly exaggerated. We have directed attention to the hard army bread as the possible cause of such diseases; this is the opinion of persons who have had opportunities for extended observation in the army. They may be mistaken in their conclusions, but whatever may be the causes of these maladies they deserve investigation, and they should be removed if it is in the power of man to do it. Our soldiers who have gone forth to peril their lives for the support and perpetuation of the Government, deserve to receive the best food that can be provided.

CONSERVATISM AMONG MECHANICS.

Tradition is a good thing in its way, but mere blind reliance upon it sometimes leads men astray. The teachings of the past, applied to the arts, form what is termed experience, and by recalling to mind exigencies where extraordinary means have been employed to overcome difficulties, men perform duties with more ease and certainty than if they had not such memory at their service. The reader may ask, "Suppose a man has not had extensive experience in some branches of his business, how shall he thus familiarize himself with them?" We answer, inform himself by taking advantage of every means within reach that lead to the desired end. Conversations with practical men; consultations with books or papers devoted to the specialty he wishes to become acquainted with; these have an important influence which cannot fail to be an advantage to the student.

The mechanical ideas of this age of the world lead men ever onward; that is to say, that every hour discloses some vital question on which the masses of mechanics are ignorant because they have never given attention to the subject; as, for instance, the most impenetrable armor; the most deadly gun, rifled or smooth bore; the best forms for the hulls of batteries and iron-clad ships; and countless other points which will suggest themselves to all. This is why we say the spirit of the age leads ever onward, and hence the necessity which exists for investigating the labors of those who have preceded us. Is it not palpable to every one that the individual who has a knowledge of three or four different processes of doing the same thing, is a far more valuable member of society than he who adheres obstinately to his old-time method in the firm conviction that *it* alone is worthy of attention? Most undoubtedly. Yet we go over workshops and see men at work with tools that the best authorities have discarded long ago as useless, and have superseded them by more efficient ones; we see lathes in use with narrow shears, small spindles, light screws; planers with chains instead of screws or racks, and pinions, chain-feed on the lathes aforesaid, and other exploded and thrown-aside devices that time has outstripped and supplanted by more efficient ones. These are the old-school men, and they would succeed much better in business if they took advantage of the discoveries and theories reduced to practice by other men. Pull out the old-fashioned machines and replace them with others better capable of doing the work! They occupy room and waste time every day that ought to have been economized.

GENIUS.

It is a somewhat remarkable fact that the children of celebrated men by no means inherit the peculiar talent of their parents or parent. History, past and present, is full of instances which might be quoted to prove the truth of this assertion; and the reader has only to reflect to call to mind, among those of his own day, statesmen, who, dying, left behind them an enviable fame, yet transmitted no portion of the genius which acquired it to their progeny. So all experience in the Old World goes to sustain the fact that genius is by no means hereditary, but latent. A wise father may have a fool for a son, and *vice versa*. May we not fairly question whether mere genius is of any particular value to its possessor? We say genius alone; a mere faculty for constructing, an aptitude for mechanical pursuits, or a love for the fine arts; all these, uncultivated and misdirected, are rather an incumbrance, and a disqualification for sterner work than any direct advantage to individuals. We have often heard, and not without regret, of certain young men, distinguished by their admirers as "geniuses," (to coin a word for the occasion) and upon investigation have found such claims based upon a sort of sleight-of-hand, which enabled them to whittle very bad imitations of boats, out of blocks of wood that might be made serviceable for some better purpose—boats that neither swim nor sail, but topple over like nut-shells and have an obstinate desire to move sideways. These productions are viewed by fond parents and relatives, as the first efforts of a remarkable genius—one who shall put George Steers' fame far in the shade, and outstrip all previous efforts in ship-building. The same facts may be noticed in the case of painting, a talent for modeling in clay, and kindred branches of art.

Far be it from us to disparage the first efforts of self-taught, persevering men. These remarks by no means apply to them; but are directed toward that class of idle, whining, shiftless young men who lounge in the house, wear out their clothes and the patience of their families by homilies on "fate," "destiny," the "coldness of the world," and similar phrases—the stock in trade of "geniuses" all over the world. To such young men we would say your talent lies in handling an ax; your genius is concealed in the handle of a blacksmith's hammer; get up and learn a trade; get out of the rocking chair and go to the forge, and if you have any genius inert and dormant in you, it will soon work its way to the surface and shine among men. We have observed a great many so-called "geniuses" in this world, and seen some of them grow to manhood. They generally have some remarkable model of a steamship that will sail 40 miles an hour on about a pound of coal. They are out at the elbows, and of a generally dispirited cast of countenance; they are sanguine on perpetual motion, and, much more modest than Archimedes, only require a peculiar spring or a screw to move the world; and it is with no little regret that we have seen their feeble efforts baffled and set aside because they were not thoroughly and earnestly prosecuted. There is nothing more certain in the world than that real talent and genuine genius is certain of its reward, if it only manifests itself in a proper way. Men are not generous enough to each other to go searching about the world for the light that is hidden under a bushel, and if any individual thinks to attract the notice of his fellows by the dismal glimmer of a penny "dip," set in a candlestick of surpassing beauty, he may abate his pretensions at once and for ever. Set to work in earnest, oh, young men of the nation!—turn in and fall to, on the work of the world! War leaves the fields desolate, the loom idle, the workshop as silent as the cemetery. Bestir yourselves! and if you have genius, make it evident by producing something to set in motion the forces that falter. Make the wilderness blossom as the rose, cause the shuttles to fly more swiftly to make up for lost time, and make the ponderous hammers to rise and fall with increasing velocity. If you have genius, let it shine! bring it out, and bestow it upon mankind, and in return, your fellows of the present day, and posterity also, will concede all that your vanity now prematurely claims.

REPORTED FAILURE OF THE STAFFORD PROJECTILE.

Commodore Turner on board of the iron-clad *New Ironsides*, in obedience to official instructions, has lately experimented with the "Stafford projectiles." He states that every precaution was taken to give them a fair trial, the instructions for their use being carefully observed. They were fired with 16 pounds No. 7 powder, from the 150 pound Parrott guns of the *New Ironsides*. "In every instance," says the Commodore, "they failed, and in the four first discharges, the casing of wood in which they are imbedded was shivered to pieces immediately, and so near the ship as to make it perilous to use them. I am convinced that with this class of gun they are utterly useless; I should not think of using them in action, after the experience I have had. I desire to make a very emphatic report to the Bureau on this subject, for either these projectiles are a great imposition, or the instructions accompanying them have been misinterpreted as to the manner of using them."

It is stated that each of these projectiles cost $46, and that a charge of $60,000 has been made against the Government for a quantity furnished.

The Stafford projectile has heretofore been regarded as one of the most wonderful and valuable auxiliaries of war. Repeated experiments had demonstrated its marvellous success; reports of various tests to which it has been subjected have appeared in the col-