AMERICAN INDUSTRIES.—No. 24.

SOAP MANUFACTURE.

Soap is by no means a modern invention; it is so old that no one can tell when or where it originated. Specimens of it were found in the ruins of Pompeii, together with the apparatus for its manufacture. It is not our purpose to give a detailed history of this industry nor to describe generally the processes by which the great variety of soaps now found in the market are made, but to give the reader an idea of the apparatus and processes employed in the largest soap manufactory in this country, if not in the world.

Crossing the North River on one of the ferries one cannot fail to notice in the lower portion of New York city a building much higher and wider than any of the others, upon which is displayed in huge letters the name of B. T. Babbitt. The stranger might be at a loss to know whether the great manufacturer had chosen this as a conspicuous place to post his advertisement after the modern fashion, or whether it really designates the spot from which emanate the products so familiarly known all over the world; but the latter is correct. B. T. Babbitt's soap works occupy an area equal to twenty-three city lots, 25x100 feet each. This immense surface is covered with substantial brick buildings, ranging from three stories to five and eight stories in height. The aggregate floor space devoted to manufacturing is 300,000 square feet. These buildings are located on Washington and West streets; the numbers on Washington street comprising Nos. 64 to 84 inclusive, and on West street Nos. 41 to 51 inclusive.

The business offices of the concern occupy a large floor, and in connection with the establishment there is a large restaurant, where employes of the works can procure meals at reduced prices and without loss of time.

The power used in these works is furnished by twenty-five engines placed wherever power is needed, and supplied with steam from four boilers of Mr. Babbitt's own invention, ranging from 500 horse power to 60 horse power. By this arrangement long lines of shafting are avoided and the power is applied directly.

For carrying out his plans for the construction of boilers and machinery, Mr. Babbitt has extensive machine shops at Whitesboro, N. Y. Everything connected with the establishment is upon such a grand scale that it is impossible to realize the extent of the works without personal inspection.

The amount of raw material consumed in these works is astonishing. The annual consumption of some of the leading materials includes upward of 70,000 barrels of the purest white tallow, received principally from Texas; 40,000 barrels of resin from the Carolinas; immense quantities of potash are imported from England, and vegetable oils and other ingredients are consumed in proportion. All of the materials are selected with the greatest of care, and nothing but the first quality is ever bought. Notwithstanding the immense quantity of materials used in this establishment, one cannot discover the slightest disagreeable odor in making a tour of the entire works, and the most scrupulous cleanliness is everywhere observable.

In the manufacture of soap Mr. Babbitt employs six enormous caldrons made of boiler iron; the largest, which is shown in one of the views on our first page, is 25 feet in diameter and 57 feet in depth, holding 1,800,000 pounds at a single boiling. The aggregate capacity of these huge receptacles exceeds 3,500,000 pounds. The average cost of the raw materials for filling each kettle for a single boiling is $36,000, while the value of the contents of the largest caldron reaches the enormous sum of $125,000. Everything here is subject to regular system. Nothing is wasted, nothing neglected. The gigantic operations proceed with perfect regularity. Wherever possible machinery has been introduced to save labor.

The foundation of nearly all varieties of soap is pure white tallow, which is received in barrels or casks. It is transferred to the soap kettles by placing a large number of the barrels in line upon a platform with the bung downward, and introducing steam pipes, the steam from which quickly melts the tallow, when it flows into large reservoirs, and thence to the kettles. The lye, composed of potash and lime, is prepared in large iron tanks, and conducted through pipes to the kettles. After the tallow and lye are thoroughly mingled, steam is admitted to the kettles, and the boiling begins. At a certain stage in the process common salt is added, which, dissolving in the lye, increases its density, and permits the soap to float on the surface of the liquid. It requires several days to complete this process. When it is finished, the liquid soap is drawn off, and forced by means of powerful steam pumps into large iron reservoirs, from which it is drawn through pipes into the soap frames to cool and harden. The kettles are filled in regular rotation, so that while one is boiling, the process has nearly approached completion in another, while a third is being emptied.

The average daily production of the works is about 1,500 boxes of soap, each containing 75 pounds.

The soap frames above alluded to are shallow iron boxes, made separable to facilitate the removal of the soap. Each frame holds about 1,500 pounds. After the soap has hardened sufficiently it is cut into bars by means of wires, and is afterward pressed into oblong cakes, with rounded corners, without loss of weight, and at the same time receives its imprint of "Babbitt's Best Soap," a brand which is universally recognized as a guarantee of excellence.

The description given above is applicable to the manufacture of nearly all varieties of hard soap, except the choicest kinds of toilet soap, in which pure vegetable oils take the place of tallow, or are used in combination with it. Olive, palm, and cocoanut oil are the most generally used for fine soaps. A considerable portion of Mr. Babbitt's establishment is devoted to the manufacture of toilet soaps, and in this, as in the manufacture of ordinary bar soaps, nothing but the best materials are used.

The frauds which have been perpetrated under the cover of perfumes by unprincipled manufacturers have created a distrust of the highly scented soaps, and made a demand for a wholesome soap free from such objections. Mr. Babbitt, with his characteristic enterprise, met this increasing popular demand, by introducing an elegant article of toilet soap which is entirely free from artificial odor of any kind. It is made from the finest of vegetable oils, by new and original processes. "Baby Soap," as this new article is called, is peculiarly suited to the delicate skins of infants, children, and ladies. It preserves, softens, and smoothens the skin, and is an elegant toilet luxury, not only well adapted to the use of ladies and children, but equally well adapted to gentlemen's toilet. Although it has but recently been put upon the market, it bids fair to become one of the most popular of Mr. Babbitt's manufactures.

The other articles made in this establishment are so widely known and so well appreciated that it is unnecessary to add anything to the universal verdict as to their merits. Potash balls, so well known in the market, originated in this establishment. One of the upper views in the engraving shows the workmen in the operation of pouring the fused potash into the iron moulds which give it its spherical form. Each ball, after casting, is given a protective coating of melted resin.

Saleratus, an important article of trade and commerce, is made in large quantities here. One of the lower views in the engraving represents the department in which this article is weighed and packed.

It is difficult, with a limited number of engravings, and brief article, to convey a just idea of the magnitude of Mr. Babbitt's establishment. The great success of this concern is due so the fact that Mr. Babbitt combines inventive and mechanical skill with business talent of the highest order. He has been enabled to originate new and valuable processes, and to devise labor-saving machinery, by means of which he has secured great advantages over his competitors.

Vehicles of Intelligence.

Newspapers, like nations, have a historical existence. They "go to and fro" in the world and exert a powerful influence. Tribes and individuals far removed from hearing what is transpiring among men are always ignorant and degraded. That person who uses means to obtain a record of passing events always improves and advances in knowledge; the man who is dead to such influences is dead to his own best interests. Well did the old Greeks know the value of obtaining new information. When voyagers and travelers came to their ports and cities they were taken to their public marts and requested to recite an account of what they had seen and heard abroad. The influence of this custom, before the art of printing was discovered, was like that of our modern newspaper; it tended to excite the people, and lead them to achieve reputation in all that was held worthy of being distinguished.

As attainments in the useful arts make men distinguished and nations great, we take occasion to solicit the favor of our constant readers in extending the circulation of a paper devoted to disseminating such information among the people as is useful and elevating. We urge our friends to give us their assistance in presenting the claims of the SCIENTIFIC AMERICAN to their acquaintances. We have no doubt but there are a great many mechanics, manufacturers, and others who would become subscribers were our paper brought to their notice, and its character and advantages pointed out by those who know it well.

SOME RECENT INVENTIONS.

Mr. Ernest W. Noyes, of Bay City, Mich., has patented an adjustable toe weight for horseshoes, which consists of a weight with a longitudinal dovetailed groove, which engages an inclined bar rising from the edge of the shoe. In the groove is a spring pawl adapted to engage holes in the bar, whereby it can be fixed at different points to adapt it to the throw of the animal's feet.

Upon elevated and other steam railways the platforms are usually fitted with gates, which are opened to permit passengers to pass out and closed when the train is in motion, and the signal to the engineer for starting the train is given by means of a bell rope when all the gates are closed. There is always a liability of the signal being given before all the passengers are off, and of the occurrence of serious accidents by starting the train too soon. Mr. J. Charles E. Ohlenschläger, of New York city, has patented an improved electric signaling apparatus, which prevents the signal from being given until all the gates are closed.

An improvement in button holes for boots and shoes has been patented by Mr. Benjamin L. Newhall, of Lynn, Mass. The invention consists in a process of re-enforcing button holes by inserting a blank coated with "compo" in the flap and setting it thereto by pressure, in the peculiar construction of the blank, and in the mode of combining the blank with the flap.

An improved oil cabinet, patented by Mr. James M. Thayer, of Randolph, Mass., is designed for the use of retail dealers in oils and other liquids, corporations, factories, etc., which allows the oil or other liquid to be drawn in any desired quantity and without drip or waste, and prevents any escape of odors into the room.

An improvement in loom shuttles has been patented by Messrs. Adna B. Roberts and Le Roy Lyons, of Manchester, N. H. The object of this invention is to furnish shuttle spindles so constructed as to hold the bobbin upon them when lowered into the shuttle, and allow the bobbin to be readily put on and taken off when raised out of the shuttle.

Messrs. Gideon B. Massey and Edward E. Spencer, of New York city, have patented an improved revolving shoe heel, which is so constructed that they will allow the curve of a French heel to be continued across the edge of the revolving part, and that will give no indication to a casual observer that there is a revolving part.

Minneapolis (Minn.) as a Milling Center.

The substitution of "St. Paul" for "this city," in a statement of milling operations at the Falls of St. Anthony, given on the authority of the *Pioneer Press*, of St. Paul (SCIENTIFIC AMERICAN, October 25), was the means of doing unintentional injustice to the rival city of Minneapolis. As a business center the latter has outstripped her older but less favorably situated sister; and now the mills of Minneapolis have, it is claimed, something like five times the capacity of those of St. Paul. When mills now building are finished her capacity will reach 15,000 barrels of flour a day. Another of her great industries is the manufacture of lumber, amounting to 200,000,000 feet a year.

Correspondence.

Ice Boat Propulsion.

To the Editor of the Scientific American:

Referring to the subject of the propulsion of ice boats by sails, recently revived, it seems to be accepted as a fact that such boats may travel faster than the wind, without any serious effort being made to solve the problem. It ought not to be mysterious to scientific men, and is only so because sufficient thought is not given to the matter.

The error in this question consists in considering the velocity of the wind at all, except as the means for producing the pressure by which the boat is propelled. Given the weight to be moved, power required to overcome inertia and friction, and speed desired, the extent of sail, surface, and the wind pressure required to propel the boat may be very nearly calculated. The principle is the same with all boats using sails, whether in water or on ice, the difference being that the power to propel a vessel in water is great, while but little power is required with ice boats. With vessels in water the result is a great weight moved slowly, or in other words, the pressure of the air, the power converted to the motion of the vessel, is represented by a comparatively low rate of speed. If it were practicable to spread sufficient canvas, a vessel could be propelled in water faster than the wind.

With an ice boat the conditions are changed: the weight is small compared to spread of canvas, and the friction slight, so that the power obtained, transformed to speed, gives a resultant velocity in some cases greater than the wind.

The wind pressure on a plane surface exposed to its direct action is much greater than usually supposed. From tables we find the pressure on such surface to be 2 lb. for each square foot, with wind moving 20 miles an hour, and with the velocity increased to 60 miles an hour the pressure increases to 18 lb., so that with an exposed surface of 1,000 square feet there will be a constant pressure of 18,000 pounds. This applied to force an ice boat forward must give great speed, and the boat rushes forward until the equivalent of the power is obtained in speed. The pressure due to the wind velocity being obtained, that velocity may be eliminated from the problem. As an example, suppose it requires a wind velocity of 20 miles, or a pressure of 2 lb. per foot, to propel the boat at the rate of 20 miles an hour. Now, suppose the wind velocity be trebled, the pressure then runs up to 18 lb., nine times that required before; we then have an actual force which must be expended to increase the speed of the boat until an equilibrum is established. The query that naturally arises here, is this: Will not the pressure cease the moment the boat exceeds the wind in speed? If air was a non-elastic fluid, that would be the result; but air is elastic; its pressure on the sails is due not only to its momentum but to its elasticity by compression against the exposed surface, and this elasticity is a constant acting force, which, exerted under the favorable conditions provided by an ice boat, gives the result of a great speed. Were this not so, there would be a limit to the size of vessels which could be propelled in water by wind pressure, and a large spread of canvas would have but slight advantage over a smaller exposure. This can be illustrated by a boat floating with the current of a stream: its speed could not be increased by wings projecting at each side; it would move forward with greater force, but at the same speed.

The same principle is seen in a turbine water wheel, the weight in that case taking the place of the elasticity of the air as a constant force. There is the same difference in character of operation between a current water wheel and a turbine as there is between an ice boat moving with a gentle breeze and one sailing under pressure of a high wind.

W.

The Experience of an Early Inventor.

In a recent communication referring to our lately published article on conspiracies to nullify the patent laws, Mr. Thomas Shaw, of Philadelphia, gives the following particulars relative to the experience of one of America's earliest inventors. He says:

From the place where I am now sitting I can throw a stone into the small triangular lot once occupied by the little shop of Olivar Evans. I frequently see his grandson, who has in his possession the diary and the few other papers left by that celebrated inventor, who designed the greatest improvements in milling machinery known to-day. To him millers are indebted for the first great improvements that helped make the working of grist mills automatic. The *American Miller* says of him: "He was not only the pioneer inventor in American milling, but the pioneer millwright as well. Before his time there were no American names that could be classed as mill engineers. He stood alone, and for decade after decade his work on milling was the text book of millers and millwrights alike. Still but few are acquainted with the life of this great man."

In another place the same paper says: "Olivar Evans was born in Newport, Delaware, some time in the year 1755 or 1756. Little is preserved of his early history. His parents were agriculturists of respectable standing, who gave their son the advantages common to people in their station. At the age of fourteen Evans was apprenticed to a wheelwright. An anecdote is preserved which displays in his character even at this period the ardent desire for knowledge and that determination ever evinced not to let any obstacle interfere with the object of his pursuits. His master, an illiterate man, observing his apprentice employing his leisure evenings in study, through motives of parsimony forbade him using candles; but young Evans was not to be discouraged, for collecting at the close of each day the shavings made from his work, he would take them to a chimney corner and by their uncertain light pursue his evening studies."

The benefit of Olivar Evans' inventions in milling machinery in this country alone would reach over $100,000,000 a year in cheapening and improving flour, for he designed the elevator, the conveyor, the popperboy, the drill, and the descender; which devices are now variously applied in different mills, rendering the grinding of wheat into flour completely automatic, yielding better flour at less cost, and making 28 pounds of superfine flour more to each barrel than was made by the old method. He was the first inventor of the high pressure engine, the model of which is now in the possession of the Franklin Institute, of this city. Without this invention locomotives could not have been built. It made possible the building of railroads throughout all the world, and bestowed a benefit upon the human race so great that the entire wealth of the United States would only represent a fraction of it.

I could enumerate many other valuable inventions of this noble man, but we have at present seen enough to know his usefulness. Let us now consider how he was rewarded.

He made in his diary, May 21, 1809, the following record, which is copied verbatim:

"For 4 or 5 years past my mind has been agitated between hope and despair respecting the fate of 3 of my most valuable discoveries, one of which was for no less object than the navigation of the Mississippi against the stream. I had calculated that in some future day they would be worth millions of dollars annually to this country, yet I could see nothing but ruin to myself or any of my family who should attempt to put them in operation, and I had often thought of destroying all my papers relative to them, but hesitated.

"On the 1st of this month, May, in the Court of the U. S. for Penna. District, an opinion was delivered but not made final, which I consider as highly hostile to the rights of inventors of useful improvements and patent rights; indeed I am told that the judge had, a day or two preceding, declared a patent right to be an infringement of public right.

"Such doctrines from such authority determined me that patent rights were property too untenable to be worthy of the pursuit of any prudent man. That it was highly dangerous to leave my papers to lead any of my children or grandchildren into the same road to ruin that had subjected me to insult, abuse, and robbery all my life. I was then in my 54th year, and had in 3 years last done more to acquire permanent property by renouncing such pursuits and following regular business than in 30 years before.

"I went home, collected all my drawings, specifications, and explanations, which had cost me immense study and labor of mind, called my family together, declared that it was for their good I was going to destroy them, lest they might prove the ruin of any of them, and to enable me to pursue regular business the remainder of my life for their support. They all approved, and I laid them on the fire. Thus went the best half of my inventions."

I append the following certificate:

"A correct copy from a leaf in a diary of Olivar Evans.
[Signed] "OLIVAR EVANS WOODS.
"October 9th, 1879."

Mr. Evans was well aware of the value of his improvements, and his predictions in reference to the steam carriage were truly prophetic. In some of his writings, published in the early part of the present century, he remarks:

"The time will come when people will travel in stages moved by steam engines from one city to another almost as fast as birds fly, fifteen or twenty miles an hour; passing through the air with such velocity, changing the scene in such rapid succession, will be the most rapid, exhilarating exercise. A carriage (steam) will set out from Washington in the morning, the passengers will breakfast at Baltimore, dine at Phila., and sup in New York, the same day." How far these predictions are fulfilled we leave the reader to judge. Evans seemed to be in great need of assistance, and it is unfortunate that Pennsylvania did not make him some proper reward, in view of the great monetary advantages derived by the entire commonwealth from his inventions.

This they not only failed to do, but, on the contrary, when Evans ran his first steam wagon out upon a street (now in my view) and happening to run against an old wooden lamp-post, this same legislature was prompt to pass a vote of censure by enacting a law specially provided because of this accident, forbidding him and others from ever having any more such nonsense, as they called it. And this law stands on the statute to this day, let it be said to the disgrace of our modern legislature, many members of which have been enriched by, and all enjoying the comforts and privileges of, the great invention of this noble inventor, whose misery was augmented by his highest and best efforts, until in utter despair, after years of toil, he assembled his family, recited his burdens that had become unendurable, and then destroyed his models and papers, as recorded in his diary.

I cannot help noting here a few extracts from Olivar Evans' papers to his counsel, papers that would make some 20 columns of the SCIENTIFIC AMERICAN. In one paper he says: "I was reduced to such abject poverty that my wife sold the tow-cloth, which she had spun with her own hands for clothing for her children, to get bread with." In another paper he states: "I was left in poverty at the age of 50, with an amiable wife to support, for I had expended my last dollar in putting my Columbia steam engine into operation, and in publishing the 'Steam Engineer's Guide.'" In another paper he says: "All prudent inventors are deterred from risking the expense, encountering the difficulties, the opposition, the persecution, the derision, and the sarcasm until he does succeed; and afterward the calumny, the insult, abuse, and robbery of a wicked and unjust minority of the people, too powerful for him to withstand, and the great expense of the process of the law, amounting to complete denial of justice to all poor patentees who cannot bring a cause to trial, for if cast, the cost and expenses would ruin them. Of upward of eighty of my discoveries which might prove very useful, not more than six are in operation."

A poor inventor (and they are generally poor) may be likened unto a man in possession of ordnance without ammunition, and it does seem to be the height of folly and wicked beyond measure for railroad companies and other large corporate bodies, whose entire business depends upon mechanical invention, to combine together against inventors; since without invention there would be no railroads, the railroads should not unmake the inventor.

No amount of patent law can avail the inventor so long as it can be surrounded with a wall of provisions that takes years to penetrate, and only with golden ammunition.

The papers of Olivar Evans referred to contain much valuable information, and I hope you will conclude to publish them at some future time, and give this present matter place in your valuable paper.

The Broker's Agency.

In connection with the various questions raised concerning the agency of the broker and his responsibility, the decision rendered recently by the U. S. Circuit Court in this State, in the case of Grace *vs.* American Central Insurance Company, will be read with interest by the fraternity. It will be found in full in the October number of the *Law Journal.* The issue was a peculiar one. The insured had applied to N., an insurance broker, who in turn obtained the policy through A., another broker. Immediately following the usual cancellation clause was the provision making any other person than the insured, who might procure the insurance, the agent of the insured in any transaction relating to the insurance. Notice of cancellation was given by the company to A., and accepted. On the night following, and before the insured had learned of the cancellation, the property burned. The insured contended that the broker was not his agent to accept cancellation; that he had vested him with no authority other than to procure the policy; that A. was not his agent in any event, N. being the real party authorized to procure the insurance. He also insisted that such a construction of the clause, as would allow the broker to accept cancellation would be exceedingly unjust to the rights of policy holders, and that he was entitled to the benefit of a reasonable time, sufficient to learn the fact and cover the risk elsewhere.

Of course the main question turned on the construction which was to be given to the clause in question. Heretofore the popular interpretation of the provision, making the party procuring the agent of the insured, has been that this agency had special reference to his acts in obtaining the policy, or if anything farther were included it was of a general character relating to the whole business. But the court, in this case, accepted neither construction. On the contrary, it defined the scope of the agency by the immediate context. The stipulation was with regard to cancellation, and it was with special reference to this that the party procuring the insurance was made the agent of the insured. He was such agent for the purpose of accepting notice, and being made so by the contract, notice to him was notice to the insured, and operated from the time it was given, irrespective of any hardship which might result to the insured. It does not appear that in the opinion of the court this construction militated or was intended to militate against the agency of the party applying, in any matter of procuring the risk, but simply to confine it to such acts as would naturally belong to the relations between a company and the only party whom it knew in the transaction.

The decision, however, shows the important character of the trust which is reposed by the insured in the broker whom he employs. His responsibility is not ended, as is so commonly supposed, when the contract has been obtained and securely locked in the owner's safe. On the contrary, any subsequent matter which may arise in the case of policies framed like this one, which calls for a communication from the company, may revive that agency and make its dealings with the broker effectual. Should the latter prove careless or recreant, his employer must suffer, though doubtless not one in ten supposes he is vesting such authority in his go-between. The moral of the whole case is that parties employing brokers should see to it that they are placing their business in the hands of responsible men; not merely men who can drive the sharpest bargains and get their risks taken at the lowest rates, but who will thereafter continue to care for their interests. In thousands of contracts the position of the broker is made as truly fiduciary as that of the guardians of a savings or life insurance fund.—*Insurance Monitor.*

The Foreign Fruit Trade.

The condition of the foreign fruit trade of Philadelphia has rarely been livelier at this period than it is at the present date, says the *Confectioners' Journal.* Raisins have recently advanced 50 cents per box in consequence of recent severe weather on the coasts of Southern Europe. They now command $2.25 to $3 per box, and are coming in freely. The steamship Escurial arrived here from Malaga early last week, bringing 50,000 boxes. This is the busy season for raisins, owing to the demand for the holiday trade.

Oranges are coming in very rapidly, nearly all from Louisiana and the West Indies. A cargo of 300,000 has just arrived, consigned to the house alluded to. These came from the Bahama Islands, and hundreds of thousands are coming in every week. Oranges will continue to arrive in large quantities from Louisiana and the West Indies until December 1, when they will begin to arrive from Valencia and the Island of Sicily. Oranges from the latter places will come until next August. Oranges now sell for $18 and $20 per 1,000 wholesale.

Lemons are arriving in small quantities, and the supply is not what is desired. They are brought principally from Malaga, but after the 1st of December they will come from Sicily. About four-fifths of the lemons that come to this country are shipped from the Island of Sicily, and they will continue to arrive until next September. Lemons now sell for $5.50 per box of 350, wholesale.

The market is overstocked with domestic grapes, and California grapes are beginning to come in large quantities. Among the choice grapes are the white ones from Almeria, Spain, and they come in 50 pound kegs, and they, as well as the best California grapes, sell for $6 and $7 per package of 50 pounds. Malaga grapes come in moderate quantities, and sell for $6 and $7.50 per package of 45 pounds. It is thought the recent storms in Spain will increase the price of grapes about 40 per cent. White grapes will continue to arrive for the next three months.

Bananas are steady, and a very brisk trade is being done. An average of two steamship loads per week come to this port, and this firm imports an aggregate of 20,000 bunches per month at the present time, each bunch containing an average of 12 dozen bananas. They sell for about $2 per bunch. During last March the firm mentioned imported 50,000 bunches. The best months for importation are March, April, May, and June.

Cocoanuts are being imported in large quantities, and the confectioners in the city use up about 500,000 of them per month. One house (Croft, Wilbur & Co.) has a contract for 100,000 per month. They come from Jamaica, Cuba, and the Spanish Main, and sell from $37.50 to $50 per thousand.

Pineapples arrive in April, May, June, and July. They come from the Bahama Islands, and between 2,000,000 and 3,000,000 reach this port every year.

Railway Birds.

An engine driver on one of the Scotch lines reports that he has noticed that certain hawks of the merlin or "stone falcon" species make use of the passing of the trains for predatory purposes. They fly close behind the train, near the ground, partly hidden by the smoke, but carefully watching for the small birds which, frightened by the train as it rushes roaring past, fly up in bewildered shoals; the merlins then, while the little birds are thinking more of the train than of lurking foes, swoop on them from the ambush of the smoke, and strike them down with ease. If they miss, they return to the wake of the carriages and resume their flight and their hunt. They can, it seems, easily keep pace with an express train, and outstrip it when they please.

ALOES AS A DRESSING FOR WOUNDS.—Dr. Millet, a French army surgeon, recommends powdered aloes as a dressing for wounds, both as a means of favoring cicatrization and for closing them. It is said to relieve the severe pain of wounds almost immediately, and requires to be renewed only at long intervals.—*Boston Med. and Surg. Journ.*