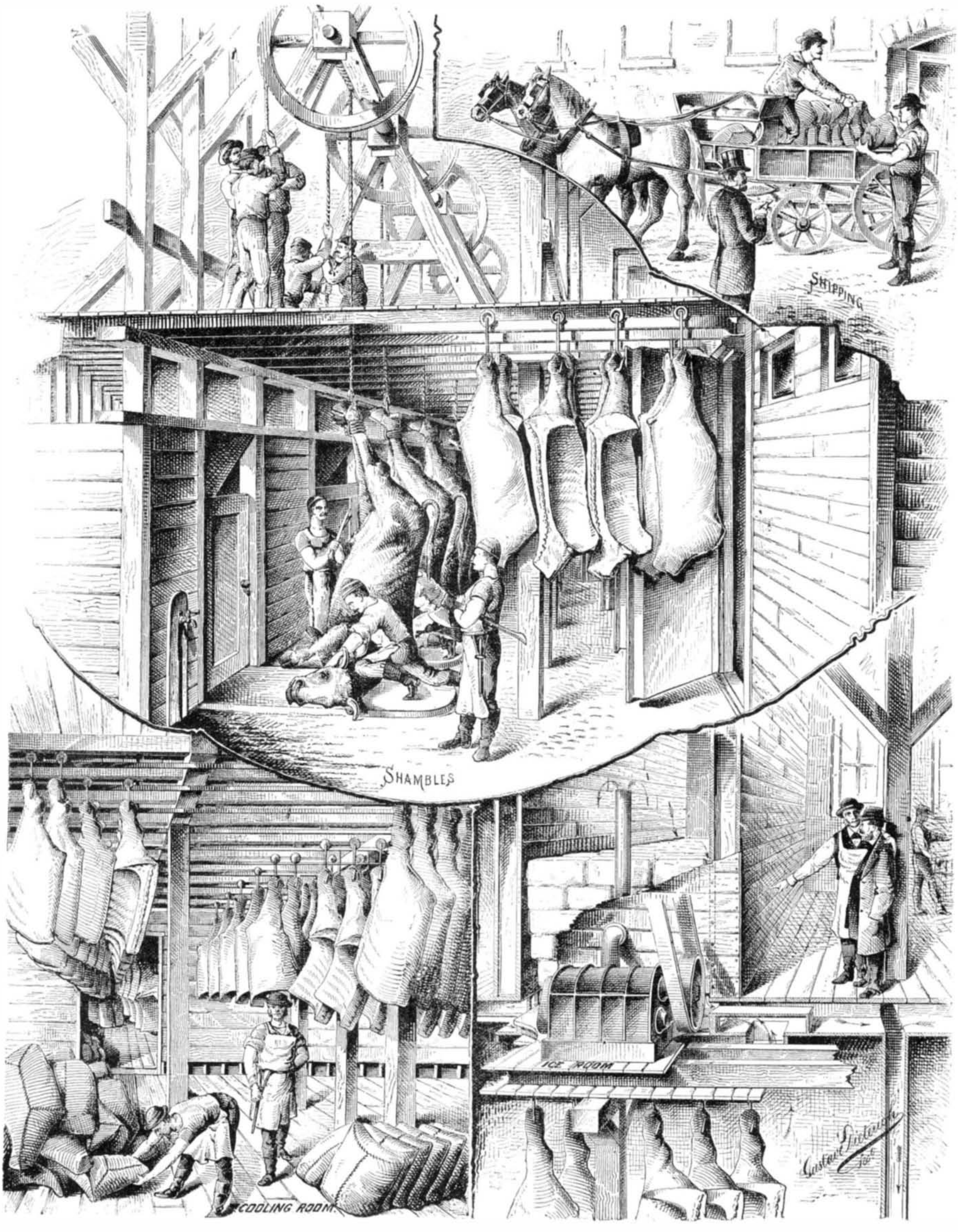
THE EXPORTATION OF AMERICAN MEAT TO ENGLAND.

We have already made passing reference to the large export trade of American meat which has been established since last summer between this country and Great Britain. The first shipment, made in June, 1876, consisted of 432 quarters of beef and 70 sheep, the whole weighing in the aggregate 81,000 lbs. At the present time the weekly export is nearly 300,000 lbs., and a still further increase is confidently expected, so that it may be fairly considered that the foundation of a new commerce, which will be beneficial not merely to dealers in live stock, but especially so to our farmers and cattle raisers, has been successfully laid. The whole secret of the possibility of transporting the meat and delivering it in England and Scotland, possessed of better keeping qualities than even the meat killed on that side of the Atlantic, is found in the simple fact that a dry atmosphere having a constant temperature of from 36° to 38° Fah. is employed. Care is taken that the freezing point is never reached. The meat is also thoroughly chilled immediately after killing, and thus starts on its journey entirely free from its natural animal heat.

The cattle from which the beef for the foreign market is derived—and in the following article we shall refer to beef only, as the export thereof is considerably larger than that of mutton—are raised in Illinois, Ohio, Indiana, and Kentucky. The largest dealer and shipper, as well as the first to undertake the export, is Mr. T. C. Eastman, of this city. He informs us that the steers are ordinary American cattle, selected by his buyers principally in Chicago, and devoted to foreign shipment on account of their superior condition. Stringy Texan stock and poor animals generally are not sent abroad. The steers are purchased by middle-men from the farmers and raisers, and are driven into Chicago. Thence they are shipped to New York, the journey lasting about five days, and are delivered in the stock yards of the New York Central and Hudson River Railroad Company, at the foot of 60th street. The slaughter-house occupies a portion of the immense cattle building there located, an edifice which is the largest of its class in the world.

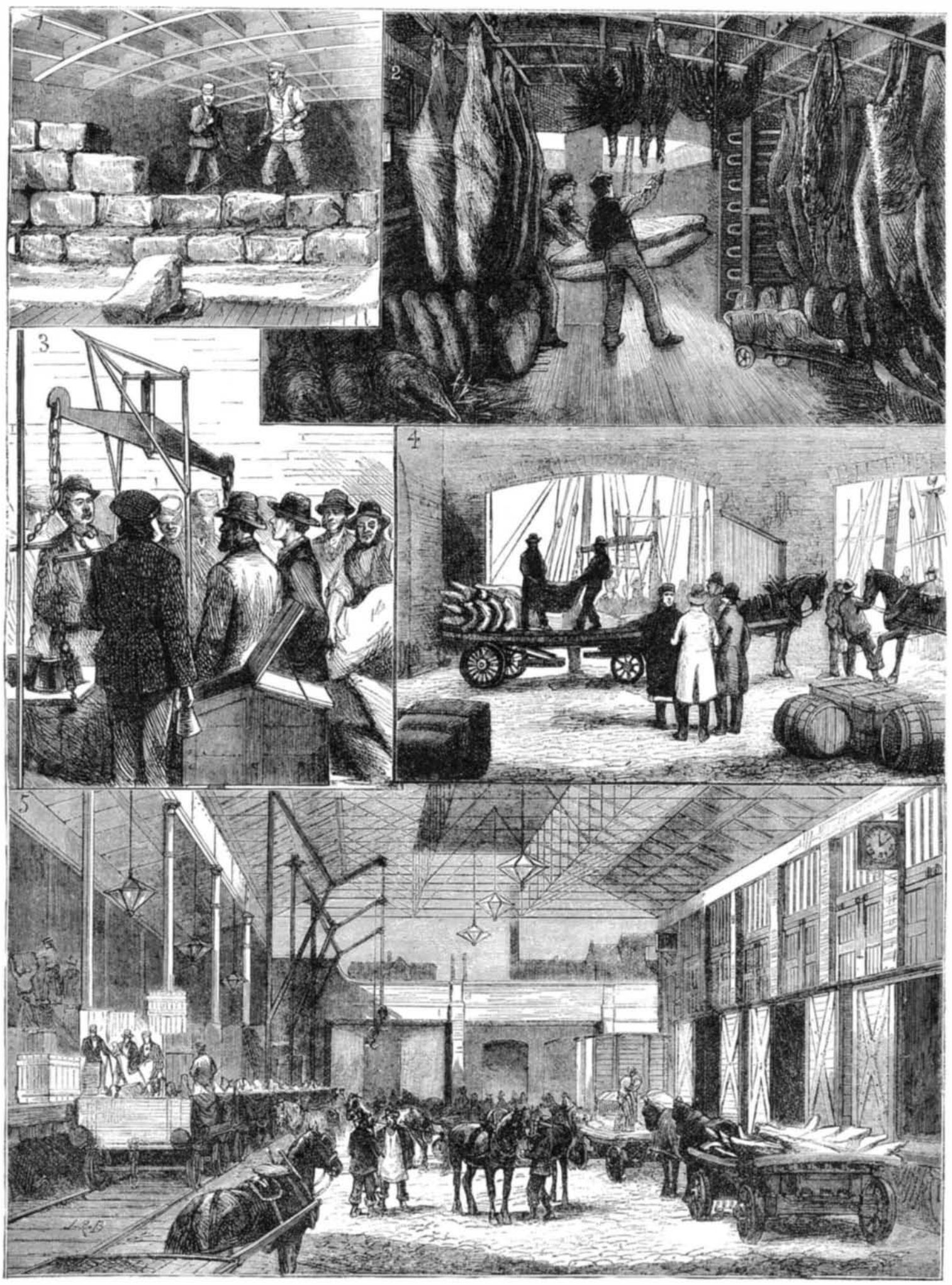
The animals selected for shipment are driven from the yards into a central passage in the basement of the buildings, and thence into pens which open directly upon the shambles.



The scene in that sanguinary locality is represented in our engraving. There is an atmosphere of blood and steam. Men—models of magnificent physical condition—work rapidly upon the suspended carcasses, using their keen knives with the dexterity of surgeons. No one wastes any time. The red door of a pen is swung open, the hooked rope from one of the many huge pulleys above is hitched around the hind leg of a steer, and, before the astonished animal fairly realizes the novel sensation of being hung up by the heels, the sharp knife has pierced his throat and the life blood rushes forth. Instantly a number of men attack the body: some skin it, others remove hoofs, others the interior, and thus in a very few minutes the animal is cut up, and his reeking quarters are shifted upon traveling hooks which move along the iron railways suspended from the beams. One thousand steers a week are killed in this manner, or an average of one ox every three minutes during working hours.

The various overhead tracks lead into the cooling rooms, of which there are six, three on each side of the building; so that the quarters can be moved, without any lifting, directly into these apartments, and there left until the time for shipping arrives. The construction of one of the ice boxes, showing how the cooling room beneath is rendered of the proper temperature, and also a view of the interior of one of the cooling rooms, are given in our first illustration. The ice box is a huge double-walled room, placed in the story above the cooling apartment and capable of holding over a hundred tons of ice. It has no openings, save one in the ceiling for the insertion of the ice and the necessary apertures for the escape of air driven through the frozen blocks. The blast is generated by a powerful blower, impelled by steam and located outside the box. This forces air into the receptacle at the top; and the current, descending, passes through the ice, thence through apertures at the base of the sides of the room, then down through the walls of the cooling chamber, and enters the latter near the floor. Meanwhile, there is a conduit from the upper part of the cooling chamber to the blower, which in this case acts as an exhaust, drawing the hot air from the top of the cooling room and constantly replacing it with the cold air forced in below.

After the meat is thoroughly cooled, it is sewn in strong canvas bags, and sent aboard the steamers. At present six of the vessels of the Anchor line are fitted each with two refrigerators, these being capable of holding from 180 to 225 carcasses each. Our second engraving, from the London *Graphic*, represents the ice box between decks (1), the refrigerator room (2), weighing the meat (3), loading carts on the quay at Liverpool (4), and packing a meat train at the railway station (5). The meat room aboard ship is lined with patent oilcloth, and also with airtight boarding; the roof is studded with iron hooks, at such distances as to keep the quarters of beef from touching each other, friction being found to damage their chances of preservation. The place is kept exquisitely clean. On the side of this chamber, opposite to the ice house, are placed wooden flues, open at the top and perpendicular to another and larger flue, which runs alongside of the chamber and crosses the floor into a wooden chest, attached to which is a fan worked from above by a donkey steam engine. The fan, when set in motion, causes a current which draws the heated air from the top of the compartment down through the wooden flues, and along that running across the floor into the chest, thence passing into the ice house, with great force, by an orifice at the top. The air becomes cold in the ice house, and this cold air, passing out of the ice house at the bottom, is sent into the meat room. The air is subjected to the same treatment again and



THE AMERICAN MEAT TRADE IN ENGLAND.

again, so that a constant current of pure cold air is being supplied by the refrigerator at a temperature of about 37°, or sufficiently cold to preserve the meat, but without freezing. When the fan is in motion the current of air is strong enough to draw into the flues any small pieces of paper thrown into the air. The door of the meat store, as well as that of the ice house, is cased with india rubber, and is fastened on with screws which make it airtight, if required. The ice house is somewhat smaller than the meat room; it is packed with block ice. The floor, being covered with coarse canvas, acts as a filter for any sediment which may gather, preventing it from passing away with the water formed by the melting ice. The ice, if allowed to go with the water, would choke the pipe connected with this part of the arrangements.

The London *Graphic* gives the following particulars as to the American meat trade in London:

"The fact that beef can be brought over from North America in good condition has therefore been abundantly proved, but the check to the further development of the trade has been that directly the meat is unloaded it must be sold and used. The simple way to meet this difficulty is, naturally enough, to unload the quarters into a wharf with a refrigerator that will continue the conditions under which they have been brought over and in which they can be kept till they are wanted in the market. The care taken both in America, and in regulating the temperature in bringing the meat over, is of but little practical value if, on its arrival in England, the meat be allowed to fall into a condition in which it is unfit for use before it reaches the consumer. But, although the remedy is so obvious and so simple, it is not until now that any plan for definite action in the matter has been proposed.

"It was Mr. D. Tallerman, Managing Director of the Australian Meat Agency, who proposed the new arrangement for the reception of foreign beef into London, based upon the adoption on a large scale of a simple principle already well known. Mr. Tallerman's plan was simply to have a large refrigerator for the reception of foreign meat, from whatever country it may come, when brought in the ice compartments, and also for fruit, game, and other perishable foods. The company, of which he is managing director, secured premises having an area of five eighths of an acre, and this, with a flooring of a portion of it, makes a total floor space of an acre. Arrangements are being made for converting this into one vast refrigerator. The building is divided into cleven arches, and by airtight doors each arch is to be a separate compartment. One compartment is arranged to contain the ice supply, and by earthenware pipes to the different compartments the temperature of each is to be regulated. A fan, worked by a two horse power engine, will draw the dry cold air from the ice chamber through the compartments. A large portion of the upper floor is fitted up with shelves, which can be used for the storage of fruit and poultry.

"When the arrangements of the company are completed the whole of the premises will be one vast refrigerator, in which during the hottest summer the temperature will not rise above 40° Fah. Passing through an ice chamber to reach the required point, the air is to be filtered through cotton wool before circulation through the storage refrigerators. These are large enough to hold the meat supply of London for a fortnight, exposed to a continuous gentle current of the coolest, purest, and driest air. An important feature in these arrangements of the London company is that the transport from Liverpool is effected without any handling after the quarters of beef leave the steamer's hold. For this purpose, Captain Acklom's refrigerating wagons and a Great Western converted van are employed In these vehicles a low temperature is maintained by the circulation of water outside the central chamber, which is fitted with hooks. As soon as the forty-eight quarters, which one of the Acklom wagons will carry, are placed in them, the doors are closed, and the meat can then be transported any distance and in any weather without fear of deterioration. One of Acklom's wagons, containing quarters of beef just as they had come from Liverpool, was exhibited at the entrance of the New Meat Market, and excited much interest.

"In order to familiarize the public with the sale and quality of American fresh meat, some hundreds of sides of beef have been daily brought for sale to a market formed by a single arch of the company's premises in Upper Thames street, and sold to all comers; 14 cents per lb. is the average price of the whole side of beef, but fore-quarters are sold at 13 cents, while 16 cents is charged for boiling and roasting joints taken together."

Spring Fever: How Not to Have It.

In the *Christian Union*, a writer gives the symptoms and several remedies for a very common complaint, prevalent with almost every one to a greater or less extent at this season of the year:

The hampered body, says the writer, which has been coddled, petted, stuffed with carbon-bearing fats, and calorified in every possible way, begins to protest. The machinery is clogged; headache, dyspepsia, and the thousand nameless sensations of discomfort which we charge to variable weather, afflict and hamper poor humanity. To-day the fog depresses our vital force, to-morrow the brain is pierced with blinding sunshaft; and so each day's external is made responsible for internal shortcoming. The *littérateur*, in atrabilious humor, afflicts the world with morbid philosophy. The pastor sees weak humanity more than ever sinful, and his Lenten homilies are unconsciously tinctured with a deeper dye for the pangs of his own mortality. The housewife, in overheated rooms, with a monotone of circumscribed care and too little outside diversion, finds dirt and despair in the kitchen, chaos in the nursery, a forlorn hope in her mending basket.

Among other remedies for people who say, "I always have a bilious attack in the spring," the following seems the most potent:

On rising, sponge the body lightly and quickly with cold water, briskly toweling after. It is not necessary that this be a long or laborious operation: the more rapidly the better, with sufficient friction to bring a glow to the skin. If you cannot secure time to go over the whole bodily surface, at least make it a point to daily sponge the trunk and arms. Rousing and stimulating the whole system, clearing and opening the pores, it imparts an indescribable freshness and exhilaration, amply repaying the effort. Rehabilitated, you are now ready for your morning bitters, namely, the clear juice of a fresh lemon in a wineglass of water, without sugar. This is a bomb straight at the enemy, for a more potent solvent of bile is not in the *materia medica*. Searching out rheumatic tendency, attacking those insidious foes which are storing up anguish against our later days—calculi—it pervades the system like a fine moral sense, rectifying incipient error. It is needful, perhaps, to begin with two lemons daily, the second at night just before retiring.

A primitive but most efficacious prescription, which corrected the physical reaction after a pork-eating winter for our ancestors, was a wineglass full of very hard cider, made effervescent by a crumb of sal soda. More potent and palatable is the concentric force of the pure lemon acid.

We venture to claim for this self-treatment alone, faithfully applied, more relief for the body and stimulus to the mind than from a battery of pills or quarts of herb decoction.

Self-Made Men.

Self-made men, in the common acceptation of the term, are those who, with but few outward opportunities, have by their own unaided energies risen to acknowledged greatness. There is some danger, however, lest in bestowing this appellation exclusively upon such persons we convey the impression that those who possess the advantages of instruction, training, and assistance, *cannot* be self-made. It is a truth which is sometimes overlooked that, whatever there is valuable or excellent about a man, comes primarily from his own capacity, energy, and industry. The most abundant advantage and the most generous education can never supply the lack of brains, or implant innate power, or compel untiring perseverance. If they could, there might be some justice in regarding the academy or university as the rival of self-education, and in distinguishing rigidly between the self-made man and the college-made man. As it is, every one whose life amounts to anything at all is self-made in the true sense, whether he be favored with outward helps or not. He must not only supply the foundation of a capacity to learn, but must also furnish a continual relay of power in the form of assiduous and patient labor. If he fail in this, no system of instruction, however admirable, no corps of teachers, however able, no amount of wealth, however judiciously expended, can ever avail to give him significance as a scholar. He must be self-made, if made at all, though he be surrounded from infancy with every appliance that money or affection or wisdom can suggest.

The same thing holds good of excellence in all other pursuits. If a man is to become a superior mechanic, or merchant, or physician, or artist, he must be self-made, whatever be his advantages of training or instruction. The force to overcome obstacles and the courage to face difficulty, the ability to form wise plans and the energy to execute them, the patience to wait for success, and the industry to secure it, must all come from within. Without these, it is of no avail that the boy be placed in the best mercantile house, that the apprentice be trained by the most skillful artisan, that the medical student be prepared by the most learned professors. It will all end in disappointment and failure, if he put not his own shoulder to the wheel, with a vital power that no outside influences can supply.

It would, however, be folly, for this reason, to undervalue the helps we obtain from external sources. Indeed, it is only as we assign to them their true office that we can appreciate their real worth. They cannot, it is true, make valuable men, but when rightly used, they can vastly aid men in making themselves valuable. There are but few who can rise to greatness in any branch without such aids. Occasionally a great man astonishes us by the heights to which he climbs, unsupported save by his own mental strength and powerful will. But these are exceptional characters, and might have risen to still loftier eminences had they been favored with more propitious circumstances. Most of us need all the help we can obtain—the discipline of the schools, the training of faithful instructors, the hints and suggestions of experts in our special callings, and every other outside influence that can be brought to bear upon our improvement—in order that we may attain a moderate degree of excellence. Gladly should we welcome all such assistance, eagerly grasp it, and earnestly strive to profit by it, only remembering that it can never supplant but only supplement and invigorate our own exertions. Just as the warm sun rays and refreshing rain drops descend to bless the plant that is charged with vitality, but fall powerless on one without root or sap, so outside help is invaluable to the energetic living worker, but impotent to one who lacks brains or energy, or the will to exert them.

It is especially encouraging to one who can command but few external advantages to reflect that he is by no means dependent upon them for his success in life. It is true that the best results may be expected where a strong self-energy comes under wise instruction and guidance; but while the latter alone can do nothing, the former alone can do much. Besides, it never is quite alone. Capacity and industry always find appreciation and help, and are apt to make it all the more useful for its scarcity. All young persons especially can be, and should resolve to be, self-made. Whether poor or rich, whether wholly self-dependent or favored with assistance, they must evolve whatever they would become mainly from their own native abilities and enthusiastic efforts. With these in active exercise, none need despair of excellence; without them, none will attain it.—*Philadelphia Ledger.*

ASTRONOMICAL NOTES.

OBSERVATORY OF VASSAR COLLEGE.

The computations and some of the observations in the following notes are from students in the astronomical department. The times of risings and settings of planets are approximate, but sufficiently accurate to enable an ordinary observer to find the object mentioned. M. M.

Positions of Planets for May, 1877.

Mercury.

On May 1, Mercury rises at 5h. 49m. A.M., and sets at 8h. 49m. P.M. It can be easily seen in the first half of the month, especially on the 3d, when it has its best position. At that time it sets about 8° north of the point of sunset. On the 31st, Mercury rises at 4h. 23m. A.M., and sets at 6h. 23m. P.M.

Venus.

On May 1, Venus rises at 5h. 1m. A.M., and sets at 6h. 44m. P.M., too nearly with the sun to be seen. On the 31st, Venus rises at 4h. 57m. A.M., and sets at 7h. 55m. P.M. Venus may perhaps be seen after sunset at the last of the month, as it sets a little north of the sunset point.

Mars.

Mars rises on May 1 at 1h. 23m. A.M., and sets at 10h. 55m. A.M. On the 31st, Mars rises at 0h. 18m. A.M., and sets at 10h. 26m. A.M. Mars is among the stars of *Capricornus*, and, although small, is very readily known by its ruddy color.

Jupiter.

Jupiter is very brilliant in the morning. It rises on the 1st at 11h. 2m. P.M., and sets at 8h. 4m. A.M. of the next day. On the 31st, Jupiter rises at 8h. 54m. P.M., and sets at 5h. 56m. the next morning. On May 3, only three of the satellites of Jupiter will be seen when it rises, one of them being in transit across the disk of the planet. On May 5, only three satellites will be seen before midnight, the smallest being in transit across the disk. On the 21st, when Jupiter rises, only three satellites will be seen, as one of them is in the shadow of the planet, or is eclipsed. On the 25th, the largest satellite cannot be seen in the evening, being behind the planet. A good opera glass, an ordinary ship's glass, or a small telescope will show these moons of Jupiter.

Saturn.

On May 1, Saturn rises at 3h. 2m. A.M., and sets at 2h. 15m. P.M. It can scarcely be seen at all. On the 31st, Saturn rises at 1h. 9m. A.M., and sets at 0h. 27m. P.M. At this time it can be seen for a few hours in the morning. It is among the stars of *Aquarius*.

Uranus.

On May 1, Uranus rises a few minutes before noon and sets at 1h. 49m. the next morning. On the 31st, Uranus rises at 10h. A.M., and sets at 11h. 52m. P.M. It is still among the stars of *Leo*.

Sun Spots.

From March 16 to April 15 the sun has been unusually free from spots, even for this minimum period. But two groups have been seen, the first composed of two small spots, on March 18, and the second, a large group, on April 15. A peculiar interest attaches to them, however, as they seemed to appear suddenly near the middle of the sun's disk. No spots could be seen on April 14, yet on the 15th a double spot of large size, surrounded by several smaller ones, is found near the center, seeming to show a sudden disturbance in that region.

The Comet.

On the morning of April 15, the small comet, just visible to the eye, was very near the star 32 *Pegasi*, and moving slowly toward the north. It had a bright nucleus, and could be seen with a glass until just before sunrise. It is increasing in brightness. The train is broad, and up to April 15 not more than a degree in length.

Substitute for Sulphate of Quinine.

Dr. Woodworth, Supervising Surgeon-General, calls the attention of medical officers of the U. S. marine hospital service to the extraordinary increase in the market price of quinia sulphate, and at the same time to the accumulating testimony in favor of the employment of the quinidia, chinchonidia, and chinchonia sulphates, of which the two first named are believed to be as efficacious as the quinia sulphate. He suggests that the less costly salts be accorded a fair trial, and that medical officers take this matter in consideration in preparing their next semi-annual requisition for medical supplies.

A. K. S. writes to say that strong draught is indispensable in a coal oil lamp, and that there exists a demand for a flat-wicked lamp with an argand chimney, which will supply the draught necessary to give perfect combustion.