much more simple and economical. The Chinese have been long acquainted with the circulation of the blood; they inoculated for small pox in the tenth century; and about the same time they invented printing. Their bronze money was made as early as 1,100 B. C., and its form has not been changed since the beginning of the Christian era. The mariner's compass, gunpowder, and the art of printing were made known to Europe through stories told by missionaries returning from Asia. These missionaries, coasting the shores of the Celestial Empire in Chinese junks, saw a little box containing a magnetized needle, called Ting-nan-Tchen, or "needlewhich points to the south." They also noticed terrible machines used by the armies in China, called Ho-pao, or fire-guns, into which was put an inflammable powder, which produced a noise like thunder, and projected stones and pieces of iron with irresistible force.

The first aspect of China produces that impression on the mind which we call the grotesque. This is merely because the customs of this singular nation are so opposite to our own. They seem morally, no less than physically our antipodes. Their habits are as opposite to ours as the direction of their bodies. We stand feet to feet in everything. In boxing the compass they say "westnorth" instead of northwest," "east-south" instead of southeast, and their compass-needle points south instead of north. Their soldiers wear quilted petticoats, satin boots, and bead necklaces, carry umbrellas and ans, and go to a night attack with lanterns in their hands, being more afraid of the dark than of exposing themselves to the enemy. The people are very fond of fireworks, but prefer to have them in the daytime. Ladies ride in wheelbarrows, and cows are driven in carriages. While in Europe the feet are put in the stocks, in China the stocks are hung round the neck. In China the family name comes first, and the personal name afterward. Instead of saying Benjamin Franklin or Walter Scott, they would say Franklin Benjamin, Scott Walter. Thus the Chinese name of Confucius, Kung-fu-tsee, the Holy Master Kung; Kung is the family name.

In the recent wars with the English, the mandarins or soldiers would sometimes run away, and then commit suicide to avoid punishment. In getting on a horse, the Chinese mount on the right side. Their old men fly kites, while the little boys look on. The left hand is the seat of honor, and to keep on your hat is a sign of respect. Visiting cards are painted red, and are four feet long. In the opinion of the Chinese, the seat of the understanding is the stomach. They have villages which contain a million of inhabitants. Their boats are drawn by men, but their carriages are moved by sails. A married woman while young and pretty is a slave, but when she becomes old and withered is the most powerful, respected, and beloved person in the family. The emperor is regarded with the most profound reverence, but the empress mother is a greater person than he. When a man furnishes his house, instead of laying stress, as we do, on rosewood pianos and carved mahogany, his first ambition is for a handsome camphor-wood coffin, which he keeps in the best place in his room.

The interest of money is thirty-six per cent, which, to be sure, we also give in hard times to stave off a stoppage, while with them it is the legal rate.

We once heard a bad dinner described thus: "The meat was cold, the wine was hot, and everything was sour but the vinegar." This would not so much displease the Chinese, who carefully warm their wine, while we ice ours. They understand good living, however, very well, are great epicures, and somewhat gourmands, for, after dining on thirty dishes, they will sometimes eat a duck by way of a finish. They toss their meat into their mouths to a tune, every man keeping time with his chop-sticks, while we, on the contrary, make anything but harmony with the clatter of our knives and forks. A Chinaman will not drink a drop of milk, but he will devour bird's nest, snails, and the fins of sharks, with a great relish. Our mourning color is black, and theirs is white; they mourn for their parents three years, we a much shorter time. The principal room in their houses is called "the hall of ancestors," the pictures or tablets of whom, set up against the wall, are worshiped by them; we, on the other hand, are very apt to send our grandfather's portrait to the garret.

Such are a few of the external differences between their customs and ours. But the most essential peculiarity of the Chinese is the high value which they attribute to knowledge, and the distinctions and rewards which they bestow on scholarship. All the civil offices in the Empire are given as rewards of literary merit. The government, indeed, is called a complete despotism, and the emporer is said to have absolute authority. He is not bound by any written constitution indeed; but the public opinion of the land holds him, nevertheless, to a strict responsibility. He, no less than his people, is bound by a law higher than that of any private will—the authority of custom. In China, more than anywhere else, "what is gray with age becomes religion." The authority of the emperor is simply authority to govern according to the ancient usages of the country, and whenever these are persistently violated, a revolution takes places and the dynasty is changed. But a revolution in China changes nothing but the person of the monarch; the unwritten constitution of old usages remains in full force.

Setting Mineral Teeth.

Surgeon Duchesne, of Paris, has invented a method of fixing mineral teeth to the dental piece. Each tooth is furnished with a hollow of a size exceeding that of the orifice, by which orifice the rubber in its plastic state enters into the tooth, assuming inside the internal configuration, and, as it were, the shape of a nail-head of a pyramidal form, or of the form of a flattened cone, and the rubber being properly vulcanized, the tooth becomes firmly attached to the dental piece. The hole being obtained by placing on the rear side of the mold of the tooth, which is molded of materials well known to tooth manufacturers, the base of a piece of wood, or of any other suitable material, cut into the shape of a cone, and which can be consumed or melted at a lesser degree of heat than that required for the baking of the tooth; this piece of wood or other material being destroyed during the process of biscuiting, there remains in the center of the tooth a hollow, corresponding in size and shape with the material which has been burnt out. The principle of strength which is claimed for this tooth consists in the fact, that the rubber, a portion of the dental piece to which it is to be attached, entering into the tooth itself, the tooth actually forms part and parcel, so to speak, of the dental piece; and the principle of the invention consists in the hollow in the center of the tooth of a larger size than the orifice by which the rubber, or other plastic material is introduced, of whatever form this hollow may be, whether produced by the consuming, melting, or annihilating of any animal, vegetable, or mineral matter, that can be annihilated by a less heat than that required for the baking of the tooth.

THE MANUFACTURE OF PAPER---PAPER MADE FROM RAGS.

Rags are a marketable commodity, and command fixed prices according to their quality. As with all articles of commerce, these prices are governed in a measure by the mercantile law of supply and demand. As foreign rags are sold at a less price than the American article, and the consumption in the United States is considerably greater than the supply of the latter, large quantities are imported from Europe. The larger proportion of foreign rags that find their way to our Atlantic cities, are exported from Bremen, Hamburgh, Rostock, Ancona, Messina, Leghorn, Palermo, and Trieste. They arrive in our ports in closely packed bales, containing each about four hundred pounds, which, according to their respective qualities are branded S. P. F. F., S. P. F., F. F., F. X., and F. B. There are many varieties, even in these divisions, and their qualities afford very clear indications of the state of comfort and cleanliness of the particular localities from whence they were originally gathered. The rags of England and the United States are generally clean, and require but little washing and cleansing before they are ground into pulp; the Italian rags, on the contrary, are originally so dirty that they require to be washed in lime before they are fit for use. The greater portion of the rags from the north of Europe are so dark in their color and so coarse in their texture that one naturally wonders how they could have formed part of any tidy woman's garments; while those, on the other hand, which are collected in England, Scotland, and the United States, appear evidently to have belonged to a people much better clad. Having thus alluded to the material employed in paper making, the reader's attention will now be directed to the process of its manufacture. The visitor to a regularly organized paper mill is first conducted to

THE RAG ROOM.

The initial process of sorting the rags is conducted in a long room, in which from twenty to thirty women are employed in sorting, dusting, and cutting them. Each woman stands at a frame or table, the top of which is covered with a net-work of wire, through which to admit the dust; on her left is a quantity of rags conveniently placed, on her right is a box divided into three compartments. On a part of the table an upright knife is fixed for cutting the rags into suitable lengths. As it is the business of the woman to sort and cut the rags, she spreads a certain quantity on the wire frame, and as she shakes them a great deal of the dirt passes through the interstices of the wire into a box beneath. Those pieces that require to be cut she draws across the blade of the knife, by which it is instantly divided. All seams are thrown out, as the sewing thread, unless thoroughly ground, would produce filaments in the paper. These are afterwards picked out by children, and again find their way to the woman's table. The work of sorting and cutting rags is performed with great rapidity. When cut, sorted, and dusted, the rags are weighed into bags of a hundred pounds each and conveyed to

THE BOILING AND WASHING ROOM.

Here they are placed into large square chests or vats, in which steam is admitted from below and boiled with lime for a few hours. From the boiling room they are conducted in suitable vessels to an upper room in the mill, where they are emptied into troughs or cisterns, several of which are ranged in a row; these troughs and the machinery within them, are technically called engines, and are used for washing the rags. The troughs are usually ten feet long, four and a half feet broad, and two and a half feet deep, and are made of wood lined with lead. In each trough an iron cylinder 22½ inches in diameter and 26 inches wide is fitted; pure water is conveyed by means of a pipe or tube into the trough a few inches from the top, and another tube connects with the lower part for carrying off the soiled water. The cylinder being set in motion by means of steam or water power, about a hundred weight of rags are dumped in, as before mentioned, and as much water introduced as will raise the whole to within an inch or two of the brim. Into the cylinder is fixed a number of knives at given distances apart, projecting a little more than an inch from its axis; and beneath the roller is a plate in which is also attached a number of knives. When the cylinder commences its revolutions, of which it is made to make about 160 per minute, the rags are carried with great rapidity through the knives; and as the cylinder is depressed or elevated, the rags are bruised or cut as may be required. Above the cylinder is a cover made of a wire frame communicating with the pipe which admits the pure water. When, therefore, the whole mass is in agitation, the rags, after passing through the knives of the cylinder and plate are carried up an inclined plane in the trough and the foul water is carried off through the waste pipe below; in this way the rags are cut bruised, and washed.

After the above operation is continued for a sufficient time, the water is let off and the cleansed mass is removed to a press for the purpose of driving out the greater part of the water. They then undergo the process of

BLEACHING.

This process reduces all descriptions of rags to a uniform whiteness, and requires to be so conducted as not to injure the quality of the fabric. On being removed from the press the rags are placed in a receiver, or chamber made of wood, from which the external air is carefully excluded. Into this chamber are conveyed pipes communicating with a retort, in which a chemical chlorine is formed by the application of heat to a due proportion of manganese, common salt, and sulphuric acid. This part of the process is completed in a few hours. The rags are now white, but they have an intolerable smell. To remove this, and to preserve them from being injured through the effects of the bleaching, they undergo a second process of washing and bruising which entirely purifies them. From the washing engine the rags are conveyed to the beating engine, which is constructed similar to the other except that the knives on the cylinder and plate are closer together, and the former revolves with greater rapidity. Having been ground for several hours in this machine, the rags assume the beautiful appearance of pulp technically called "stuff." It should here be remarked that all paper manufacturers do not use the same materials for bleaching the rags. In several large paper mills a substitute for manganese is used. This is a mixture of phosphates of lime and soda ash which seems to answer the required purpose, and is much less expensive. The same may be said of the whole prescribed formulæ in paper making. So rapid are the strides of scientific progress, that ere a useful practical theory is put in full operation, new improvements are suggested, which, in many cases, are made to supersede it. Hence, no description of this extensive branch of art will fully represent every manufacturer's method. The essential features, however, of the processes employed in paper making, are similar in all paper mills.

As what is technically called "machine-made paper" is a comparatively late invention, it may properly be expected that this treatise should preface any remarks upon the subject with a brief description of

HAND MADE PAPER.

Until a little more than half a century since all descriptions of paper were made by hand. The process though simple is very beautiful, and evinces a remarkable degree of mechanical ingenuity. We have already described the various stages the rags have gone through up to the time they are reduced to a pulp. From this pulp or "stuff," which is about the consistency of pure milk, and resembling it in appearance, paper is made. The stuff is first poured into a vat, at the bottom of which is a copper vessel made to fit exactly within it, for the purpose of keeping the stuff warm. This warmth is communicated by means of heat supplied by a steam pipe from below. The workman forming the sheet, who is called a "vatman," is provided with two molds. These are slight frames of wood, covered with a fine wire cloth. Fitting to each mold is a dekle or movable raised edging which determines the size of the sheet. The vatman, putting the dekle on one of the molds, dips it vertically into the stuff, and bringing it to the surface horizontally, covered with pulp—which, to preserve an equal consistency is kept in a state of agitation in the vat—and shakes it gently so that all parts of the wire frame shall be equally covered with it. This operation requires a great deal of nicety, both in determining the required thickness of the sheet and in producing it of a uniform thickness throughout. The vatman then pushes the mold with the incipient sheet to his fellow workman, who is called a "coucher," and carefully taking off the dekle applies it to the second mold, and proceeds as before. The coucher, who receives the first mold, having a pile of porous pieces of flannel by his side (called "felt"), turns the mold carefully over upon one of these, and upon which the sheet remains, having been detached from the mold; he then places a felt on the sheet and is ready to turn over another from the second mold. Thus the vatman and the coucher proceed, only two persons being required at each vat, the one molding a sheet of paper and the other placing it upon the felt, until a certain quantity is made, when the pile of felts is subjected to the action of a powerful press. The sheets, after this pressure is completed, have acquired sufficient consistency to enable them to be again pressed by themselves. They are next parted, then dried; next sized in a mucilage, to give them greater body and strength, and again dried and pressed, and finally counted into quires and reams. Any number of vats, each requiring the services of two men, may be used at the same time. This is a matter, however, usually regulated by the capacity of the mill and the means of the manufacturer.

MACHINE MADE PAPER.

As previously intimated, the progress of mechanical science of late years, in paper making as in many other branches of art, has been so rapid in its onward march that manual labor is in a great measure superseded by machinery. In paper making, machinery is not only a saving of manual labor, but economizes time and money, and largely multiplies the facilities for its manufacture, as will be made plainly manifest to the most indifferent observer.

The process of converting a thin pulp into paper by machinery is a rapid though complicated operation. In the

whole range of labor-saving machinery there is perhaps no series of contrivances which so forcibly address themselves to the senses ; and yet, with all its intricate and wonderful operations, there is nothing mysterious in it, as the spectator can see and comprehend its workings from the beginning to the end. At one extremity of the machine is a large chest which is kept full of pulp, and through which a wooden cylinder with fan-shaped projections attached, is kept revolving to keep the fibers of rags, which resemble pure snow flakes, perpetually moving, and consequently equally suspended in the the water which contains them. At the bottom of the chest is a cock through which a continuous stream of pulp flows into a vat placed below it, which is always kept filled to a certain hight. This pulp flows through a narrow wire sieve, situated in the upper part of the vat, and is also kept in motion to make the sifting process the more complete. Having passed through the sieve the pulp flows through a pipe in the vat still onward to a ledge, over which it falls in a regular stream, like a sheet of water over a smooth dam ; here it is caught upon a plane which presents an uninterrupted surface of five or six feet, upon which it is evenly spread. This plane is constanly moving onwards with a gradual pace, and has also a shaking motion from side to side. This plane is composed of an endless web of the finest wire very closely woven together. The pulp does not flow over the sides of the plane because of a strap on each side, which is kept moving and passing upon its edges, and which regulates the width of the paper. After passing the wheels where these straps terminate, the paper is sufficiently formed not to require any further boundary to define its size. The pulp at this stage has ceased to be a fluid though the paper is still tender and wet. When it quits the plane of wire the paper passes over a large cylinder covered with felt, upon another plane also covered with felt, which moves onward the same as the wire plane. This felt surface is also endless, being united at the extremities like a towel upon rollers. It now travels up an inclined plane of felt, which gradually absorbs its moisture, when it is seized between two rollers which powerfully squeeze it. From thence it travels up another plane of felt and through a second pair of pressing rollers. The paper up to this point is quite formed but it is fragile and still damp ; from these it is received upon a small roller, and is guided by this over the polished surface of a large heated cylinder. The soft tissue now begins to smoke and the paper commences to harden. From this cylinder or drum, it is received upon a second, considerably larger and much hotter than the first ; as it rolls over the polished surface of the drum all the roughness of its appearance when in the cloth region gradually vanishes. At length having passed over a third cylinder, still hotter than the second, and having been subjected to the pressure of a blanket which confines it on one side, while the cylinder smoothes it on the other, it is caught upon the last cylinder, which passes it over to the reel, upon which it is wound in a finished state but in an endless roll. It has now to be cut into required lengths so as to form the size of the sheet. This is done in a supplementary machine which receives it off of the reel, and by means of a circular knife it is cut into the requisite lengths. The paper is counted into quires and reams, folded double, and subjected to a certain pressure, so that it may pack close for marketable purposes.

From the commencement of the process, when the pulp first flows into the wire web until the paper into which it is formed is received upon the reel, a little less than two minutes is occupied. The web of wire travels at a rate which produces twenty-five superficial feet of paper per minute.

In a machine the thickness of the paper is regulated by the quantity of stuff which is allowed to flow out of the chest ; and all that is required to render the thickness invariable is an invariable speed in the motion of the machine. If the web of wire travels at a rate that will form twenty-five feet of paper per minute, and the chest discharges five gallons of pulp in the same period, there can be no change in the thickness of the sheet ; but let the machine move at greater speed, say at the rate of twenty-five per minute, while the discharges are but five gallons, and the paper will be thinner by one fifth. Again, let the pace of the wire plane be unaltered, and the chest discharge ten instead of five gallons per minute, and the sheet will be just double the thickness.

In conclusion it should be remarked that the process of converting rags into pulp is the same with machine-made as with hand-made paper, except that in the former it is conducted on a more extensive scale. A hundred years ago rags were made into pulp, first by washing them by hand and then by placing them in close vessels until they became half rotten, and after the fiber was nearly destroyed they were reduced to pulp either by hammering in a mortar or by a cylinder grinding against the sides of a circular wooden bowl. These operations were slow, expensive, and very destructive to material ; and yet, crude as the method was, it existed for centuries, and so continued up to the period when science stepped in to enlighten mankind with its manifold wonders.

Portable Boilers.

At the Steam Users' Association monthly meeting, held at Manchester—Mr. W. Fairbairn, President, in the chair—Mr. L. E. Fletcher, chief engineer, said that the increasing number of boilers used for steam crane and other similar purposes, renders it important that any dangerous defects to which these boilers are liable should be generally known. The explosion of these boilers has become by no means unfrequent, and as they are now constantly used in the erection of public buildings, and sometimes in close proximity to crowded thoroughfares, the subject becomes of increasing importance. The boiler in question was of the internally-fired vertical class, cylindrical in the external casing, as well as in the internal fire-box, and domed on the top, while the flames from the fire-box pass off to the chimney through a single central uptake tube, which formed a most important tie between the crown of the fire-box and that of the external casing. Boilers of this type are very simple in construction, and well calculated when new to resist a high pressure, so that they are very generally adopted. The dimensions of the one under consideration were : Height, 8 ft. 9 in. ; diameter, 3 ft. 6 in. in the external shell, and 2 ft. 9 in, in the fire-box ; while the thickness of the plates was $\frac{5}{16}$th in., and the load on the safety-valve, per square inch, 70 lb. The defect to which it is now wished to call attention, was a deep groove or furrow running entirely round the inner casing of the fire-box at the bottom of the water space, and eating into the metal to a depth varying from $\frac{1}{8}$ to $\frac{3}{16}$th in., so that more than half the strength of the plate was gone. This is not a peculiar case ; others very similar havd been met with, and especial danger arises from the fact that these grooves are very difficult to detect. They take place so low in the water space as to be very nearly, if not entirely, concealed by the blocking ring at the bottom, while the only opportunity of examining them is through one or two small sight holes cut through the outer casing. It is frequently supposed that because boilers are small therefore they are safe, whereas the fact of their being small makes them dangerous. Small boilers cannot be inspected as larger ones can, since they do not admit of access for a man, and, therefore, they are to a greater or less extent apt to be worked on at a risk. The internal examination, and thus the safety, of portable boilers is a question which hitherto has not received that consideration which it deserves, but the subject should no longer be neglected. It is well worthy of the attention of engineers to endeavor to construct such portable boilers as are too small to admit of a man's getting inside, so that they may be taken to pieces for examination ; and it becomes imperative either that arrangements should be made for doing this, or that these boilers should not be allowed to work on for more than three or five years without being cut open for examination, whatever the inconvenience might be. No doubt if the attention of engineers were directed to this subject, inventive talent would soon construct boilers that could without much difficulty be taken to pieces so as to be examined internally, and thus their safety ensured.

PULEX IRRITANS IN HARNESS.

What is a " Pulex Irritans?" This formidable name, dear reader, is the scientific cognomen of that formidable little monster, the flea. These minute pests have been made to do, what by nature they are ill calculated for, namely, to administer to the amusement of mankind, showing an amount of docility truly surprising when brought under the subjection of skilled trainers. Novices they are generally adroit enough to elude. The following humorous description of the performances of a troupe of these little comedians we copy from the " Naturalist's Note Book :"

" If any inquiring reader wishes to know whether that little tormentor, scientifically known as " Pulex irritans," and vulgarly as the flea, has ever been found of any use in the economy ot nature's realm, we are happy to inform him that we can answer his question in the affirmative. It must not be imagined that we are going to discuss the question whether it is desirable that the human form divine should be subject to sundry little aggravating bites, which are liable to make one's angry passions rise, or whether the ordinary avocations of fleaish life are at all beneficial to humanity at large. Our object is to place him before our readers as we have seen him, in a new light, earning an honest livelihood (*mirabile dictu !*) by the sweat of his brow, and affording a subsistence to the individual whose philanthropic ingenuity helped him to such a desirable end.

" 'From information received' (to use police parlance) we went to an exhibition opened by Mr. Kitchingman, in order to view the performances of his stud of trained fleas, or, as worded in his announcements, 'of trained apterous insects, the only specimens of the articulata in the world ever taught to perform.' These apterous laborers were harnessed by means of an extremely fine hair or fiber of silk, which was tied round their bodies, having the two ends rising perpendicularly above their backs and fastened to a split in a tiny straw, which formed the pole of the carriage they were engaged in drawing. We must confess that at first we entered the room with some feelings of alarm, suggested by the thought that some of the menagerie might escape, but this was soon dissipated at the sight of their burdens, which at once set our minds at rest.

" The performances were highly interesting and considerably varied. One flea was engaged in a swing, his motion being caused by his kicking violently against one side of a well in which he was placed, which exertion bumped him against the other side and made him indignantly jump away again, so that the unfortunate creature was in a perpetual state of kicking. Another hauled up a little ivory bucket from a well, while a third drew a ship along a tight rope, walking upside down. A fourth was occupied in turning a cardboard cylinder after the manner of a treadmill, but two others, still more unhappy, were occupied in a compulsory see-saw worked by each in turn giving a vigorous spring into the air, thus bringing the other at the opposite end of the balance to the ground. The largest, and consequently, we presume, the laziest, declined to jump at all, but remained sitting quietly down, leaving his comrade miserably suspended from the beam, and frantically clutching at the air in the vain attempt to reach the ground. A military pulex was engaged in firing off a miniature cannon, but on a former occasion the shock was too much for his nervous system, so that when we were present he was unable to perform. The exhibitor kindly gave us a good deal of information about his collection which was very interesting. The fleas are generally imported from Russia and Belgium as being larger and more docile than the English ones, and are set to work immediately, the training beginning with a starvation of two days. At first they are very refractory, persisting in progressing by a series of violent jumps instead of a proper jog trot ; but after a week or so they sober down and draw their burdens steadily unless stirred up to violent exertion, when they will gallop vigorously for a few inches, but sit down to rest and regain their breath directly afterwards. After they once learn to walk steadily, we are told, it is difficult to persuade them to leap again. At night all the performers are unharnessed and fed on the back of the employer's hand, after which repast they repose in a box enveloped in cotton wool. If at night any performer does not feed heartily, and with a good appetite, his progress is proportionately languid and slow the next day; but when any member of the establishment declines to eat for three or four days, his end is expected in a short time. About a hundred others are usually kept in stock and training, as they are comparatively short lived, three or four months being supposed to be the allotted period of their days. Perhaps confinement and hard labor affect their spirits. The workman engaged in drawing up the bucket had, however, reached the hoary age of nine months, and his demise therefore will not be unexpected. The immense muscular power possessed by these creatures is here fully demonstrated. No doubt many of our readers have experienced the difficulty of holding a wild pulex for a minute or two, before consigning it to perdition. The flea Hercules draws a model of a ship estimated to be five hundred times his own weight in a very easy manner. It seems that the English fleas are the most stubborn and difficult to train, but when once properly subdued they work better and last longer than the others ; but the Englishman we saw was anything but steady, tugging and straining at his collar in a frantic manner.

"One of the most interesting features of the exhibition is the beautiful form of the models employed for the work. They are carved in ivory and exquisitely finished, and, of course, of the minutest size possible, being adapted to the fleas in a most ingenious manner, and manufactured by the exhibitor himself. The delicacy of touch and sight attainable after practice is surprising, as each performer is harnessed without the aid of a glass, merely being taken between the operator's finger and thumb. Mr. Kitchingman told us also that he knows every individual performer by sight, so that he has no difficulty in selecting each member of his troupe for his own work."

Revival of Interest in Sorghum.

The quantity of cane planted this year, says the *Sorgo Journal*, and the interest manifested in sorghum, is greater than in any year since 1866. The value of sorghum as a farm crop is beginning to be appreciated, and those now engaged in the business are devoting more attention to its cultivation, and are providing better facilities for its manufacture than ever before. This is wise, and all the enterprise which may be devoted to the crop will be well rewarded. Sweets of all kinds are and must be high for the present, and proba bly for many years. Last year's crop of sorghum is about exhausted. New Orleans and tropical molasses are scarce, and sugars are almost at famine prices. This state of things is, of course, aggravated by the disturbances in Cuba, and by the fact that Louisiana has not produced all the sugar and molasses that could be consumed, as many predicted she would. But there is an underlying cause of high prices greater in importance and greater in permanence than these accidents of the time, and which would be felt even it peace prevailed in Cuba, and a half million hogsheads of sugar were being made in Louisiana. We refer to the natural increase in the consumption of sugar, and to the growing disproportion between the demand and the supply. This will prevent sugar and molasses from declining to the old prices, until some new and much more productive source of sugar shall be developed. We make this remark to remove a notion which prevails, that, if Cuba were restored to peace, and Louisiana to her former productive capacity, sugar and molasses would be furnished at their old prices, and then sorghum would be no longer profitable. Reasoning thus, many have refrained from engaging in sorghum, and many who are in the business, regarding it as a temporary or short-lived enterprise, fail to make adequate and permanent preparation for the business. This is a mistaken policy, we think, and we advise those who are making preparation for work to consider well, and see if they are not warranted in regarding sorghum as a business likely to be permanently profitable, and worthy of a permanent and a substantial outfit in buildings and apparatus. But all the probabilities are that Cuba will not for many years, if ever again, produce her former supply of sugar, and that Louisiana will not for five, and, perhaps, ten years, produce as much sugar as she did before the war. So that the producer of sorghum may calculate upon a good substantial and a continuous profit from the business, and also upon the chances amounting almost to a certainty that the profits will be for some years, at least, extraordinary. Under these circumstances the "revival of interest in sorghum," must, we think, become a permanent and a growing revival.

In a recently published paper on the gases given off by fruit it is stated that various kinds of fruit after having been plucked from the trees—for instance, apples, cherries, gooseberries, and currants—begin to absorb oxygen and give off carbonic acid.