THE CHEMISTRY OF ANIMAL SUBSTANCES.

Every person possesses an interest in knowing something about the chemistry of his own body. We have condensed the following from a chapter of Professors Brande & Taylor's Chemistry, a most clear and comprehensive work, recently published by Blanchard & Lea, Philadelphia.

The human body is partly composed of mineral substances, which are called inorganic; and are chiefly found in the bones. It is mostly built up however of organic substances which are the product of growth, and dependant upon life for their development. They are very peculiar in their character, and have received the name of nitrogenous substances, and nitrogenous principles, because nitrogen is one of their principal elements. Neutral nitrogenous substances are found in the vegetable and animal kingdoms; in the former they are represented by gluten, albumen, casein or legumin; and in the latter by fibrin, albumen, casein, and gelatin. In addition to carbon, hydrogen, and oxygen, they all contain nitrogen, and the greater number contain variable quantities of sulphur and phosphorus: but animal gelatine contains neither of these two elements. These nitrogenous principles are important as articles of food to animals, and are frequently described as flesh-forming substances, in order to distinguish them from the neutral compounds of the three elements—carbon, hydrogen, and oxygen, of which starch, gum, and sugar are composed, and which according to modern theory are only heat-producing. There is no material difference in the composition of these substances, whether they are direct from the animal or the vegetable kingdom. Albumen is composed of C 54.8: H 7.1: O 21.2: N 16.9 (carbon, hydrogen, oxygen, nitrogen). Casein is composed of C 54.9: H 7.1: O 22 2: N 15.8. Gluten C 55.2: H 7.5: O 21.4: N 15 9. Fibrin C 54 6: H 6.9: O 22.8: N 15 7. There is also about one per cent of sulphur and phosphorus in the above substances. All of these when out of the living body undergo spontaneous changes when exposed to moisture in the atmosphere. In a state of transition, offensive effluvias are evolved from them, and this change is called putrefaction.

Putrefaction of Animal Constituents.—The conditions of putrefaction should be generally understood. At very low temperatures animal substances do not putrefy, and it is the same with them at elevated temperatures. An elephant was found in a good state of preservation in Siberia, among ice, where it had remained perhaps for thousands of years. In the warm dry climate of South America, cattle are killed in the open air, and in a very short period the flesh dries, and may be kept in that state for months without becoming decomposed. A condition essential to putrefaction is moisture. When flesh is carefully dried by a current of warm dry air, it resists decay, and retains its nutritive powers. The various forms of gelatin and albumen when desiccated are imperishable, but in a solution of water, or in a moist state they are the most perishable of all animal proximate principles. Air promotes putrefactive changes, but flesh may be preserved fresh in some gases, such as the deutoxide of nitrogen for months. When meat is immersed in water that has been boiled to expel all the air from it, and is then covered with a layer of sweet oil, it may be kept fresh for a long time. In warm weather therefore meat should be kept in a dry cool place. The most favorable temperature for putrefaction ranges from 70° to 100° Fah.

Preserving Meats and Vegetables.—Partially boiled or roasted meat, free from all taint, and half dressed vegetables, are introduced into a tin canister, which is then soldered up, with the exception of a small hole in the lid. The canister is then placed in a bath of boiling salt brine, which is heated a few degrees above the boiling point of water, and when it is noticed that steam issues copiously from the aperture, the canister is lifted, and the hole in the lid instantly filled with a drop of solder, thus hermetically sealing the vessel. The success of this operation is indicated by the end of the canister becoming slightly concave by the pressure of the atmosphere upon it. Meat thus preserved has kept fresh for twenty years. Pure butter melted and brushed over the surface of fresh meat preserves it from contact with the air, and it will remain unchanged for a much longer period than when exposed to the air. Vinegar containing a few drops of creosote brushed over fresh meat, will also preserve it from decomposition for several days during warm weather.

Animal substances, such as birds, &c., may be preserved for scientific purposes for years in a solution composed of 4 ounces pure salt, 2 ounces alum, 2 grains corrosive sublimate, 1 quart water. This solution is poisonous. It is useful to taxidermists, and for those who wish to prepare skins without removing the fur.

Albumen.—This term is applied to an organic principle, which is most widely diffused in the animal body. It exists as a liquid in lymph, chyle, milk, and in the blood (of which it forms 7 per cent); in the salivary, and pancreatic fluids; the humors of the eye, and in the brain. As a solid, it is a constituent of the skin, brain, nerves, glands, and cellular membrane; and is the chief component of horn, the nails, hair, feathers, wool, and silk. Albumen also occurs in the juices of various vegetables, such as the potato, carrot, turnip, cabbage, &c. It is a constituent of seeds, grasses, almonds, and most of the oily nuts. It generally abounds in the shoots of young plants. The white of eggs is composed of albumen and water, contained in a very delicate membrane. It may be separated from the cellular membrane, by agitation, in 4 parts of cold water, and when filtered it becomes very clear. When heated to 160° Fah., it coagulates, and becomes white and hard. When 100 parts of egg-albumen are evaporated in vacuo, a residue of from 10 to 15 parts solid albumen remains. The white of egg is called globulin; the yelk vitellin. The latter contains 37.1 per cent of albumen; the former 12 per cent. A yellow oil, containing a little phosphorus, gives the yelk its yellow color.

Seralbumen.—This exists in the serum of the blood. It resembles the white of the egg in all its chemical properties. When heated to 170° Fah., it coagulates, forming a white substance, like that of a hard boiled egg. The cause of its coagulation by heat is not well understood. Before coagulation, it is soluble in cold water; but heat renders it insoluble. It is a remarkable substance, changing in an egg during incubation, from a soluble to an insoluble state; afterwards to be converted into feathers, beak, claws, and cellular membrane, in the chicken. Chemistry cannot account for this metamorphosis. Lime combines with albumen, forming a plastic cement, which is employed for luting the glass retorts of chemists, as it resists the action of acid fumes.

Serum, and the white of egg, are coagulated by a large number of metallic salts, such as those of iron, copper, lead, mercury, silver, and antimony. Hence, albumen is a valuable antidote in cases of poisoning by these substances—especially to corrosive sublimate.

Under the name of globulin, albumen constitutes the transparent humors of the eye, including the crystalline lens. It is also associated with the coloring matter of the blood. The substance called ptyatin, is a modification of albumen existing in saliva. It possesses the property of transforming starch, and dextrine, into grape sugar, when heated for a short period of time to 100° Fah. Pyin is an albuminous principle, found in pus. It is a formidable poison, as also is echidnine—the poison of snakes—which is similar in its chemical constitution. Albumen is a most remarkable organic substance. No other we believe, assumes so many forms and states. In the white of the egg, and in the human eye, it is transparent as the diamond; while in the hoof and horn of the animal, and the shell of the tortoise, it becomes harder than timber. In wool it forms the fiber which makes our broadcloth, and in feathers, the soft down that clothes the neck of the swan.

Vegetable albumen is generally associated with gum, sugar, starch, or oil, in the vegetable kingdom. It may be procured by macerating the succulent shoots of young plants, such as turnips, &c., in cold water; allowing the liquid to become clear, by subsidence; then filtering. It has all the properties of a weak solution of egg-albumen.

Casein.—This term is applied to the coagulable principle of milk; and forms cheese. A similar substance is occasionally found in the blood, and in the pancreatic liquids of the ox and sheep; it also occurs in vegetables. It can be procured from skimmed milk by heating it to 150° Fah., and adding a few drops of acetic acid. It is then thoroughly washed, and digested in boiling alcohol, to deprive it of oil. Thus obtained, it is white, and opaque; resembling coagulated albumen, but less firm. It is without odor or taste; and is insoluble in water or alcohol; but soluble in solutions of the alkalies, and common salt. Its compounds with the metallic bases are insoluble in water. Hence, milk is an antidote for poisoning by the salts of copper and lead; and it has been used successfully in some cases of poisoning with arsenic. Casein called legumin, is abundant in peas, beans, and the seeds of leguminous plants, being associated with starch, albumen and oil. It may be obtained from peas, by digesting these in a mealy state in tepid water, for two hours; then allowing the starch to subside, and filtering the liquid. It does not coagulate by heat; but forms a clear viscid solution. It usually contains about 0.36 per cent of sulphur. In making cheese, the milk should be heated to disseminate the oil through the mass, prior to curdling it; as cheese is tasteless and poor in quality, when the oil of the milk is separated from it. The deep, reddish color of some cheese, is no sign of richness; this being an artificial color imparted to it by annotto.

Gluten.—This is a term applied to the opaque, white, tenacious, and slightly elastic substance obtained from wheat flour, by washing and kneading it with cold water in a bag of cotton cloth. The starch in the flour is washed out with the water, leaving the gluten in the bag. It is capable of being drawn into long fibers, and when dry it becomes horny, forming the well known maccaroni. It is insoluble in water; in a partially decomposed state it forms yeast, and it induces alcoholic fermentation in saccharine liquids. The tenacious properties of dough and the paste of flour are due to it. It is more abundant in wheat and rye than other cereals, hence the flour of these grains is best suited for making raised or leavened bread. The quantity in wheat flour ranges from 7 to 14 per cent.

PERFUMES AND PERFUMERY.

Mr. Septimus Piesse, who has contributed many very interesting articles to the columns of the Scientific American, is one of the largest manufacturers of perfumery in England, in company with Mr. Lubin. Their establishment is in Bond street, London, and is a large and beautiful architectural structure, called the "Laboratory of Flowers." It has been lately visited by Charles W. Quin, F. C. S., who has given a description of his observations in the last issue of the *Chemist and Druggist*.

He states that the science of perfumery has greatly progressed of late years. Messrs. Piesse & Lubin have extensive flower farms near Nice, in the south of France, where they grow large quantities of roses, violets, and other odoriferous flowers, which are manufactured on the spot into greases, oils, ottos, and extracts. At Mitcham, in Surrey, England, they have large lavender gardens, besides an extensive bonded warehouse at the London Docks, where they make their perfumed spirits for foreign and colonial consumption. Their flower-gardens at Nice produce violets, roses, jasmine, tuberoses, jonquils, orange-blossoms, acacia, and numberless other fragrant flowers, from which scents are extracted principally by four processes—expression, distillation, maceration, and absorption or enfleurage.

The first process is used in the case of plants whose parts contain large quantities of odoriferous essential oil, such as lemon, orange, and citron peels. These portions of the plant are put into a press, consisting of an iron vessel of immense strength, fitted with a perforated false bottom, on which is placed the material from which the oil is to be expressed. A powerful screw, connected with a piston fitting into the vessel, and worked by a lever, squeezes out the liquid portions. The oil obtained is of course largely contaminated with watery extracts, from which it is separated by decantation. Distillation is adopted when the amount of essential oil is less than in the last instance. The distillation of oil of lavender may be taken as an example. The leaves are thrown into a still either heated by steam or by the

naked fire, and containing a large quantity of water. As the heat rises, the steam passes into the refrigerator, carrying with it the essential oil of the plant. By an ingenious contrivance, the condensed steam is made to reënter the head of the still, leaving behind it the essential oil in the refrigerator, thus allowing the same water to be used over and over again. In the stills employed by Messrs Piesse & Lubin, steam at from ten to fifteen pounds pressure is used as the source of heat, it having been found that the French method of working by the direct action of the fire is liable to give the distillate a peculiar empyreumatic or burnt odor. The third method is used for finer odors, such as the rose or violet. A certain quantity of purified beef or deer suet is mixed with purified lard, and put into a clean porcelain or metal pan. Steam heat is applied, and the flowers from which the odor is to be extracted are carefully picked and thrown into the melted fat, wherein they remain for one or two days. The fat dissolves the essential oil or other odoriferous principle contained in the flowers, and of course becomes thereby highly perfumed. The process is continued with fresh portions of flowers until the grease is of the desired strength, the different strengths being indicated by the French manufacturers in numerals. Where perfumed oil is required, fine olive oil is substituted for fat. The oils thus prepared are known as the *huile antique* of such and such a flower.

The fourth process of absorption or enfleurage is the most important of them all. This process is used for those flowers whose delicate odors would be destroyed or changed by heat, and yields all those fine toilet articles known as "French pomades and oils." The whole operation is conducted in the cold. Square frames, three inches deep, two feet wide, and three feet long, are provided with glass bottoms, upon which is spread a layer of fine grease about a quarter of an inch thick; on this the flowers are sprinkled from which the scent is to be extracted. Another frame similarly charged is placed on this, and so on until a large pile is made. The flowers are changed from time to time during the whole of the blooming season. The pomades made by enfleurage are much stronger than common pomatum, as a small piece of the size of a walnut contains sufficient essential oil to perfume a large quantity of grease. To obtain this fragrant essential oil the pomade is taken out of its case, and placed in an iron cylinder perforated with slits at the bottom. In this it is subjected to pressure by a piston, which forces the grease through the slits in the form of long ribbons. These ribbons of scented grease are then macerated in alcohol for several days, and the essential oil is thus extracted. The solution of essential oil in alcohol is used to make the various bouquets of the perfumer in which the skill of the olfactory artist is highly exerted. The injudicious mingling of odors is like the inharmonious blending of notes, or colors. Thus a mixture of the extracts of orange peel, lemon peel, and lemon-grass, gives the imitation of the simple extract of verbena. Besides the extracts obtained from the enfleurage pomades, ottose and the essential oils obtained by distillation are also used for making the variegated bouquets. On one of the floors of Messrs. Piesse & Lubin's establishment, a boy is constantly employed in making the "ribbon of Bruges," which is now largely used as a fumigatory. It consists of tape soaked first in a solution of nitre, to give it smoldering properties, and afterwards drawn through benzoin, myrrh, and other odoriferous substances. The ribbon is cut into yard lengths, and put into boxes provided with a slit in the upper cover. The ribbon is drawn out to the length of an inch or so; lighted and blown out, it smolders down to the slit in the box, gradually diffusing a pleasant odor throughout the room.

Alum in Bread.

Alum has long been employed by bakers, and it certainly has the effect of rendering available, for bread-making, many qualities of flour, which must otherwise be wasted. Dr. Odling says:—"If we mix a solution of starch with infusion of malt, in the course of a few minutes only, the starch can no longer be detected, being completely converted into dextrin and sugar; but the addition of a very small quantity of alum altogether prevents or greatly retards the transformation. The action of diastase on undissolved starch is very gradual; but here also the interference of the alum is easily recognizable. Bread made with infusion of bran or infusion of malt, is very sweet, sodden, brown-colored, and so sticky as almost to bind the jaws together during mastication. But the addition of alum to the dough causes the loaves to be white, dry, elastic, crumbly and unobjectionable both as to taste and appearance. I have found that flour which is of itself so glucogenic as to yield bread undistinguishable from that made with infusion of malt, could, by the addition of alum, be made to furnish a white, dry, eatable loaf."

Alum is also said to prevent bread from turning sour and moldy. The sourness often observed in bread of inferior quality, arises from the conversion of part of the starch into lactic acid. Now, as alum prevents the transformation of starch, it may be expected also to interfere with the production of lactic acid.

Considerable discussion has taken place as to the probable effects of the habitual use of alumed bread on the digestive functions: some medical men asserting that alum, unless taken in much larger quantity than is likely to occur in bread, is quite harmless, while others attribute to it the most injurious effects. Here, as in other cases, the truth probably lies in the middle. Many of the statements which have been put forth on this, as on other questions relating to the adulteration of food, are doubtless grossly exaggerated; nevertheless it would be unsafe to assert that the use of alumed bread is quite free from objection. Dr. Dauglish says:—"Its effect on the system is that of a topical astringent on the surface of the alimentary canal, producing constipation, and deranging the process of absorption. But its action in neutralizing the efficacy of the digestive solvents is by far the most important and unquestionable. The very purpose for which it is used by the baker, is the prevention of those early stages of solution which spoil the color and the lightness of the bread whilst it is being prepared, and which it does most effectually. But it does more than is needed; for whilst it prevents solution at a time that is not desirable, it also continues its effects when taken into the stomach; and the consequence is, that a large portion of the gluten and other valuable constituents of flour are never properly dissolved, but pass through the alimentary canal without affording any nourishment whatever.

Another objection made against the use of alum—viz., that it has the power of causing the bread to retain a larger proportion of water than it otherwise would, so that bakers who use alum defraud their customers by selling water instead of bread—does not appear to rest on satisfactory evidence. Dr. Odling examined eighteen alumed, and seven non-alumed, loaves, and found that the former contained on the average 43·68 per cent, and the latter 42·78 per cent of water, the difference being quite insignificant as compared with the difference between the individual loaves, whether alumed or not.

Anti-fouling Compositions for Iron Ships.

The difficult problem of discovering a mode by which the bottoms of iron ships shall be entirely preserved from fouling, has been but little advanced by the experiment lately completed at Devonport, England. The premium offered by the Lords of the Admiralty for producing the long-desired preventives, continues, therefore, open to competition. The iron-screw steam tender *Minx*, of 303 tuns, which has engines of 100-horse power, commanded by Mr. James Pook, does harbor service for the Channel fleet and supplies the ships with water. She received, last September, on her port side, amidships, three samples of different compositions, each 10 feet wide, and extending down to the bottom of the keel. The sample forward was that manufactured by Mr. Fidemore, the next was that supplied by Mr. Elsworth, and the third was a preparation recommended by Mr. Edwards, assistant-master shipwright in Devonport dockyard. The remainder of the port side, forward and aft, and all the starboard side, received the composition of Mr. Hay, chemist, of Portsmouth. So prepared, the *Minx* was floated on the 10th of October, 1862, since which time she has been constantly occupied on harbor duty. Ships so employed foul much more speedily than those making long voyages. After three or four months' experience, it was found that sea-weed and grass had grown considerably on the port side of the *Minx*, which made her very "unhandy with her helm." Recently she was placed high and dry in dock, and an opportunity was given for examining her bottom minutely. There is considerable difference between her draught when laden with water, provisions, &c., as a tender, and when in ballast; and as she had been mostly in one or other of these conditions during the last seven months, the load line, and the ballast or light line, are most distinctly marked all round. Between the two there is not much vegetation, but on the lower line, where the compositions of Messrs. Finemore, and Elsworth, are laid on, there is a distinct fringe of weed, two feet long. Below the fringe, in the former, light sea-grass, small barnacles, and much rust, prevail. On Elsworth's composition, there are barnacles and thick grass, but very little rust. On Hay's composition, there are some weeds, and many small barnacles, but very little rust. Before this preparation was laid on, a coat of bitumen was applied to the iron. The test applied to the *Minx*, according to the present trial, places Mr. Hay's composition first, Mr. Elsworth's second, and Mr. Finemore's third, in order of success.

Gardening in Japan.

Mr. Robert Fortune, in his book on Japan, says:—"It is of all countries the most beautiful in spring. The trees were now clothed with leaves of the freshest green, and many of the early kinds were in full blossom. On every hillside and in every cottage garden there were some objects of attraction. The double-blossomed cherry-tree and flowering peaches, were most beautiful objects, loaded as they now were with flowers as large as little roses. Camellias, forming goodly-sized trees, were common in the woods, and azaleas adorned the hillsides with flowers of many hues. Here the A obtusa, with flowers of the most dazzling red, was peculiarly at home. Cydonia japonica was seen in a wild state creeping amongst the grass, and covered with red blossoms; and several varieties of primrose were met with under trees in the shady woods. On the outskirts of Yeddo, park-like scenery, trees and gardens, and neatly-clipped hedges succeed each other. The whole country here (the village of Su-mae-yah) is covered with nursery gardens. One straight road, more than a mile in length, is lined with them. I have never seen, in any part of the world, such a large number of plants cultivated for sale. Each nursery covers three or four acres of land, is nicely kept, and contains thousands of plants, both in pots and in the open ground."

Cotton in Southern Illinois.

A correspondent of the *Prairie Farmer* states that in Southern Illinois cotton looks well. Respecting his own crop he says:—"During the dry month of May it did not grow at all, and that which was not planted till late did not come up till June. It is now growing at a rapid rate. At one time I thought of plowing mine up and planting in late potatoes, but now I would not thank a man should he offer me $100 for what I expect to raise from each acre. I am thinning out the plants, so that they should not be nearer than six inches from each other; I would not care if they were a foot apart. The common plan here is to have the plants sown as thick as 'hair on a dog;' but I take old planters from the South as my guide, and the distance they decide upon is a foot."

Coal Mine Explosion.

At a coal mine explosion near Hyde Park, Pa., the other day, eight persons were killed and three wounded. Several horses and mules were also destroyed. The cause of the accident is unknown. It occurred in the morning, soon after the men had entered the drifts to commence their usual labors. Efforts were immediately made to recover the bodies of the dead and wounded, and among those rescued were three who were apparently lifeless, but they were restored by a remedy which is said to be commonly used in such cases, viz:—their heads were immediately buried in fresh-dug earth. This is certainly a very whimsical and foolish process. Common sense would indicate that fresh air was of the first importance as a remedy in such cases.

The Value of Practical Knowledge.

Of the uses of practical knowledge we yesterday saw an illustration. A mammoth sexagonal crystal was shown to us by its owner, Mr. Mitchell. It is nearly a foot in diameter, and about eighteen inches long. Next to a specimen in Barnum's Museum, it is the largest we have ever seen. The base of the specimen is opaque quartz rock; the other portion is as clear as crystal. It was found by the Rev. Edmund Craig Mitchell, on the farm of Dr. Johnson, near Ellicott's Mills, Md. The young divine was on a visit to Dr. Johnson. From the house a path leads to a spring that supplies the family with water. Mr. Mitchell, walking with Dr. Johnson in the path, observed "a stone" about an inch above the ground. "There's a splendid specimen," said he. "Of what?" asked the Doctor. "Why, of crystal quartz," was the reply. The Doctor said he had passed that stone every day for thirty years, and knew it to be nothing more than a common paving stone. Mr. Mitchell asked leave to wrench it up. A pick was procured, and, to the surprise of Dr. Johnson, the "stone" was buried about eighteen inches deep, and beneath the ground was a perfect six-sided prism of crystal, almost as pellucid as French cut glass. The young man knew enough of geology to recognize it by the butt end, above the ground, though none but an expert would have seen in it anything but an ordinary boulder, on a small scale. A little learning may be a dangerous thing; but somehow or other knowledge is quite as productive as ignorance.

Benefits of Harvesting Machines.

A correspondent of the *Prairie Farmer*, says in reference to reaping machines, that "it has long since become an acknowledged fact that no nation has made such rapid progress in improvements in labor-saving machines as our own; and more especially is this true of agricultural implements. The fame of our reapers, threshers, &c., has become world wide; and the value of these and similar inventions to our own people is beyond the power of any man to estimate. It is only when we consider the immense grain crop of our country—the eight Northwestern States alone furnishing 520.000,000 bushels per annum—and realize the utter impossibility of gathering it without the aid of these machines, that we can begin to appreciate their value to us as a people. The most of these improvements have been made within the last quarter of a century, and their progress has been constantly accelerated, increasing annually in arithmetical ratio. As we are mainly an agricultural people—that being the great interest of the nation, upon which all other interests are based—it becomes highly important that our agriculturists keep themselves fully posted as to all improvements which may aid or cheapen their labors, or increase their products. Nearly or quite all these improvements or inventions are connected more or less directly with patents.

Extraordinary Endurance of a 13-inch Cast-iron Gun.

The first 13-inch Dahlgren gun made by the Builders' Iron Foundry, Providence, R. I., was subjected, during last week, by agents of the Government, to the most severe powder test ever applied to any gun in this country, if not in any country. It burst on the 26th ult., at the 178th round. The gun in its finished state weighed 36,000 pounds; and the test applied was 30 pounds of powder for the first 10 rounds, 40 pounds for the second 10 rounds, and 50 pounds for the remaining 158 rounds. The powder employed was much finer than is used in service, and of course its explosive power was proportionately greater. The 15-inch guns on board the *Monitors*, were tested with 30 pounds of powder, and have never been used with a larger charge than that; but deeming it necessary to use heavier charges behind solid shot of the great weight used in these guns, this gun was made of greater proportional weight of metal than the 15-inch gun. The ball used at each charge weighs about 350 pounds, and exactly fits the bore.

This gun was tested at the risk of the Government, and the company which made it have orders to proceed with the manufacture. They have already cast two others of the same size. No one was injured by the immense fragments which blew off when the gun burst.

MISCELLANEOUS SUMMARY.

Tin-lined Lead Cisterns and Pipes.—At a late meeting of the Liverpool Chemists' Association, specimens of lead pipe and sheet lead, electro-plated with tin, were exhibited by Mr. Holt; and some discussion ensued respecting the use of lead coated in this manner for water cisterns and pipes. It appeared to be the opinion of the meeting that a coating of tin, instead of preserving the lead, was far more likely to ensure its more rapid corrosion; for if the coating of tin by any means happened to be scratched off, even to the slightest extent, galvanic action would take place, and the lead would be destroyed very quickly. Dr. Nevins and Dr. Edwards stated that their experiments had proved that such would undoubtedly be the case: Dr. Edwards remarking that in one case which he had examined, a cistern made of lead, in which was an accidental admixture of tin, was eaten out by well-water in six months, the lead being rapidly precipitated in the form of sulphate, &c.

Remains of Gigantic Animals.—Russian geologists are making preparations to promote the discovery of congealed remains of mammoth animals in Siberia. It is stated that during the last two centuries, at least 20,000 mammoths, and probably twice or thrice that number, have been washed out of the ice and soil in which they were imbedded, by the action of the spring floods. The tusks only have been preserved for their commercial value in ivory. An effort is now to be made for the discovery and preservation of one of these carcases as perfect and entire as possible, as it is considered that microscopic investigation of the contents of its stomach might throw a powerful light on a host of geological and physiological problems.

Raspberry Wine.—Bruise the finest ripe raspberries with the back of a spoon; strain them through a flannel bag into a stone jar; allow one pound of fine powdered loaf sugar to one quart of juice: stir these well together, and cover the jar closely. Let it stand three days, stirring up the mixture every day; then pour off the clear liquid, and put two quarts of sherry to each quart of juice or liquid. Bottle it off, and it will be fit for use in a fortnight. By adding Cognac brandy, instead of sherry, the mixture will be raspberry brandy.

A Discovery, it is said, has been made in Russia, whereby the mercury used in the manufacture of looking-glasses may be so hardened as to bid defiance to humidity, friction, or blows. The plate-glass thus prepared may be transported without fear of damage; and, the silvering being accomplished by a cheaper process than any yet known, the glass is ten or twenty per cent cheaper than at present.

"One Word More."—A clerk in the Dead Letter Office, of an inquiring mind, was curious to find out how many letters were written without a postscript. One day last week he found that out of six thousand eight hundred and fifty letters written by females, only three hundred and seventy-five were without postscripts. Some of the other letters contained three.

A Wooden Library.—An odd work is being carried out for exhibition at the Permanent Industrial Exposition in Vienna. It is a wooden library—that is, a hundred octavo volumes, the covers of which are formed of wood; the backs of bark, inscribed with the names of the trees they are made from; and the interiors of specimens of the leaves, flowers, fruits, &c., of the trees.

Augusta, Maine, is one of the largest (not most populous) cities in the world. According to the Kennebec *Journal* it contains sixty square miles. In some of the wards they kill wild bears.

On the 4th inst. a mason fell from the top of the chimney of the Morgan Iron-works, in this city, and was instantly killed; the chimney is upwards of 160 feet high.

A member of the Connecticut legislature, who possesses the Yankee passion for whittling, and indulges extensively in that amusement, received one day last week a bundle of shingles by express.

Seven first-class locomotives were turned out from Rogers' Locomotive Works at Paterson, N. J., during the month of June.

The Philadelphia *Ledger* states that up to July 9th there have been 1,683,333 tuns of coal transported this year upon the Philadelphia and Reading Railroad, against 1,124.941 for the same period last year. By the Schuylkill Navigation Company there has been transported in the same time 333,385 tuns against 377,937 for the same period last year. The coal produced thus far exceeds that of last year for the same time by 513,840 tuns.

The French preserve grapes the year round by coating the clusters with lime. The bunches are picked just before they are thoroughly ripe, and dipped in lime-water of the consistency of thin cream. They are then hung on wires, and when dry are dipped the second time, and then hung up to remain. The lime coating keeps out air and checks any tendency to decay. When wanted for the table. dip the clusters in warm water to remove the lime.

Wrought-iron Cannon.—A firm in Bridgewater, Mass., are making a gun from wrought iron, which will weigh, when completed, about seventeen tuns. It is forged solid, in an octagonal form, with the cavity bored out thirteen inches in diameter, and will be hooped with strong bands of iron put on by hydraulic pressure. The lathe on which the metal is being turned is one of the largest in the world.

Labor.—Would you be an honest man and enjoy competency with pleasure, unknown to hasty wealth orsly roguery? Work! Let your sweat-drops wash your gains from all dishonesty. You shall live to tell your children that you have observed and felt the wisdom of the royal preacher:—"Wealth gathered by vanity shall be diminished, but wealth gathered by labor will increase."

The Pearl-bearing Oyster.—The great pearl-fishery of Aripo, in Ceylon, which has been in abeyance for some years, is about to be renewed under very promising auspices. The bank producing the pearl-bearing oysters is seven miles long, and two and a-half broad, and is calculated to contain between two and three million oysters.

Remedy against Moths.—One ounce of gum camphor, and one ounce of powdered red pepper, macerated in eight ounces of strong alcohol for several days, then strained. With this tincture, the furs or cloths are sprinkled over, and then rolled up in sheets. This remedy is used in Russia under the name of the Chinese Tincture for Moths.

New Invention.—A genius down East intends applying for a patent for a machine which, he says, when wound up and set in motion, will chase a hog over a ten acre lot, catch, yoke, and ring him; or by a slight change of gearing, it will chop him into sausages, work his bristles into shoe-brushes, and manufacture his tail into a cork-screw.

The project of establishing telegraphic communication between the West India colonies, is being agitated in London. A deputation from the West India Committee, lately had an interview with the Duke of Newcastle, at the Colonial Office, when the subject was discussed.

Old St. Paul's.—The ball on top of the dome of St. Paul's, London, weighs 5,000 pounds and is 6 feet in diameter. Workmen are engaged in re-gilding it, and they are watched by crowds of people through telescopes as they work at the giddy hight.

The largest mass of rolled iron exhibited in the London Exhibition of 1851, weighed one tun and a half, and this was considered extraordinary. In the Exhibition of 1862, the heaviest specimen weighed no less than thirteen tuns.

Indian Seas and Birds.—The absence of sea-birds forms a singular trait in the character of the Indian seas; scarcely a single living thing appears in the sky above, or the sea below, betwixt Bombay and the Indus.

Omnibus Steamboats.—Some wonderfully fast little omnibus steamboats have just been put on the Seine to run between Paris and St. Cloud. It is impossible to keep pace on horseback with one of them.

A Large Tax.—A. T. Stewart, the dry-goods prince of New York, recently paid the snug little sum of $60,000, as his income-tax for the past year.

The coal-traders of Philadelphia have decided to ship no more coal for the present. This will tend to increase the price.