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- bition. 1 engraving. IV. CHE MISTRY AND METALLURGY.—How to Test and Work Silver Ores. A Simple and Cheap Way of Silver Extraction Simple Testing Apparatus. Light Stamps vs. Heavy. Crocker's Trip-hammer Battery. Paul's Pulverizing Barrel, etc. Tartrate of Line.—Color-comparator for Quantitative Analysis. By ALBERT R. LEEDS, Ph. D.—A Large Steel Ingot.

### VULCANIZING RUBBER

we give the following general information respecting the reach the rectum as a liquid, and prevent its contents from processes in common use for vulcanizing caoutchouc. The becoming hard. He states that it is not improbable that the purified and masticated gum is kneaded on warm rolls with pulp-like fiesh of prunes and tamarinds contains just such an the proper proportion of flowers of sulphur. Other sub- inert indigestible colloid substance, and that to its presence stances, as whiting, white lead, litharge, zinc oxide, disinte- is due the medicinal efficacy of these fruits. However true grated refuse rubber (vulcanized), etc., are often added to in- this may be, he has had no time as yet to study the matter; crease the volume of the product and economize the more but having lately noticed that the action of one of the many costly caoutchouc. Lead compounds blacken the goods mineral waters now in common use is closely analogous to that through the formation of lead sulphide.

ture in common use is, rubber 32, sulphur 2, whiting 25, doses of a small wineglassful three or four times a day, is an fabrics oxide of zinc is sometimes substituted for the lead. these small doses acts as a cathartic, but that it carries forms are moulded-the substance readily receiving and re- taste than that of the Friedrichshall water, and equally effecttaining the impression of a warm mould into which it is ive against the kinds of constipation under consideration, by forced.

steam is admitted until the desired temperature is attained. ever they may be needed. This varies somewhat with the character of the articles-275° Fah., at the termination of the operation. A tempera- salts would have been discharged through the skin. ture exceeding 280° Fah. injures the goods. Hard rubber, vulcanite, or ebonite differs from ordinary vulcanized rubber only in that a much larger proportion of sulphur enters becomes very black; with sulphide of mercury (vermilion), used for dental purposes is prepared with six parts of sulphur, sixteen of caoutchouc and eleven or twelve of verin steatite or supported in water trays in the vulcanizer, and, if to present a glossy exterior, are sometimes enveloped in thick thin foil.

Thin sheets of rubber or small articles are sometimes vulcanized by what is called the cold process (Parks's). In this the caoutchouc is simply immersed in a mixture of forty parts of carbon disulphide or benzolene and one part of sulphur chloride. It is next placed in a room heated to 70° the process is in so far complete that it is only requisite to washed to remove excess of alkali. The results of this treataction of the vulcanizing substances.

# STRAWBERBIES AND CONSTIPATION.

# Professor F. H. Storer, of Harvard University, in a communication to the Journal of Pharmacy, calls attention to induce constipation. He remarks that in this country particularly, "where an immense and well nigh universal con- than the cost of two or three of them. sumption of this fruit is coincident with the setting in of hot weather, the constipating action of the berry is complicated and, as it were, increased by the excessive waste of water

while holding water forcibly, could not readily pass through In reply to numerous queries from our correspondents, the walls of the stomach by osmose, and would therefore

of his proposed colloid medicament, he deems the concep-For soft goods the proportion of sulphur added is usually, tion worthy of being kept in view and subjected to further about six per cent. For the cheaper grades of fabrics a mix-tests. He finds that Friedrichshall bitter water, taken in white lead and litharge 4. The product is black, resembling effectual cure for the constipations of early summer, and that of which rubber overshoes are made. For lighter for those produced by strawberries; not that the water in After thoroughly kneading the mixture into a homogeneous enough water to the rectum to keep its contents soft. He mass, it is rolled into sheets or boards, and from these the has, however, prepared a solution of far less disagreeable simply dissolving 15 grammes of Epsom salt and 8 grammes The heating or vulcanizing is conducted in strong cast of common salt in a quart champagne bottle full of water. iron cylinders, one end of which is movable and serves as a A small wineglassful of this solution may be taken on godoor. The goods to be vulcanized are loaded upon a car | ing to bed at night, on arising in the morning, in the middle and run in upon a railway extending along the bottom of of the afternoon, and of the forenoon also, if need be. the chamber. Powdered steatite (soapstone) is freely used Sometimes a couple of doses will be all-sufficient, taken at to prevent adhesion of the different articles, the goods often night and morning. These salts can be obtained almost being packed in boxes filled with this substance. When everywhere, and may readily be carried about in traveling, the heater is charged and the door made fast, high pressure in the form of dry powders, to be dissolved in water when-

The mode of action of these small doses of saline matters according to Dr. Chandler, five hours at 240° Fah. is said is possibly to be explained on the old theory that the salts to be the temperature for fire hose. In factories where have a tendency to detain the water in which they are held smaller articles are made, the goods are generally exposed | in solution, and to prevent its passage through the walls of in the heaters for four to four and one half hours, the tem- the intestines by osmose, thus allowing to be carried into the perature, at first about 250°, gradually being augmented to rectum a certain amount, which but for the presence of the

#### ----PROFESSOR LANGLEY'S PAPERS ON THE SUN.

Those who are familiar with Professor Langley's high into its composition and the vulcanizing process is con- rank as a skillful observer of solar phenomena will not need ducted at a more elevated temperature. Usually the caout- to have their attention specially called to the series of artichouc has incorporated with it half its weight of sulphur; cles on the sun which he has prepared for this paper. For but, as in the preparation of soft rubber, various foreign | freshness of information, clearness and aptness in illustrasubstances-metallic sulphides and oxides, shellac. asphal- tion, they will be found superior to anything that has aptum, etc.—are often added. Mixed with a little litharge it peared on this subject for a long time. The article on eclipses, in this week's issue, is particularly timely, and we bright red; and composition similar to the red vulcanite trust that not a few of the readers of the SCIENTIFIC AMER-ICAN will follow his advice in observing the coming eclipse and in reporting their observations. As Professor milion. The vulcanizing operation is usually conducted at Langley shows, it is often in the power of non-professional temperatures increasing from 275° Fah. to 305° Fah., the observers to add materially to the scientific results obtained time required being about six hours. The articles are packed during the progress of such rare and imposing phenomena. The circumstance that the line of totality passes for the most part over a sparsely settled region makes it all the more important that every one who has an opportunity to witness the eclipse should become, if possible, for the moments of darkness at least, a scientific observer.

#### DESTRUCTION VS. CONSTRUCTION OF IRONCLADS.

While other nations are expending immense sums in the Fah., and when all the carbon sulphide has been volatilized construction of heavy ironclads, and without apparently coming any nearer to a decision as to which is the more irreboil the material in the pound of caustic potash in about 2 sistible, shot or armor, we are wisely giving especial attengallons of water, the vulcanized caoutchouc being next tion to studying how they may best be destroyed and now that our naval officers have become so familiar with the manment are not always satisfactory owing to the superficial agement and the capabilities of the submarine torpedoes, we expect soon to hear of an aerial torpedo, which, propelled by steam or compressed air or after the manner of a rocket, may as successfully attack the deck as the other can the bottom of these ships.

While political conditions demand of others that they the fact, not generally known (and which certainly would should perfect and multiply all means of attack, we, forscarcely be expected), that ripe strawberries are very apt to tunately, may confine ourselves to those of defense, making ourselves impregnable against scores of ironclads at less

#### How Raisins are Prepared.

A strip of land bordering the Mediterranean, somewhat less from the body, by perspiration, which occurs at this period; than 100 miles in length and in width not exceeding 5 or 6, is and there can be little doubt that, taking the two causes to the raisin producing territory of Spain. Beyond these boundgether, the strawberry season-though perhaps beneficial to aries the Muscatel grape, from which the raisin is principally some constitutions—is the occasion of much ill health among produced, may grow and thrive abundontly, but the fruit must

ELECTRICITY, LIGHT, HEAT, ETC.— he Moderator Electric Light. Objections to present plans of subdividing the electric current. Ra pierrs improved plan.—industrial Application of Solar Heat. Proceedings of the Royal Astronomical Society. Measurement of the photographs of the Transit of Venus. Lines near the G line in the solar spectrum. On Color Lectures before the Royal Institution London by Lond

the solar spectrum. On Color. Lectures before the Royal Institution, London, by Lord Rayleigh, F.R.S. The Wave Theory. Color no always dependent on Absorption, etc.-Vision of Colors.

- Absorption, etc.-Vision of Colors.
  VI. MEDICINE AND HYGIENE -Sleeplessness. Its causes and cure. By JAMES SAWYER, M.D. Cerebral Hypersemia, and its causes. Symptoms and causes of Insomnia. Severe emotional shocks. Pro-longed mental application. Headache, giddiness, noises in the ears, etc. Slight impairment of hearing, irritability, and twitching of mus-cles, Insomnia from poisons, and from tea, coftee, tobeco and alcohol. Semile insomnia. Treatment Soporfice; chloral, optum, morphia, the bromides, Indian hemp, alcohol, affusion with cold wator, bromide of potassium, etc. Importance of fixed hours of sleen.-Curare in Epi-lepsy. By Dr. C. F. KUNZE.-Sciatics and Nerve thretching. Thick-ening of the nerve-sheath as a cause of sciatica. Sciatics caused by varicose velus. Medicinal cure of sciatica.
  VII. AGRICULTURE, HORTICULTURE, ETC.-Dynamite in Agricul.
- AGRICULTURE, HORTICULTURE, ETC.-Dynamite in Agricul-VII. ture. Cleaning forests of stumps and roots and mellowing the sub-soil and rocky substratum of arable land by dynamite. Eight instrucsou tive exper Gardens

We experiments. Gardens. By PETER HENDERSON. Care of rhubarb, asparagus, cauli-ower, cabbage, lettuce, tomato, and egg plants. Instructions on trawberry, grape, raspberry, blackberry, currant, gooseberry enlitva-ion.-Fodder Corn. Sector, the Derby Winner, with 1 illustration. flower, cab

II. CHESS RECORD.-Biographical Sketch and Portrait of Joseph Alonzo Potter, Salem, Mass.. with two of his Enigmas.-Letter Prob-lem.-Two Problems by Samuel Loyd.-Charleston *Owner* Problem Tournament of 1839.-The Association Letter Tournament, and Enig-ms.-Problem Solving.-Solutions to Problems. VIII.

the American people."

go to the market or the wine press. When the grapes begin This binding action of so popular a fruit as the straw- to ripen in August the farmer carefully inspects the fruit as berry is just the reverse of what might be expected, when it lies on the warm dry soil, and one by one clips the clusters we take into consideration the numerous small seeds of the as they reach perfection. In almost all vineyards slants of berry, which, it would be supposed, would tend to promote masonry are prepared, looking like unglazed hot beds, and discharges from the bowels by mere mechanical action. covered with fine pebbles, on which the fruit is exposed to It occurred to Professor Storer several years ago that Liedry. But the small proprietor prefers not to carry his grapes big's theory that the cathartic action of many saline mediso far. It is better, he thinks, to deposit them nearer at hand, cines should be referred to their osmotic relations to the where there is less danger of bruising, and where bees and membranes of the intestinal canal and the blood vessels wasps are less likely to find them. Day by day the cut might be extended and made the basis of a rational treatbranches are examined and turned, till they are sufficiently ment of constipation. He reasoned that it might perhaps cured to be borne to the house, usually on the hill top, and be easy to annul the tendency to constipation so common in there deposited in the empty wine press, till enough have the hot, dry weather of early summer, by "checking or dibeen collected for the trimmers and packers to begin their work. At this stage great piles of rough dried raisins are verting the course of some part of the water which would naturally be exuded by the skin at this season, and causing brought forth from the wine press and heaped upon boards. it to pass into the rectum." This result he thought might be One by one the bunches are carefully inspected, those of the first quality being trimmed of all irregularities and imperfect brought about by eating or drinking, frequently, small quantities of harmless indigestible colloid substances, which, berries and deposited in piles by themselves; so in turn are