The Electric Light.

A special division of the Paris International Exhibition will be devoted to electricity, so that all the systems of electric lighting may be tested comparatively. The electric light continues to create the greatest interest in Paris. The experiments which we mentioned some time ago have been conducted during forty consecutive days at the Lyons railway station. A force of about 40 horse power is sufficient to keep going twenty-eight electric lamps, each of which gives a light equal to eighty gas lamps, and works with regularity for ten and a half hours. The effect is splendid, the whole of the station, except the waiting room, being lighted *à giorno*. The question of economy, however, is not yet settled. It is not known whether the company will agree to pay a somewhat higher price in order to multiply the power of its illumination. These experiments have been tried on Lontain's system, a modification of Wilde's and Siemens' principle. M. Lontain has contrived to send the current generated by an ordinary Wilde's machine into an electro-magnetic engine called a distributer. The central part being strongly magnetized by the current from a Wilde's machine, a number of electro-magnets are influenced by its rapid rotation, and in each of these an induction current is generated. These induction currents are powerful enough to feed three electric lamps; and as there are two series of twelve magnets, a single machine could, theoretically, feed seventy-two lamps. Actually, however, it feeds only twenty-eight. Lontain uses a new regulator, which works very well by the dilatation of a small silver wire. By its dilatation this part of the apparatus works a lever system, and brings the carbon electrodes into contact. The French Northern Railway has purchased a number of Gramme magneto-electric machines. They intend to use them at their goods terminus and stores.—*Nature.*

A New Indicator for Alkalimetry.

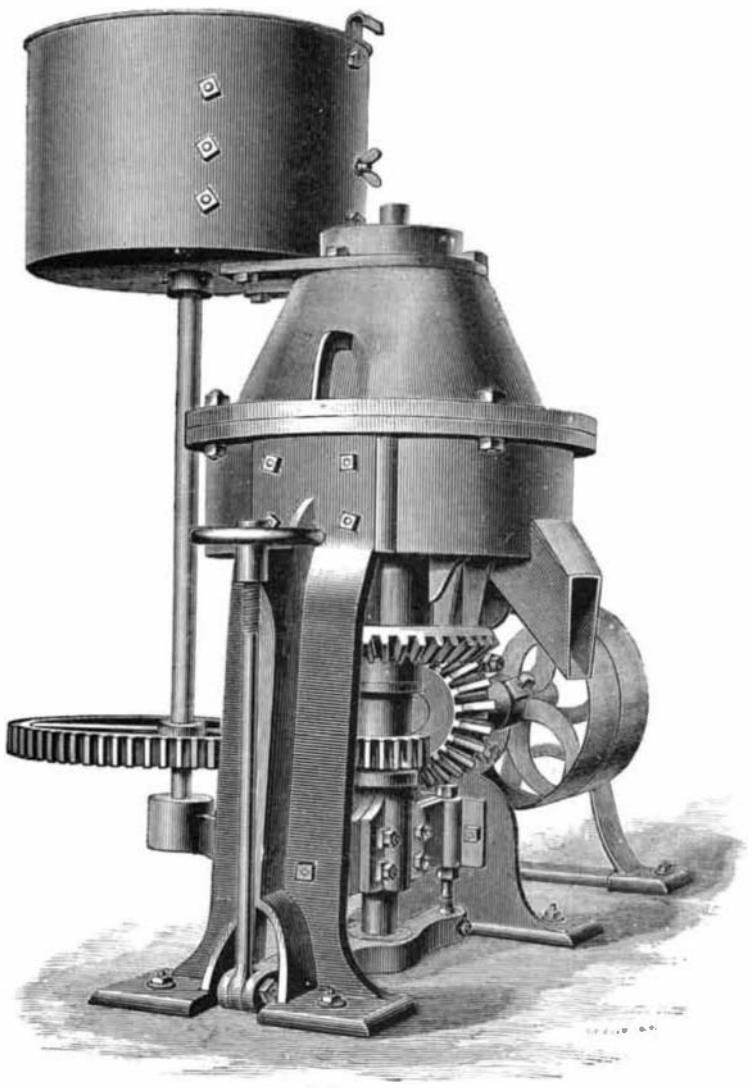
E. Luck proposes to employ, as indicator for volumetric estimation of acids and alkalies, phenolphtalein, a new dye stuff, prepared by Baeyer by heating together phenol (carbolic acid), anhydrous phtalic acid and sulphuric acid. In dilute aqueous or acidified liquids this dyestuff is colorless, but the addition of the slightest excess of alkali produces an intense purple red color, which is destroyed again by a trace of acid. For use, 1 part of phenolphtalein is dissolved in 30 parts alcohol, and 1 or two drops of this solution added to every 100 c. c. of liquid to be titered. If the liquid is acid it becomes opalescent at first, but clears on stirring. One drop of dilute soda lye or acid is more than sufficient to cause the change of color.

THE ROSS BURR STONE GRINDING MILL.

The annexed illustrations represent the Ross burr stone grinding mill, which is adapted for the grinding of flour, corn meal, paints, spices, and other dry materials, besides printers' ink, chocolate, paste blacking, and other substances of similar consistence. It runs at high speed, is claimed to grind fine and fast, and to consume but little power. The chief feature in the construction is that the grinding is done at the circumference and near to the center of motion instead of by the flat face of the stone.

Fig. 1 represents the mill with mixer attached, by which the materials to be ground are thoroughly mingled before entering the mill. In grinding paint the addition of the mixer is considered advantageous, the paint is thus kept cool, owing to the top of the mill being open so that the heat escapes instead of being absorbed by the paint. From the sectional view, Fig. 2, the internal arrangement of the machine will be clearly understood. The contents of the hopper are drawn down between the stones by the screw, A. The moving stone, B, is in the shape of a conical frustrum, and is attached to a vertical shaft which is rotated by the gearing shown. The outer stone is inclosed in the casing and is of a shape to receive the stone, B, in internal contact, adjustments of the latter being effected by the nut, C. As D is a small pipe to conduct the lubricating oil to the shaft bearing. The entire construction is simple and strong. The manufacturers claim that the mill now grinds nine tenths of all the printers' ink made in the country, and submit to us records of numerous premiums received (notably two gold, seven silver, and two bronze metals from the American Institute) besides many excellent testimonials from parties experienced in its use.

For further information address the manufacturer, Mr. Charles Ross, Jr., 81 and 83 First street, Williamsburgh, N. Y.



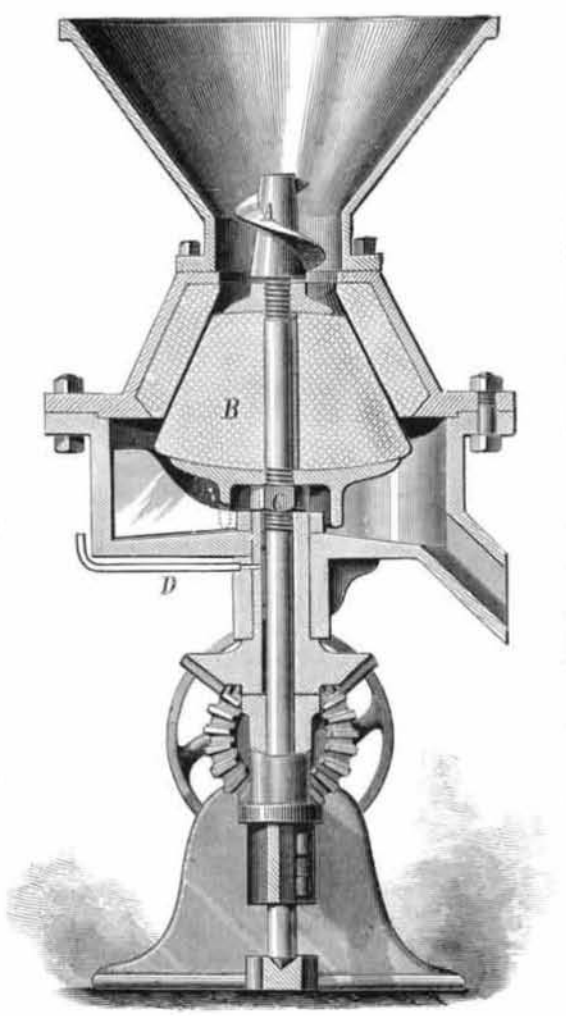
THE BURR STONE GRINDING MILL.—Fig. 1.

Restoring the Color of Lace.

LACE may be restored to its original whiteness by first ironing it slightly, then folding it and sewing it into a clean linen bag, which is placed for twenty-four hours in pure olive oil. Afterwards the bag is to be boiled in a solution of soap and water for fifteen minutes, then well rinsed in lukewarm water, and finally dipped into water containing a slight proportion of starch. The lace is then to be taken from the bag and stretched on pins to dry.

Electricity for Sleeplessness.

That galvanization of the head has an hypnotic effect has long been known: hitherto, however, it has not been used to counteract sleeplessness. Vigoureux asserts (*Allg. Wiener Med. Ztg.*) that he has daily obtained the finest results in this direction, and has failed only in exceptional cases, as, for instance, when sleep has been disturbed or prevented by severe dyspnœa. His method is to place the broad, flat electrodes (carbon covered with chamois leather) on both temples, and allow the current of from three, at the most five, Trouvé's elements to pass for a half or a whole minute. When the application is made in the morning, the patient experiences a more or less pronounced inclination to sleep. Occasionally the effect of the galvanization is prolonged after the first night, for a night or two.



THE BURR STONE GRINDING MILL.—Fig. 2.

Soup Kitchens.

Aside from the question of establishing soup houses for the poor in large cities, the question of the minimum amount of food at the lowest cost which shall be sufficient not to maintain life merely, but health and strength, is a subject of frequent discussion at the present day, and in this connection some extracts from Professor Voigt's report to the Munich magistrates may prove of value. Professor Voigt's first problem was to determine the quantity of the chief constituents of food which a soup kitchen ought to give to each person for a noonday meal. He decided that a grown up laboring man required 59 grammes (910 grains) of albumen, 34 grammes (524 grains) fat, and 160 grammes (2,569 grains) or carbohydrates.

From the reports of several of these soup houses in various parts of Germany, and the bills of fare in them, he calculated the amount of each substance given by them, and found to his dismay that none reached the required standard, and some fell far below. We give his table of results:

	Albumen.	Fat.	Carbohydrate.
Required amount.....	59	34	160
Munich soup house.....	14	3	32
Leipsic Volk's kitchen.....	24	8	71
Dresden " "	37	10	100
Berlin " "	35	19	178
Egestorff's " in Hanover	35	8	110
Eating Institute of Hamburg	41	5	133
Hamburg Volk's kitchen....	50	11	187
Cologne " "	49	—	188
Carlsruhe eating house.....	58	16	180

Here is evidently a shrewd exception, says Voigt. Even if people are contented with the volume of the meal and feel sated, still they have not necessarily taken sufficient nourishment for noon. Only a small portion of the volks kitchens furnish a sufficient quantity for an old and feeble beneficiary or pauper, namely, 40 grms. albumen, 30 grms. fat, and 85 of carbohydrates, and none sufficient for a working man. In most cases, to be sure, the carbohydrates are in sufficient quantity, but not the albumen. In most cases throughout the list the fat is lacking to a surprising extent, and it appears as if they were ignorant of its importance: and yet a good suet soup is craved by the common people.

In these institutions it is evident that more attention has been paid to cheapness than to the proper composition of the food; it is just impossible for most of them to afford the necessary quantity at such low prices. It was only in Carlsruhe that the dinner came tolerably near the scientific requirements. Such food was prepared there for 30 pfennige (7½ cents), and Professor Voigt's model recipe could be carried out with twenty changes, in Munich, for that price. Voigt also calls attention to the actual nutritive value of the so-called relishes or seasoning, which impart an agreeable flavor to the food, and also to the animal gelatin to be extracted from bones and sinews, which protects the albumen in the body from decomposition. The excessive use of bread and potatoes should be combated by the broad influence of these people's kitchens.

In an able-bodied working man, the waste which should be supplied amounts to 118 grammes albumen, and 265 grammes carbon, partially in fat and partially in the carbohydrates. Of the carbon not more than 209 grammes should be carbohydrates, or bread, potatoes, and farinaceous food generally, and 56 grammes as fat.

The report concludes with Voigt's model recipes for the requisite amount of nutriment, but as these apply only to Munich, we will not reproduce them here.

The difficulty in prescribing any given regime, whether for health alone or for economy combined with health, is the great diversity of tastes which exists among every class and makes true the saying that "what is one man's food is another man's poison." It is seldom the case that the system is benefited by an article of food not demanded by the appetite, much less by food that provokes disgust or nausea, however perfect it may be from a scientific point of view.

Laundries Spreading Disease.

The London *Lancet* says that incidents confirming the belief that diseases are spread by laundries are constantly reported as occurring in England and on the continent. Clothing worn by diseased persons or persons who have died of infectious disease are washed together with other clothes. The germs thus sown soon propagate, until an epidemic is created, as has been several times the case. Too much care cannot be exercised in this respect. The clothing should either be burned or thoroughly disinfected and washed apart.

Cleaning Engravings.

Put the engraving on a smooth board, cover it thinly with common salt finely powdered; squeeze lemon juice upon the salt so as to dissolve a considerable portion of it; elevate one end of the board, so that it may form an angle of about 45 or 50 degrees with the horizon. Pour on the engraving boiling water from a tea-kettle until the salt and lemon juice be all washed off; the engraving will then be perfectly clean and free from stains. It must be dried on the board, or on some smooth surface, gradually. If dried by the fire or sun, it will be tinged with a yellow color.

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