Correspondence.

Remedy for Warts.

To the Editor of the Scientific American:

At the bottom of third column, page 178, issue of September 22, you quote chromic acid as a remedy for warts; that is a very powerful caustic, and its use is liable to be attended with bad results in inexperienced hands. I would state that I have never seen a wart that could not be removed safely by glacial acetic acid applied in the same manner. All who try it will attest the same.

C. H. RUSSELL.

Boston, Sept. 26, 1883.

New Stereo Instrument Wanted.

To the Editor of the Scientific American:

The movements of persons and animals having been successfully reproduced by a series of instantaneous photos kept in rotation under proper adjustment, you may, perhaps, suggest to inventive readers of your valuable paper the construction of a suitable stereoscopic apparatus for reproducing the movements of anything in action by means of series of instantaneous double photos taken with a photographic apparatus for stereoscopic views, specially arranged for that purpose.

JULIO PFLUCKER Y RICO.

Naples, Italy, Sept. 8, 1883.

Flax Yarns Eighty-five Miles Long Weighing One Pound.

To the Editor of the Scientific American:

In the SCIENTIFIC AMERICAN of the 15th inst. there is an article on "The Factory Numbering of Yarns," taken from the *Textile Gazette*," in which there is evidently an error. It is there stated, "A No. 1 cotton yarn contains 840 yards to the pound, and a No. 10 contains 8,400 yards. No. 40 cotton yarn contains 40 times 840, or 33,600 yards to the pound, *and its diameter consequently only one-fortieth as great as that of No.* 1."

The relative diameters of Nos. 1 and 40 would be 6·3+ and 1, or inversely as the square root of the number of the yarn; by the rule that circles are to each other as the squares of their diameters.

A yarn whose diameter was one-fortieth that of No. 1 would be No. 1,600, provided the density of the fibers composing each were alike.

Permit me to add a little about flax yarns. A lea or cut is the unit of measure, and contains 300 yards. 30 lea yarn would contain 9,000 yards; but if made into 2 cord thread, would contain *about* 4,000 yards, viz., one-half of 9,000 less allowance for contraction in twisting.

As a rule, the twist necessary for the different numbers is in proportion to their diameters. Thus, if 16 lea requires 8 turns per inch, 36 lea will require 12; thus $\sqrt{16} = 4$; $\sqrt{36} = 6$.

It may astonish many of your readers to know that flax yarns have been spun as fine as 500 lea, or 85 miles to the pound, and even finer. I inclose you a small specimen of 250 lea.

GEO. ANDERSON.

Cleveland, O., Sept. 25, 1883.

Chemistry for Digestion.

To the Editor of the Scientific American:

In the editorial "The Chemistry for Digestion" in your issue of September 8, you speak of the injurious effects of hot bread—the great curse of the American people. Many —perhaps millions—accustomed to hot bread from infancy, prejudiced by habit and influenced by desire, refuse to believe hot bread injurious, or at least will not give it up. Now there are three things that can be done for these people.

1. They can be informed that bread that has become cold may be rewarmed and be more digestible, because warm food is more digestible than cold and because it is more palatable.

2. They can be informed that if they *will* eat fresh hot bread, that made with baking powder is less injurious than that made with yeast.

3. Their attention can be called to the great variety of healthful breadstuffs that can be resorted to as a change. Besides oat meal porridge, hominy, hominy grits, corn meal mush, and cracked wheat, which are getting to be quite generally known and used, there are two which are hardly known in American homes, which two I think should head the list. I refer to first quality pilot bread (ship biscuit) and homemade oat meal crackers (what the Scotch call oat meal cakes).

In both of these there need be no danger from impure baking powders or bad yeast, for both of them are light and digestible without the use of either yeast or baking powder.

S. P. CHEESEMAN.

Storing Wind Power.

In the matter of "Storing Wind Power," Mr. C. C. R. suggests the use of wind wheels to drive dynamo electric machines to decompose water, the constituent gases to be stored in suitable holders, and used when desired for lighting purposes, such as the oxy-hydrogen or oxy-calcium lights for heating purposes; or for any use to which such gases might be of utility.

Luminous Paints and Colors.

The luminous calcic sulphide (also called sulphide of calcium), now obtainable in the market, has a yellowish white tint, which considerably limits its direct application as a paint. On the other hand, the calcic sulphide, or the luminous paint obtained therefrom, loses its luminous property, if it is directly mixed with the ordinary commercial paints. An invention recently patented by Gustav Schatte, of Dresden, Saxony, has for its object to produce durable white or colored paints, containing a luminous substance, which causes them to shine in the dark, without changing or neutralizing in daylight the tint of the coloring substance or substances contained in such paints.

For this purpose Zanzibar or Cowrie copal is melted over a charcoal fire, 15 parts of this melted mass are dissolved in 60 parts of French turpentine, and the resulting mixture is filtered, whereupon 25 parts of pure linseed oil are added, which linseed oil has been previously boiled and allowed to cool a little. The lake varnish thus obtained is carefully treated in a paint mill with granite rollers, and worked into a luminous paint by one of the processes hereinafter described. Iron rollers capable of giving off under great pressure small particles of iron, which might affect the luminous power, should not be used.

Lake varnish as obtained in commerce contains nearly always lead or manganese, which would destroy the luminous power of the calcic sulphide. A pure white luminous paint is produced by mixing 40 parts of lake varnish obtained as described with 6 parts of prepared baric suphate, 6 parts of prepared calcic carbonate, 12 parts of prepared zinc sulphide white, and 36 parts of calcic sulphide in a luminous condition, in an oil vessel, and therein worked into a coarse emulsion which is then ground fine between the rollers. To produce a red luminous paint 50 parts of the said lake varnish are mixed with 8 parts of prepared baric sulphate, 2 parts of prepared madder lake, 6 parts of prepared realgar (diarsenious disulphide) and 34 parts of calcic sulphide in a luminous condition, and the mixture worked in the same way as described for the white color.

To produce a luminous orange color, 46 parts of prepared lake varnish are mixed with 17·5 parts of prepared baric sulphate, 1 part of prepared Indian yellow (jaune indien), 1·5 parts of prepared madder lake, and 35 parts of calcic sulphide in a luminous condition. To produce a luminous yellow color or paint 48 parts of prepared lake varnish are mixed with 10 parts of prepared baric sulphate, 8 parts of prepared baric chromate, and 34 parts of calcic sulphide in a luminous condition.

To produce a luminous green color or paint, 48 parts of prepared lake varnish are mixed with 10 parts of prepared baric sulphate, 8 parts of chrome oxide green, and 34 parts of calcic sulphide in a luminous condition. A luminous blue color is produced with 42 parts of prepared lake varnish, 10·2 parts of prepared baric sulphate, 6·4 parts of ultramarine blue, 5·4 parts cobalt blue, and 36 parts of calcic sulphide in a luminous condition. A luminous violet is produced with 42 parts of prepared lake varnish, 10·2 parts of prepared baric sulphate, 2·8 parts of ultramarine violet, 9 parts of cobaltous arseniate, and 36 parts of calcic sulphide in a luminous condition.

A luminous gray color or paint is produced with 45 parts of prepared lake varnish, 6 parts of prepared baric sulphate, 6 parts of prepared calcic carbonate, 0·5 part of ultramarine blue, 6·5 parts of zinc sulphide gray, and 36 parts of calcic sulphide in a luminous condition. A yellowish brown paint is obtained with 48 parts of prepared lake varnish, 10 parts of prepared baric sulphate, 8 parts of orpiment, and 34 parts of calcic sulphide in a luminous condition. Luminous colors for artists may be manufactured, if in the mixtures previously described the respective parts of lake varnish are replaced by the same quantities of pure East Indian poppy oil and the product is then finely ground and prepared.

Luminous colors for oil printing may be produced by using, instead of the above mentioned parts of lake varnish, the same quantities of pure linseed oil won by presses only, and thickened by boiling. All the paints described may be made into luminous colors suitable for making colored paper and other purposes if the lake varnish is omitted, and the dry luminous colors thus got are ground or mixed with water, and some binding substance free of acids.

They may also be made into luminous wax colors for casting on hollow glassware and similar objects, if, instead of the lake varnish composed as described, ten per cent more of cera japonica and the fourth part of the latter quantity of oleum olivarium alb. is used, or into colors for painting on porcelain. The color is painted on porcelain and then incinerated with the exclusion of air. The paints may also be treated with soluble glass (potash and soda water glass).

Improved Rapid Method of Copying Drawings, Manuscripts, Etc.

The common method of copying drawings by contact with the blue process or sensitive silver paper, which requires an exposure to the sun of from fifteen minutes to half an hour, seems likely to be superseded to some extent by the introduction of improved gelatine bromide of silver paper.

Gelatine sensitive paper has been difficult to prepare, but by means of recent improvements the manufacturers are now able to furnish it in large sheets uniformly coated, so that its use in various branches of the arts promises to be extensive.

Architects, draughtsmen, engineers, and others who wish to make duplicate copies of their drawings are, by the usual processes, obliged to first make a tracing upon transparent linen cloth, so that the light may easily affect the sensitive paper. Much extra time is lost and expense incurred. By means of the gelatine sensitive paper any ordinary thick card board drawing can be copied in a few seconds, either by diffused day light or gas or lamp light. The copy will be an exact reproduction of the original, showing the letters or figures non reversed.

If it is desired to make a copy in the day time, any dark closet will answer, where all white light is excluded. The tools required are an ordinary photograph printing frame and a red lantern or lamp.

The sensitive gelatine paper is cut to the size required, and laid with the sensitive side upward upon the face of the drawing, and pressed thereon in the usual manner, by springs at the back of the frame, which is then carried to the window and exposed with the glass side outward from two to five seconds to the light; the exposure varying according to the thickness of the drawing. If gas or lamp light is used at night, from twenty to thirty minutes exposure is sufficient.

The frame is returned to the dark closet, the exposed sheet is removed to a dark box, and other duplicates of the drawing can be made in the same way. It is thus possible to make from ten to twenty copies of one thick drawing in the same time that it usually takes to obtain one copy of a transparent tracing by the ordinary blue process.

The treatment of the exposed sheets is quite simple; all that is necessary is to provide from three to four large pans or a large sink divided into partitions. The development of the exposed sheets can be carried on at night or at any convenient time, but a red light only must be used. The paper is first passed through a dish or pan of water and then immersed in a solution, face upward, composed of eight parts of a saturated solution of oxalate of potash to one part of a saturated solution of sulphate of iron, enough to cover the face of the paper. Both chemicals are easily obtained at a druggist's. The latent image soon appears and a beautiful copy of the drawing is obtained, black where the original was white, with clear white lines to represent the white lines of the drawing. With one solution from six to eight copies can be developed right after the other. After development the print is dipped in a dish of clear water for a minute, and finally immersed for three minutes in the final or fixing solution, composed of one part of hyposulphite of soda dissolved in six parts of water. It is then removed to a last dish of water face downward, soaked for a few minutes, then hung up to dry; when dry it is ready for use. Instead of a drawing, manuscript can be placed in the printing frame and exposed as described. All the water marks or peculiarities of the grain of the paper will be faithfully reproduced. The advantages of this process are self-evident.

Intricate mechanical drawings can be so rapidly copied, that working copies can be quickly delivered. By this process original manuscripts, certificates, and documents of every kind can be rapidly copied, every detail being brought out, the original paper serving as the negative, the copy being of the exact size as the original.

A Large Family.

The Madrid *Estafette* states that a Spanish gentleman, Señor Lucas Nequeiras Saez, who emigrated from his native land to America seventy years ago, recently returned to Spain in a steamer of his own, and brought with him the whole of his family, which consists of no fewer than 197 souls, sons-in-law and daughters-in-law not included. Señor Saez has been three times married. His first wife had 11 children at 7 births, his second had 19 children at 13 births, and his third had 7 children at 6 births. The youngest of this family of 37 is aged nineteen; the eldest, who is seventy, has 17 children, of whom the first born is forty-seven. Of Señor Saez's 23 sons, all of whom are living, 13 are married, 6 are unmarried, and 4 are widowers; and of his surviving daughters, 9 are married. The granddaughters number 34, and of these 22 are married, 9 are unmarried, and 3 are widows; and of the 45 grandsons, 23 are married, 17 are unmarried, and 4 are widowers. There are also 45 great-granddaughters, and 39 great-grandsons, of whom 3 are married. Señor Saez has never tasted wine or any alcoholic liquor, and lives chiefly upon a vegetable diet, with but little salt. In spite of his ninety-three years, he is still hale and hearty, and makes a point of walking briskly for at least three hours every day.

The Cotton Goods Trade of the United States.

The prosperous condition of the cotton industry in this country is shown by the statistics of exports. In 1825 there were no exports of cotton goods; in 1835 the value was $2,858,681; in 1845 it was $4,327,928; 1855, $5,857,181; 1865, $2,273,509; 1875, $3,071,882; 1882, $13,225,000; and for the first eight months of the present year, $8,414,433. Of this industry the *Economist* says: "Americans have driven the English not only from the American markets, but largely from the European markets, and even in the English markets, we have commenced a not unsuccessful competition. We do not hope nor do we expect to at once step to the front in Eastern markets, under present conditions, but with time, study, and patience our excellent manufactures will gain an unshaken foothold and compete on anything like even terms with those of other countries."