

terity; the pianist depends little less on the left hand than on the right; and as for the organist, with the numerous pedals and stops of the modern grand organ, a quadrumanous musician would still find reason to envy the ampler scope which a Briareus could command."

That all this is true is abundantly shown by the numerous examples cited by the author, from the greatest of artists, the left-handed Lionardo da Vinci, to the distinguished ex-president of the American scientific association, Prof. Edward F. Morse, and (we may add) to Dr. Wilson himself, both of whom are known to be accomplished draughtsmen with this too-neglected hand. In view of these facts, it is evident that few more important subjects can be offered for the consideration of educators than that which is presented in this impressive essay.—*Science*.

#### TONING GELATINO-BROMIDE PRINTS.

Something extremely interesting to me was the appearance of a communication to a metropolitan society, embodying some experiences of the toning of silver bromide emulsion pictures with uranium nitrate and potassium ferricyanide, the constituents of Dr. Eder's negative intensifier. If one may presume to criticise Mr. Eder's remarks, they struck me as being very lucid, and I was able without difficulty to arrive at satisfactory modifications of the tones of bromide prints by following his instructions. That gentleman recommends 10 per cent solutions of both salts. The picture after fixation is to be washed in acidulated water and then freed of the acid and treated with equal parts of the solutions named in twenty parts of water. After toning, another washing and transference to a new hypo or alum bath. For the latter I do not recognize a necessity, and so in the few trials made omitted it, substituting for it, after a thorough wash and soak, an acid bath to remove any traces of insoluble compounds that may have remained on the print. A personal preference for less marked tones than the deeper browns given by employing the solutions at the strengths suggested led me to considerably weaken them. By this means I obtained what I aimed at, namely, an alteration of the cold black of the untuned print to a less determined hue, brown black, of greater range. I agree that a bromide print may be considerably improved in this latter manner by the application of the uranium ferricyanide toning solution, which, moreover, possesses great latitude of power in imparting a well graduated series of pleasing tones.

Another useful application of the uranium-ferricyanide toning solution is in the modification of the color of gelatino-bromide opal pictures. Here, as with paper positives, one may run up and down the gamut of the brown group of shades and tones with perfect success. I have so employed the formula detailed with satisfactory and pleasing results. For those who do not like blacks or cool grays, this method of toning may be confidently recommended. It will, of course, not escape remark that with bromide paper and opals that are developed with oxalate of iron very stringent care is required to free the film from ferrous compounds before the application of the uranium-ferricyanide solution, otherwise ruinous blue stains are sure to appear. I attach little, if any, importance to the danger of yellow stains from the toning solution if its action be not protracted beyond a few minutes. In my trials some opals, with plenty of virginal margin, came out of the treatment quite immaculate, although only ordinary precautions were adopted to preserve their whiteness.—THOMAS BEDDING, in *Br. Jour. of Photo.*

#### HOW A BONE BUTTON IS MADE.

From human bones? No. From ivory? No. From bone of dog or cattle? No. The other day, writes a correspondent, I happened to call on Mr. Church, who is the master of a small button factory at Birmingham, and was greatly interested in seeing a tailor's bone button made, just such a one as you would find on your ulster or a tweed coat. It was a queer little factory, made out of two or three cottages rolled into one. First of all, I was introduced to the raw material, which lay on the floor of a dark and dingy little workshop, in which a solitary workman was standing at his bench. "There," said Mr. Church, pointing to what I took to be potatoes, "there you see what we call vegetable ivory. It comes from South America and grows in clusters of half a dozen nuts. That is the first state of the button." We then went up to the workman, who was cutting up the kernels of the nuts at a swiftly revolving circular saw, an operation requiring great dexterity, for a slip might cost him a finger. This is the first process. The kernel is easily extracted, the shell in which it is enclosed being very thin and fragile. Although the kernel is a nut, it would take a very strong pair of jaws to crack it, and the teeth cannot touch it. The little white slabs which are cut out by the saws are taken to the next department, where the button is really formed in the series of lathes through which it is passed. The tool-maker, whose office is very important, works at one end of the room. The first lathe cuts out the button with the desired circumference, regulated by a series of gauges, the work being passed on to the others for the rim, and so on. Two women were drilling the four holes of the button, this being done by taking up each one and subjecting it to the action of the four-pronged horizontal drills, doing their work with remarkable deftness and rapidity. The button, so far as its form goes, is finished. It now remains to do the polishing and dyeing. In another room are half-a-dozen hexagonal boxes revolving in an atmosphere of dust. They contain the buttons, which are now being polished by the action of some hard powder, which is placed with them in the boxes. There is a secret in every trade, and I fancy that the contents of the mixture with which the buttons are eventually stained are not divulged to the world. Down below I was taken into another room, in which there were scores of tins containing dyes and many buckets holding chemical solutions. When the buttons are ready for receiving the dye they are placed on a tin tray holding, I think, a gross. The dye is then blown on to them by a spray, which causes the liquid to fall very naturally. The trays are then put into a gas-heated oven, and the buttons are afterwards put on to the cards ready for the market. Such is the interesting history of a bone button, one of the many wonders of Birmingham, that town of magicians.—*Pall Mall Gazette*.

#### REMOVAL OF RUST.

A method of removing rust from iron consists in immersing the articles in a bath consisting of a nearly saturated solution of chloride of tin. The length of time during which the objects are allowed to remain in the bath depends on the thickness of the coating of rust; but in ordinary cases twelve to twenty-four hours is sufficient. The solution ought not to contain a great excess of acid if the iron itself is not to be attacked. On taking them from the bath, the articles are rinsed in water and afterward in ammonia. The iron, when thus treated, has the appearance of dull silver; but a simple polishing will give it its normal appearance.