

### A Japanese Paper Maker on Cheap Labor.

The following original notes by an eminent Japanese official connected with the Japan government mills and printing offices are taken from the *English Paper Trade Review*:

After my travels through different countries, and from what I noted with regard to the difference of wages in two places, viz., China and the United States, I am induced to say that with regard to the wages question I have clearly seen the truth of the fundamental proposition laid down by almost all political economists, that it is not trade unionism which has raised the wages of labor. Wages are only higher or lower according to the proportion of capital invested for the maintenance of working people and the number of working people in existence. In case the capital destined for the maintenance of working people is excessive compared with the number of working people existing, employers are obliged to bid against each other to secure them, and it is quite certain that the opposite will take place when the number of working people is in comparative excess to the capital destined for their maintenance. This is the only way the wages of labor are adjusted in the natural course of things.

That the United States is a most thriving country and rapidly advancing in the acquisition of riches is a fact well admitted by everybody. The capital destined for the maintenance of the industrious classes increases there so rapidly that, notwithstanding the great number of immigrants from all parts of Europe and China, the scarcity of hand labor is felt by employers every year more and more. The consequence is high wages. Holyoke (in Massachusetts) is the greatest focus of paper making in the world, and 200 tons of paper are there turned out every twenty-four hours. During my stay there of two years, four large new mills were erected, giving employment to about 600 hands at least. Paper machine tenders whom I knew were picked up as managers, and back tenders took their place as machine men. With such circumstances it is impossible for employers not to bid against each other for workmen. For a town like Holyoke an increase of 600 inhabitants in two years is not to be got unless there be an extraordinary stimulus. Thus increased capital means increased improvement of the condition of working people. Men may possibly object to receiving too high wages, but under such circumstances they will be obliged to accept the same! Under contrary circumstances, in a country where the capital existing for the maintenance of the industrious classes is sensibly decaying, it is quite absurd to expect a liberal reward of labor.

No trade union can bring about improvement in a state of things which is the natural and irresistible result of the struggle for existence. In America paper machine men earn about ten shillings a day, and rag pickers about four shillings, while provisions are cheaper than here, thus being a favorable state of things from two points of view, and making the real recompense of labor higher than in England. It is not the actual magnitude of natural wealth but its continued increase which occasions rises in the wages of labor. It is not, accordingly, in the richest country, but in the most thriving, that the wages of labor are the highest, viz., in the one which grows rich fastest.

At present England is certainly richer than the United States of America, but the wages of labor are much higher in the latter country because it is more thriving and progresses the fastest in acquiring riches. As soon as the increase of capital is stopped, the state of things changes. When capital stops increasing, population does not stop increasing. The same will progress until very low wages stop the importation of labor from other places and discourage early marriages or decrease the number of marriages by the unprofitableness of children. In fact, the multiplication of the species was so fast in the United States of America that it is said to have doubled in twenty-five years, this being due to both immigration and multiplication. Labor is there so well rewarded that a numerous family of children, instead of being a burden, is a source of opulence and prosperity to the parents. In England a young widow with four or five children would have a poor chance of obtaining a second husband, but there it is frequently looked upon as almost a fortune. The value of children is the greatest of all encouragements to marriage. Thus a liberal reward of labor encouraging marriage will tend to increase the population, to keep pace with the increase of capital, and at last, when the wages of labor become very low, so that the burden of children discourages marriage, then the population will cease increasing.

Through the wealth of a country be very great, yet if it has been stationary for a long time we must not expect its wages to stand high. The fund destined for the payment of wages may be very great, but if it be for several centuries the same, the number of people to be employed every year can easily be supplied, and at last people naturally multiply beyond the number which can be employed. High wages mean an increase in the number of marriages and consequent increase in the population. Thus at last wages come down to the lowest rate consistent with common humanity.

Statistics show that when trade is good and the price of provisions low, there is an increase in the number of marriages. They also show, at the same time, that as soon as it finds the least encouragement, population never fails to increase.

Working people cannot expect a high reward of labor when their numbers are excessive. Employers cannot monopolize a high profit by simply cutting down wages.

Capital is always seeking the best attainable investment, and when any particular business is very profitable, fresh capital seeking investment is naturally introduced, creates more employment, and raises wages for that particular business. Thus the workpeople enjoy a portion of the profits of good business. In the commercial field of free competition, no one can enjoy the monopoly of good profits. If business prospers, both employers and hands should be well off together, and in the same way both should lose when trade is bad. With a natural state of things this is an inevitable condition, and it was exactly so for centuries.

From what I have said it is, I hope, clear that trade unions cannot raise wages. To intend to raise wages by trade unions is "to cast dirt up against the skies; what has been cast up will come down on your face," that is to say, it will ruin your business.

It may be said that trade unions did raise wages by compelling employers to arbitrate, but it is not trade unionism which has done this, but general prosperity in trade and business which supported workmen's requests. Suppose, for the sake of argument, that unions do raise wages, then we have encouragement to marriage, increase of population, and the same amount of enjoyment as used to exist before.

Then comes the question of the true and permanent remedy for a low rate of wages. This question becomes more serious and important as civilization advances, and there are several opinions on this point—all different. Almost all of them advocate the breaking down of the present system of social organization, viz., to abolish private property. Without going to such an impracticable extremity, what I think working people should do is to raise the standard of living. By standard of living I mean a certain standard of comfort, etc., below which a nation or class does not venture to descend. For instance, in England, to be tolerably well fed, clothed, and lodged, is considered a proper style of living by the industrial classes. Now, in China I noticed that millions of families are living in small boats called sanpan, which expression literally translated means "three boards." The boat in question consists merely of three big boards. Their poverty is of the lowest degree imaginable, the next step downward being actual starvation. The living of a whole family in a boat 12 x 5 feet seems to be the lowest extremity to which the Chinese are willing to descend, thus showing the difference in the standard of living in these two countries.

If the English working people change their habits of living, and become capable of as low a standard of living as the Chinese boat-living people, the population of England may at length increase till it brings them down to the said level. Thus we see what influence the standard of living has upon the well-being of the British workman. Hence I say the true and permanent remedy of low wages is the raising of the standard of living, which can be accomplished by the spread of good general education. If I am not mistaken, I can safely say that for true prosperity of the industrial classes—which means the liberal reward of labor—educate your children by all means in your power instead of resorting to unionism.

The next question is, How does the high standard of living affect the cost of production in general? It may seem that a high standard of living will raise the cost of production, but this is by no means the case. The wages of labor are the encouragement of industry, which, like all other human qualities, improves in proportion to the encouragement it receives. Plentiful subsistence increases bodily strength, and hope in a man of bettering his condition animates him to exert that strength to the utmost. Where wages are high, we find workmen active.

Chinese labor is three times as cheap as that of English people, but also just as much less productive. A fact that struck me very much was the following: In Japan ordinary labor costs say one shilling per day, in England say three shillings, and in the United States of America four shillings, and yet paper manufacturers in all these three countries are paying almost the same for the production of each pound of paper.

### Chalcedony Park.

Mr. William Adams, Jr., was the discoverer of the celebrated petrified forest of Arizona, now generally known as Chalcedony Park. This deposit is situated about 25 miles southeast of Holbrook, in Apache County, Arizona. The silicified trees are found protruding from the volcanic ash and lava, which is covered with sandstone to the depth of 20 to 30 feet. Sections of this fallen forest, whose only rivals are the giants of the Yosemite and Calaveras, lie around in profusion, measuring from 2 to 10 feet in diameter, con-

taining all the colors of the rainbow, some of whose hearts are solid crystals of amethyst and topaz, and only a slight degree from the diamond in hardness. Every color found in nature or the arts is reproduced in these fallen agatized monarchs.

### PHOTOGRAPHIC NOTES.

*Photo-Lithography and Etching Acids.*—The *Photo. News* prints the following as the actual formula now used by Dr. Eder:

*Photo-Lithography; Transfer Paper.*—30 grammes of gelatine and 15 c. cm. of glycerine are dissolved in 1,000 grammes of water, and the solution poured upon the paper. One-fourth of the quantity mentioned is sufficient for a sheet measuring 45 by 50 centimeters.

*Sensitizing.*—100 grammes of ordinary bichromate of potash is dissolved in 2,000 c. cm. of water and liquid ammonia is added until the solution becomes of a pale yellow color. The transfer paper is immersed in this solution until it becomes quite flexible.

For transfer paper containing albumen, alcohol may with advantage be added to the sensitizing bath. The formula then reads, 100 grammes of bichromate of potash, 1,600 c. cm. water, 400 c. cm. alcohol, and ammonia as before, until the deep orange color is replaced by pale yellow.

The paper, after exposure under a negative, is, while in the dry condition, inked with a velvet roller, and then, after immersion in cold water, it is developed with a plectet and with the velvet roller. The transfer on to the stone is effected in the usual way.

*Surface Etching on Stone.*—The stone bearing the image from either photo-lithographic or other transfer paper is treated in the usual way, and lightly etched with dilute nitric acid and gum. The whole stone is then covered with powdered resin, and this is rubbed in with a tuft of cotton wool. Two narrow strips of millboard are then held by an assistant, so that they lie along the sides of the stone, and so that the edges of the millboard rise about 2 or 3 mm. above its surface. Meanwhile a strip of wood of about 8 centimeters in breadth, and covered with an absorbent cloth, has been moistened with ether. It is now slowly drawn over the surface of the stone, the strips of millboard serving as guides to keep it from touching. By the action of the ether vapor the resin is softened and combined with the ink. The etching may now be completed with a stronger solution of nitric acid and gum than before.

*Etching Liquid for Zinc.*—1,000 c. cm. of water is mixed in a flask with 1,200 grammes of ordinary nitric acid of 40°, 80 grammes of common salt is then added, and when dissolved 300 grammes of "strong" acetic acid is poured in. Red fumes of nitrous acid are given out, and the open flask is left in an airy place for five or six days. There is then no further, or but very slight, evolution of gas, and the acid is ready for use.

The first etching is carried on with acid of from 5° to 6° Baume, and occupies from five to fifteen minutes. For later etchings the acid may be used of double the strength given, or even more.

*Preserving Albumen Sensitive Paper.*—At the recent English photographic convention Mr. G. W. Webster related his experience as follows, which we take from the *Photo. News*: So little has the subject been noticed of late, that I am quite prepared to believe that some of the members here present, whose patronage of photography has not been very protracted, may now hear of it for the first time. Take a pound of ordinary washing soda, and dissolve in two quarts of water; by using boiling water the dissolution is facilitated. When cold, sheets of blotting paper are dipped into it, slightly drained, and then piled in a heap with alternate sheets of dry blotting paper, the object of this addition being to permit just the right amount of liquid to be retained that will enable the paper to be readily handled, thoroughly wet porous paper falling to pieces as soon as it is lifted. Next, the paper is hung in a current of air till dry, then thoroughly exsiccated at the fire or in an oven, and stored away for future use. This we may call "soda paper." It may be employed either for preserving paper to be kept some time before being printed, or to keep prints a good color which may have to be kept in the frame over a day. For the former purpose the dried, sensitized, albumenized paper is either rolled up with soda paper, or otherwise kept in close contact with it, as, for example, by placing alternate layers of soda paper and sensitized paper in a printing frame, and pressing down as though a print upon a negative were in progress. For keeping paper white while printing for one, two, three, or more days in the hottest weather, all that is necessary is to substitute soda paper for the ordinary felt pad. Any one who has not yet tried the soda pads, and will only once attempt their use, will be surprised and pleased at the remarkable difference in color that will be seen between paper so treated and that printed under the usual conditions, when it has been in the frame for a few days. In hot weather the one exhibits very little discoloration, while the other is absolutely useless for any but the crudest of results. I have tried both monosodic and disodic carbonates in the pure, as also in commercial qualities, but the common washing soda of commerce answers every purpose.