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Director, Bureau of Foreign and Domestic Commerce,
Department of Commerce,
Washington, D. C.

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Sir:

Attention Mr. Eldridge.

You will find in the attached envelope a series of photographs which may be of interest to you. Possibly you may even decide to bring these subjects to the attention of American manufacturers of agricultural implements and hardware. The prices are in Mex, unless otherwise stated.

All from the vicinity of Peking.

C-3. The stove at the left is made of a kerosene tin, filled with baked clay, and costs \$1.50. Varieties of this stove are in common use throughout China and have no chimneys. A tin funnel is placed over the hole in the top of the stove, and the fire is started outdoors. When the coal is glowing, the stove is brought into the house, and the carbonic acid escapes into the room. It is stated that quite a number of people are asphyxiated every winter in Peking by these fumes.

The stove with the white, cheap, galvanized iron funnel, costs \$6.00, and is an imitation of a foreign stove, probably originally of German make. The stove in the center, with a large flat top, is of brass, and costs from \$12 to \$20. It is of purely Chinese make, and is used like the left-hand stove. The stove to the right, though of Chinese make, is probably an imitation of an American stove, as it bears in its castings initials in English, - S. N. Co. This costs \$4.00. All these prices are retailing in Peking. On top of this stove is a Chinese coal shovel, so poorly made that it bends and is almost useless for shoveling coal. In front of this stove is a Chinese coal hod, with elevated rounding ends. It is perfectly impossible to pour coal from this coal hod into stoves with side doors, so the coal is usually put in by hand, as the coal shovel is inefficient. It would seem as if coal hods of American pattern might be introduced, though the price would

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Handwritten initials on the bottom right margin.

probably be prohibitive. Between the coal hod and the small stove is a large lump of hard coal, something like anthracite. This is broken up by hammers and used in most of the stoves. To the left of the picture is a basket containing coal balls, which are widely used. These are made by mixing, in about equal proportions, the common yellow clay earth with coal dust.

C-1. This picture shows the clay in the center, upon which water is poured and mixed with the surrounding coal dust. Some of the balls are made by hand like snow balls, while the mixture is also laid on the floor in a thin layer, cut with the shovel shown on the left of the picture into square pieces, which are then shaken in the flat basket in the back of the picture until they become round balls. The upper right-hand corner of this picture shows how the stove pipes are projected through the paper windows.

It is, of course, a question whether American manufacturers of hollow-ware can compete with Chinese castings, which are very roughly and poorly made. The Chinese are very clever at making imitations.

AGRICULTURAL IMPLEMENTS.

All from the vicinity of Peking.

7-1. A shovel, costing about \$1.00 to the right. A hoe, costing about \$1.50, to the left, and a mattock, costing \$1.50 in the center. These are the prices actually paid by the three men using these instruments, but it is said that there will be no difficulty in buying duplicates in Peking at retail for \$2.00 for the three. Taking into account the poorness of the workmanship, the price would seem relatively high. None of the prices given in this letter, however, cannot be given as accurate, as they are statements made by the people at the time, and would have to be checked by careful investigation in many places. It is, of course, always evident that the cost of distribution is very great, as large profits are added by the different wholesale and retail dealers.

It seems possible that duplicates of the iron parts of these instruments might be made in America to advantage, but the Chinese models would have to be followed, and people would probably insist upon having wooden handles, such as they are accustomed to, and would not be willing to take American models. There is an especially large demand for the shovels which are found everywhere. The hoes are rarer. All these pictures show the customary Chinese summer clothing, composed of well worn coarse cotton cloth dyed blue.

C-5. This picture shows a rake, made of wood, basket work, and bamboo used for stubble and similar work, said to cost about 40¢, but this seems most excessive. The bamboo is imported from the south, and has the great advantage of being flexible and elastic.

A-2. This picture shows a common wooden plow, with a steel ploughshare, which turned a furrow three inches deep. The plough was raised on a pile of stones to show clearer. It was drawn by two donkeys, and the work was performed very rapidly in a thin stony soil, rather different from the usual finely divided loess. Attention is invited in this connection to the attached copy of a letter from the Pacific Commercial Company, Manila, P.I., signed by Mr. S. M. Stow, dated February 4, 1920. It would seem as if there would be an excellent market in China for some simple, cheap ploughs. This man was not clear in his statement of the cost of the plough, but it may be in the vicinity of \$3 or \$4.

A-3. The seeder in this picture was said to cost \$1.20; the rake with the long wooden teeth, 40¢; the wooden pitchfork 30¢, and the rake with iron teeth held by the boy 30¢. The seeder is an ingenious contrivance of wood, with iron-shod points. A vibrator in the box, moved by shaking the plough, keeps the seeds stirred up, and they flow down the wooden box like tubes to the seeding points. The point is raised on a stone to appear clearer in the picture. It seems doubtful if any American contrivance can compete with this, owing to the low cost. The costumes are well shown.

B-6. This shows a customary farm house, made of mud, stones, brick and tile, with a fireplace in the foreground, an earthenware bowl, the regular spade, and a bunch of branches for fuel.

B-3. This shows a common type of thatched mud hut, in which the people stated they lived winter and summer.

B-4. Shows the heating arrangement for these huts. The projection in front of the man is a chimney.

B-5. Shows the interior of the hut with earthenware utensils. Stalks of plants and branches are burned in the rounded opening to the right, under the mud platform. The smoke escapes from the chimney shown in the last picture, and the people sleep on top of the kang, which is in a way like sleeping on top of a stove.

B-1. Shows the way in which millet is kept. Round baskets are made and covered with mud and thatched with straw. Wheat is grown extensively in this country, but I saw none in the granaries. I was told that the people sold their wheat and lived on millet.

B-2. - is a mud platform, under which plant stalks and twigs are burned to form a forcing bed for sweet potato plants, which are planted in earth in the trough on top and covered with mats made of plant stalks shown to the right. This advances the growth of the plants very rapidly, and when ready, they are transplanted to the surrounding field by hand. The usual spade is shown in the center, and the long handle is the one in common use.

A-6. Shows a large Chinese padlock and set of keys. These are in very common use, but are clumsy.

D-6. Shows a hand pump fire engine. A similar one was marked "Goulds, Seneca Falls, New York."

10-4. This is a winnowing machine run by hand, and is fairly effective in removing the chaff from millet, which is husked in the stone mill shown to the right of the picture. The grain comes out of the spout in front, while the chaff is blown out to the left. The millet is fed from the box at the top, and is lifted by the paddles of the fan wheel into the spout.

10-1. Shows a bamboo rake, costing 30¢, and a wooden fork, costing 20¢, and a broom composed of twigs and an earthenware water jar. In front are slack baked bricks, and in the rear, a wall, composed of broken bricks.

10-2. Shows the method of constructing roofs. In this case slates are being laid, but, as a rule, the roof is covered with clay mud, in which earthenware tiles are imbedded. The cross pieces are round poles, and the frame is composed of rounded timbers, mortised together. Persons who have operated saw mills tell me that they cannot be operated at a profit in China, because so much timber is used in the round, as is shown in this picture. Further details on the subject of Chinese sawmills will be given in a subsequent letter.

10-3. This shows buildings under construction. Clay, mud, and lime are mixed together for use as a mortar between the bricks. I saw no sand in use. It is noted that the roof is constructed before the side walls, though the end walls are some times constructed at the same time. This is a better class house being put up for the use of wealthy Chinese and foreigners.

I noticed a very interesting arrangement on the Peking-Hankow Railway. Some of the stations had a shallow box with a glass door divided into pigeon-holes, hung on the front platform, and in each box was a sample of the goods shipped from the station. I noticed asbestos, charcoal, ula grass, used for making the black dye with which Chinese clothes are colored.

Persons studying Chinese conditions must always bear in mind that it is most unwise to generalize from insufficient evidence, but we are told that large numbers of Chinese people use similar implements and live under similar conditions.

It is evident that these people are very poor, and have a hard struggle to live, and their buying power is necessarily low. People in different parts of the country told me that the blue cloth for a suit of clothes costs from \$2 to \$3, and that the suits were usually made at home. It is necessary to have a thick, coarse cotton suit, wadded with wool, for winter, which costs a little more, making about two suits a year. A number of people stated that they ~~wear~~ wore about three pairs of shoes a year, costing \$1 each, but I feel there is something wrong with these figures, as the cloth soles wear out much more rapidly than leather.

The fields along the railroad between Peking and Hsi-Ling were flat and relatively free from grave mounds and earth boundary ridges. Winter wheat was the most prevalent crop, and was not sown broadcast, but in rows. The nature of the country and the crop make it seem possible that agricultural machinery could be used, providing it proved able to compete with the abundant hand labor. This could only be decided by a careful study on the ground, taking into consideration the cost of operating machinery, interest on the capital at about 30%, and the cost of replacement.

The fields are largely subdivided, and it is a question whether individuals could purchase agricultural machinery, but it is possible that villages or cooperative organizations might be able to do so. Information of this and other kinds is being sent to the Bureau to aid it in considering whether it would be worth while to have a competent person make a study of Chinese agricultural conditions for the information of American manufacturers.

I have not seen anything on the subject which impresses me as being reliable, as most of the articles are influenced by enthusiasm or propaganda. "Farmers for forty centuries" is most suggestive, but needs checking up.

I have been studying the use of manures with some care, and find they use human excrement, dried in flat cakes and mixed with dry earth, but not liquid manure to the same extent as the Japanese. Horse, donkey, and cow manure, mixed with straw and stubble, is extensively used, mostly mixed with finely divided earth and wood and plant stalk ashes. The mud and bricks of which the kang are made are also pounded and used as fertilizers for the sake of the soot and other deposits. I have seen so far no use of artificial fertilizers or of lime, though both may be used.

It is customary to accumulate the manure near the villages and mix it with dry earth on a hard floor. This is turned frequently to prevent heating, and to ensure the oxygenization, which probably turns the ~~thickest~~ nitrogenous matter of the manures into soluble nitrates, suitable for plant food. I am not an agricultural expert, and am not competent to pass judgment on these matters, but think that the whole subject will repay

careful study. I am especially struck by the shallow plowing, because the soil is very deep. I am told, though I cannot verify it, that in some cases the farmers dig a pit in the center of their field and use the sub soil as a top dressing. It is apparently the same in quality, so far as can be judged from pits and cuttings.

Sun dried bricks are made everywhere, and brick kilns for making the soft gray bricks are numerous. Thoroughly baked red brick are not common. This is said to be owing to the scarcity of fuel. In the brick kilns near Peking, I saw coal dust being used. The clay is often kneaded with the feet, and some times with hoes and shovels, but I saw no clay pug mills in use or any brick making machinery.

I am told by a number of people that Chinese laborers are very satisfied. If any American manufacturer desired to sell improved agricultural implements in China, he would have to be prepared to send representatives to demonstrate in different places, as the Chinese could not be expected to buy from catalogs or samples. It is most important, if it can be proved to be true, that the Chinese are contented to tend machines for long. These investigations must be checked by trips on foot or on donkeys or wheelbarrows. I ^{have} found myself that statements made by Chinese and foreigners do not accord in many respects with the actual facts, as most people are too enthusiastic and mention only the more favorable conditions. do not increase the relative production per hour, although I have not been able. There is, of course, a very large volume of propaganda based on a few striking instances of Chinese industrial progress. We must not be misled by this, or by unwarranted depreciation of the actual progress which is constantly being made.

What is needed is the actual facts and not general deductions, and the facts should be supported by photographs, statements of prices, and detailed studies of conditions.

It has, of course, long been known that China is a most excellent market for cotton cloth, as the people are practically clothed in it.

Their use of the electric light, railways, kerosene lamps, telephones, watches, hardware, and other manufactured goods shows that the Chinese people are willing to accept foreign articles, provided they prove to be both cheap and useful.

It would seem as if the agricultural field was the most promising in China for investigation, although it may prove not to be practicable to sell American agricultural implements or machinery in China at present. I am told that most of the articles in use are handmade, and they certainly seem to be clumsy and of bad shape, with the exception of the hoes, which apparently have considerable merit.

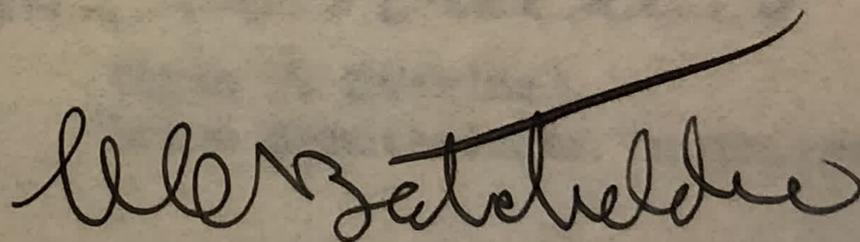
It must be borne in mind that the Chinese are smaller than we, and have much smaller hands, so that tools would have to be smaller and lighter. The experience of American firms in the Philippine Islands is most suggestive in this connection.

If an investigation is to be made, the investigator must not be permitted to satisfy himself with visits to the cities and towns, and to derive his information from foreign residents, returned students, and educated Chinese.

It is not likely that China will prove a satisfactory market for American cotton goods, owing to the competition of Japanese cloth and Japanese yarn for use in Chinese hand looms. The increasing number of cotton mills in China also is furnishing competition which will be hard for Americans to meet, owing to the low cost of labor.

I am told by a number of people that Chinese laborers are very satisfactory when trained to perform a few simple operations, like feeding machines. They are satisfied to continue indefinitely without the wish to better their positions or learn other operations. I have not had the opportunity to verify such statements. It is most important, if it can be proved to be true, that the Chinese are contented to tend machines for long hours, and that this does not decrease to any material extent their output per hour. It is said that the Chinese becomes practically a part of the machine, and the longer the workman tends a machine the greater the output, within, of course, reasonable limits. I am told that shorter hours do not increase the relative production per hour, although I have not been able to verify this.

Very respectfully,



(C. C. BATCHELDER)
Acting Commercial Attache.