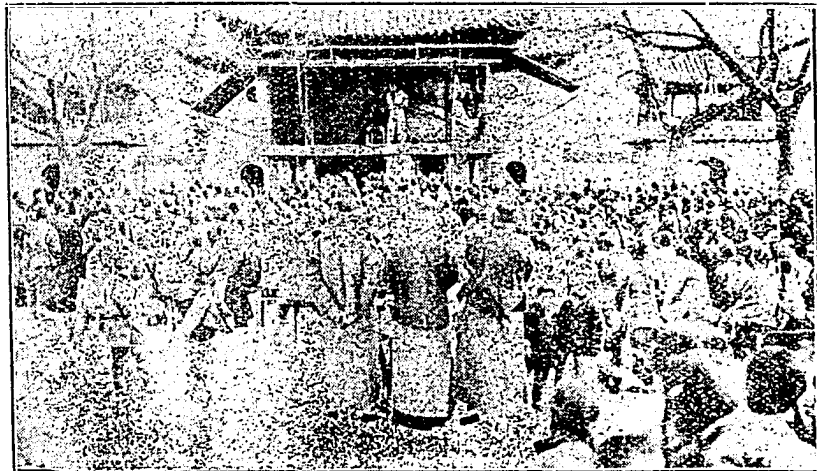


Improving China's Cotton

BY GEORGE SMITH

IT is impossible to conjure up a picture of John Chinaman without thinking of his blue cotton blouse and his flapping blue cotton "slacks," baggy at the waist and knees and tightly bound around the ankles, which are just as much a part of him as his grin of welcome or his elongated



A play given by Nanking University students demonstrating better living conditions

finger nails. But when you multiply John Chinaman some three hundred and fifty million times and take into consideration that all his fast growing progeny, his brothers and sisters as well as his cousins and aunts, all wear the same sort of clothing, it will be easily seen that he requires a superabundance of blue cotton cloth.

After even only a short residence in the Orient it is possible to appreciate the truth of the missionary's remark that no bit of cloth in all the world has served its full usefulness until it has been transported to China. Clothes of many hues, breadths and textures finally find their way to Cathay, either through the ragpickers bundle or via the missionaries' hamper sent out from home. China with her immense population must find clothes for them all, and sometimes she has a very hard time doing it.

The actual cotton raised in China, according to the last annual report by the Ministry of Agriculture in Peking was considerably less than two-thirds of her total requirements, hence the additional third had either to be imported in the bale ready for ginning, or else in the manufactured cloth. The latter in most instances was too expensive to meet the slim purses of the merchants and their customers; while the former was done only by large syndicates who made but a mere two or three percent turnover on the transaction.

For many years China has needed more and better cotton. The mill owners have been clamoring for "clear strains," which would not break constantly on the looms due to continuous imperfections, and when woven would have a more elastic fibre. It was with the idea of perfecting Chinese cotton that a bureau of research was opened in Nanking University some three years ago, under the auspices of the Cotton Mill Owners Association of China and the Shanghai Cotton Anti-adulteration association who contributed jointly some \$28,000 for improvement work. Mr. J. B. Griffing who previously had been employed in making a survey of the Pima (Egyptian) Cotton community of Arizona, was placed in charge. The bureau was largely concerned with the importation of certain strains of American cotton and acclimatizing them to Chinese climate and soil so that their yield would be similar to that in the United States.

It was no new thing to import the best American seed into China but the problem was to grow the seed under the proper conditions after it was imported. In speaking of the difficulties involved, Mr. Griffing told me that although the efforts to introduce American cotton into China had been carried on for twenty-five years, it was not until the present that the original quality and character had been maintained. The general experience was apparent success at first, followed by degeneration, even below the grade of Chinese cotton, in a very short time.

As a result of numerous importations, specimens of degenerate American cotton are now widely distributed and can be found in nearly every field of Chinese cotton, except where an enterprising farmer hoes out such plants, disgusted by their appearance.

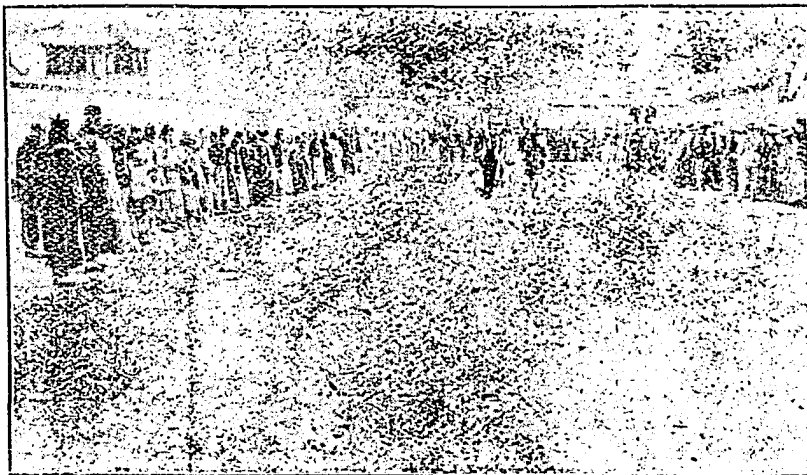
The experience of the United States Department of Agriculture in acclimatizing cotton from foreign countries had indicated the certainty of a radical change in the behavior of the cotton plants when brought to a new environment,—the change being largely degenerative. By careful selection it was possible to develop new strains out of the introduced stock that have proved themselves to be well adapted to the new climate, and some of the best varieties of cotton now grown in the United States have such an origin.

The selective period takes frequently as long as from five to thirteen years, as in the case of the famous Pima cotton which was derived originally from Egyptian stock.

Mr. Griffing stated that a similar selective process was utilized in selecting the best strains from the cotton imported into China. The essence of the present problem, however, was time, i. e. the creation of an improved seed supply adapted to the climate of the country, together with a speedy introduction on a commercial basis.

"The plan of the acclimatization work was organized, therefore, on a more extensive scale and in a more thorough going manner than has probably heretofore ever been attempted," said Mr. Griffing. "Thousands of plants were selected and their product studied in order to give a larger working stock of material. Then when selected seed was produced, its planting was guarded in such a way as to give a maximum multiplication of the desired strains.

"To summarize briefly the work of the three years, we may say that two strains of American cotton, the Trice and the Acala have been successfully acclimatized by a process of severe selection involving a careful study of some 12,500 individual plants and their produce and progeny,—hundreds



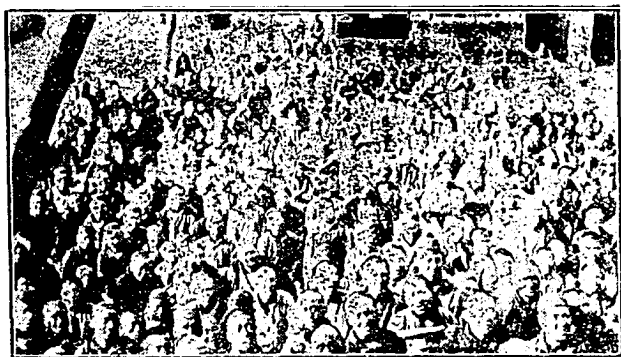
Demonstrating value of foreign steel plow, at Ling-I-hsien, Shantung



Ling-I-hsien cotton market

of rows and plots. The improved strains have been multiplied into a seed supply which in 1923 was planted on 740-mow, (Chinese acres), of pure seed producing farms, besides a distribution to 1,820 farmers and an exportation to other experiment stations of 5,200 cattie-. Three new improved varieties of Chinese cotton have been originated of which one has a quality of lint that promises to be equal to American cotton. In accomplishing this result more than 40,000 selections have been made. The seed supply of these improved strains will reach a commercial basis in 1924."

Even after the clear strains were developed, manifestly superior to the former short staple Chinese cotton, considerable difficulty was experienced in proving to the Chinese farmer that the American seed was superior. Mr. Griffing stated that since the majority of farmers depend absolutely for their living on a comparatively small area of land, the margin of subsistence is so small that they are manifestly unwilling to assume any additional risks. Any new crop, even though it appears to give promise of greater returns, is tried with reluctance, and then only on a very small area, since the farmer believes that only the crops which he has grown all his life may be counted upon for his livelihood.



In front of local theater where play was given by students

Although the farmers in the province of Anwhai were amazed at the size of the American boll, and were fully convinced of its greater yield and value, they were reluctant to try to raise it for fear that it would be stolen by their less fortunate neighbors. A quiet investigation revealed the facts that petty banditry and thieving were so prevalent in parts of the area that the cotton was picked from the fields at night, unless gathered by the farmer himself prematurely.

Mr. Griffing stated that the Nanking University Extension teachers were frequently looked upon with ill concealed suspicion as being agents of scheming officials attempting to work some new ruse for extorting money. When the plan of giving out tickets good for a small quantity of the improved seed was tried, the farmers in the neighborhood of Hochow refused to accept them, since a previous distribution of mysterious tickets had turned out to be the forerunner of a special tax collection. At Wukiang many of the farmers were afraid to accept any of the free seed samples, their objection being that local officials under the guise of agricultural improvement had recently made a free distribution of mulberry trees and later returned to collect them at trebled value.

Added to these and many other problems was the conservatism which is characteristic of the farmer group throughout the world, but here intensified by illiteracy, age old customs, farm practices ingrained with superstitions, and, the indifference of city landlords who control the cropping policy of their tenants and resent any change in the fixed habits of rent collection.

But even after the seed was grown, sifted and cleansed of its impurities, even after the farmer learned by practical demonstration in their own fields the greater yield and consequently the greater price paid for their crops, it has been extremely difficult to get them to use the new seed in preference to the old. Many methods were utilized to popularize the purchase of American "Million Dollar" seed, which was sold at a reduction.

During the autumn at cotton picking time country fairs and exhibits were held, giving a display of the improved products. The improved cotton was ginned before the eyes of the countrymen by a modern gin, and pictorial charts illustrated the benefits to be derived from growing cotton, together with graphic pictures of the improved methods for growing it. One interesting feature of the various country fairs which were held at eleven different points throughout China's Cotton Belt, was the staging of a play in which the advantages of growing improved cotton were set forth in dramatic fashion. These plays, which in many respects were similar to the old English and French "Miracle Plays," were written by the students of Nanking University. Both comedy and tragedy elements were introduced and the hero always won his way successfully out of almost insurmountable difficulties through the growing of this new foreign cotton! The audiences were able to understand the lessons much better when they were given in dramatic form, and returned to their farms with the idea firmly implanted in their minds that they too could succeed, just the same as the hero in the play.

The most helpful channel of extension, however, has been found to be the country mission stations, which, manned by trained educators and pastors, often foreign, are always working for the community improvement. Agricultural workers introduced, (and proper introductions are always indispensable), through other channels often find the farmers predisposed to suspect some form of tax increase, and to resent with fear all offers of help. The mission they trust for they learned in the times of famine and sickness that the mission works for their good without mercenary motives.

According to Mr. Griffing, the majority of the experiment stations developed outside of Nanking so far, owe their growth and success to the introductions by and cooperation of mission workers. Other mission stations in many places are endeavoring to establish pure seed introduction centers on their own responsibility by using the improved seed of the University. To this end many of the mission stations send their teachers and pastors to the Nanking University School, in order to give them an opportunity to study cotton culture and extension methods. The various mission bodies with their large number of out-stations ramifying throughout every important rural district constitute a machinery for extension in China that is unequalled. In several provinces, particularly in western Kiangsu and Anwhai, there are considerable areas of so called "wild land" that at present grow nothing but grass, and are valuable only for grazing purposes. Mr. Griffing contends that this condition exists, due partly to the great difficulty involved in breaking sod land and putting it under cultivation, and partly because many areas once cultivated reverted to natural conditions when practically depopulated during the Taiping rebellion, and have not yet been settled to the point of intensive cultivation.

During last Spring, University of Nanking students ploughed quickly and rapidly a wide area in the vicinity of Purple mountain and prepared the land for an excellent stand of cotton. The establishing of this precedent opened up a considerable field of opportunity in the expansion of the cotton growing area.

Already certain gentry farmers, with the aid of a foreign plow and a few implements of cultivation have taken advantage of this opportunity and have opened up areas of this low priced upland, which being high and well drained is eminently suited for cotton production.

If China can be made to produce long staple cotton in sufficiently large quantities, in future years it may prove a serious factor in the cotton markets of the world, since cotton can be grown and harvested cheaper on the average in China than in any other country in the world. In several of the treaty ports, notably Shanghai, there are several large spinning mills operated by foreigners and backed by foreign capital, which can be expanded easily to meet any increase. With the advent of the "American Acclimatized" or "Million Dollar Cotton" as developed by Mr. Griffing, the future of these spinning mills looks especially bright, since John Chinaman and his whole family are probably the greatest consumers of cotton cloth in the world. The demand is here. The next question is to supply it. Mr. Griffing believes that is possible.

Peking, December 12, 1923.