How John Bull is Introducing Scientific Agricultural Methods in India

Plowing with Camels in Northern India

The Farmer is the Big Man in India

The Cattle are Raised for Work

Farmer's Wife and Daughters

(Copyright, 1910, by Frank G. Carpenter.)

CALCUTTA, 1910—(Special Correspondence of The Bee.)—The farmer is the big man of the United States. He is a bigger man in India. There are 230,000,000 of him and he forms the backbone of the country. Today he is comparatively quiet. The great unrest that is going on is mostly among the other classes. It is fomented by the professional men, clerks and graduates of the government schools, whose walking delegates are moving about among the agricultural masses and stirring up trouble. One of John Bull's biggest problems is to keep the farmers attached to the government, and the British officials are doing all they can to this end.

I spent an hour the other day at the agricultural department talking with its secretary, Mr. J. O Miller, as to some of the movements. He tells me that the government is awake to the needs of the farmer and to what is being done for them in other countries. He speaks highly of our works along such lines, saying that the United States leads the nations and that India is taking lessons from us.

Mr. Miller tells me that every province of this country has now its agricultural department and agricultural schools. Each is making a study of its own peculiar conditions, and doing what it can to improve them. Nearly all have experimental farms and are distributing seeds. Many are making studies of the insect pests, and not a few are trying to breed up the stock of their respective territories. At the top of the system is an inspector general of agriculture, who acts as a technical adviser to both imperial and provincial governments, and the chief agricultural experts of the country have been combined into a board of agriculture, which meets at certain times to discuss the farming situation and submit recommendations as to its improvement. Agricultural colleges have recently been established in Madras, Bombay and the united and central provinces, and there are farming branches in nearly all the industrial schools.

Started by An American.

"Our modern agricultural movement," said Mr. Miller, "was practically begun by an American. As far back as 1893 we have had a government expert to advise us as to matters of agricultural chemistry, and we had begun some work along other lines when one of your millionaires, a Mr. Henry Phipps of Pittsburg, came out to India. He was a friend of Lord Curzon, and as such he spent some time here at Calcutta.

"During his visit he became interested in the condition of the farmers and in the terrible famines which now and then overrun parts of this country. He believed such things could be largely avoided by the improvement of our farming methods, and he gave a donation of $150,000 to start an agricultural school and farm here in Bengal. These were arranged for by a council of state, consisting of Lord Curzon, General Lord Kitchner and other men of experience. Some of the ablest experts were hired and an up-to-date agricultural college established. The fund originally given by Mr. Phipps has been added to until we have now expended something like $600,000 in building up the institution. There is an experimental seed improvement station connected with it, and also a cattle breeding farm. There are laboratories of various kinds, and in them many chemists, bacteriologists, entomologists, horticulturists and botanists. We have a department there for veterinary surgeons. The school is teaching the natives almost everything along the lines of advanced agriculture as adapted to our special needs. It is at the top of such institutions in the country, and many of its students are graduates of the provincial agricultural colleges."

Indigo Improvements.

"These agricultural schools are making valuable discoveries," continued Mr. Miller. "Take the indigo crop. This was once profitable, and we had a monopoly of the world's product. Then the German invented a patented coloring matter called synthetic indigo. It was made of chemicals, and could be sold more cheaply than our indigo. It was driving the Hindustan dye out of the markets when we discovered that by new methods of cultivation we could increase the yield so that we could compete with the Germans, and our planters are now making money. We had at one time competition from America. In your colony days you took to growing the plant and manufacturing the dye, but you soon found that other crops paid better, and the Indian production revived."

"What is the extent of the indigo farms?" I asked.

"They have fallen off considerably within the last twenty years. We had more than a million acres under cultivation ten years ago, and ten years before that about 2,000 square miles. These areas have been gradually reduced, until they are now not more than one-half the extent of a decade ago. Many of our planters are now resuming the business, and we have perhaps farms to the extent of 200,000 acres in Bengal alone."

Making New Cottons.

"Are you doing anything as to your cotton?"

"Yes. We are investigating the crop and studying our soils and climate conditions in connection with it. We raise, you know, a short staple cotton, and our farmers find it more profitable in the long run. We are trying to improve the staple by seed selection and by cross fertilization. It is difficult to persuade the farmers to make such experiments, although they are ready to take up anything that will pay. The cotton crop is one of our big money crops. The planters can always get a ready sale for it, and they raise it to supply the money needs of the family just as your people raise wheat, even though other things may yield better. At present we have something like 20,000 square miles under cotton. The demand for the product increases and we have a large export of our raw material to Japan and Germany. Much of that sent away belongs to our coarsest and shortest fibers. They are especially good for mixing with wool, and for that reason they bring better prices than cotton of a superior quality."

"Our cotton industry received a great impetus at the time of the civil war in America. Your cotton was then shut out of the market and the prices went sky high. This turned the attention to India's possibilities and experiment farms were established for improving the crop. The men put in charge of them came from England, and as a rule they were little better than gardeners. When the war was over and you again monopolized the market, these farms were taken over by the government and made experiment stations. Some of them are in existence today."

India Versus the United States.

"Will you ever compete largely with us as to cotton?"

"We are always competing, but I doubt whether we shall ever be able to seriously affect your cotton in the European markets. We profit when you have a short crop and we come next to you among the great cotton producers of the world. Our acreage, however, is limited, and we do not grow as much per acre as you do. A fairly good yield here is four hundred pounds of seed cotton. We usually raise 2,000,000 or 3,000,000 bales of 400 pounds each, and in some years we have raised almost 5,000,000."

"How do you grow cotton?"

"The planting is done by sowing the seed broadcast or drilling it in. We have machines which will drop two rows at a time. We first coat the seeds with a plaster of cow dung, mud and water. This covers the fuz, and they pass through the tubes without clogging. Our cotton is worked several times. The best of the farmers give the plants two weedings. The blossoms come forth along in October, and the lint is ready for picking in January. The picking season lasts until April."

"We are now raising some Egyptian cotton in the Sind, and are experimenting there also with American seed. Both kinds do well, but it is a question whether the American does not do better. The Sind has now about 200,000 acres under cotton; there are something like 2,000,000 acres in the native states, and about 5,000,000 are controlled by the government of Bombay."

The Wheat Crop of India.

"Tell me something about your wheat crop."

"We are increasing the area and our facilities for handling the crop. We have now something like 25,000,000 acres in wheat, and the greater part of that is in the northern part of the country and especially in the Punjab. Most of the wheat goes to Karachi for shipment to Europe. It is taken from the farms to the cars and shipped, without storage in elevators. Indeed, it is a question as to whether the elevator system is not what we need. That is a live question in India."

"How much does your wheat yield per acre?"

"On our irrigated lands we can raise from twenty to thirty bushels, but the crop must be carefully cultivated and manured, and it must be watered three or four times. We sow in October and harvest in March. In most localities it is reaped with sickles; it is thrashed with bullocks and winnowed in the wind. Much of the plowing is done with wooden plows, and altogether the cultivation is primitive.

"Our agricultural stations are now doing all they can to introduce modern machinery. They advise the use of iron plows and of reapers and thrashers. They show the farmers how to use such machines and encourage competitive trials on the part of the dealers in the different makes.

"We are also testing as to artificial manures. India produces but little barnyard fertilizer. The droppings of the cattle are used for fuel, and the average peasant gives almost nothing back to the soil. The stations are distributing leaflets describing improved farming and giving suggestions. Yet it is difficult to make the ryots, as our farmers are called, undertake any new methods or try new seeds."

Stock Farming.

"What are you doing to improve your stock," I asked.

"We have breeding establishments connected with some of the agricultural stations, and there is a breeding farm at the Phipps Agricultural college, of which I have spoken. Many of the provincial governments hold agricultural shows, prizes are given for the best bred animals, and of late dairy farms have been started under government provisions. The Bombay department established one some years ago, managed by experts from Sweden. There are also dairy farms in the United provinces, and little creameries, where milk is cheap. All dairy machinery is admitted free, and of late separators, churns and butter workers have been largely imported. Much of the cream goes by rail to the cities, and is there made into butter, which is sold fresh or put up in tins and shipped over India. The native butter, or ghi, is also made in large quantities, as well as some condensed milk. Much of our butter goes to Ceylon, while the ghi is exported to other countries for the Indian emigrants. Some of these dairies have been established on the military cantonment farms. They are under military control and they give our troops pure milk and butter."

Sacred Cows Poor Butter Makers.

"Are the sacred cows of India good milkers?"

"Not as a rule," was the reply. "Our cattle are raised chiefly for work, and the milk used by the natives comes largely from buffaloes. Some of our finest cattle are from the north, and especially from Rajputana. Mysore has some fine breeds, but the cows are poor milkers. There are also good cattle in Madras, and in Central India. One of the best milk breeds comes from the Gir hills and others are from the Sind, where they are owned by Mohammedans, who drive them in herds from one jungle pasture to another. The Punjab has good dairy cows, but those of Bengal are poor.

"We are having trouble in improving stock of this kind. The Hindoos look upon the cows as sacred, and keep them when they are maimed, old and worthless and give no return for the food they consume. This reduces the grazing for the younger animals. We have tried to improve the stock by distributing fine bulls to the district boards, but so far no valuable results have been reached. We find that the half-breed cattle are more subject to diseases, and we now have veterinary departments in each province. We have also government breeding farms stocked with cows and bulls of the pure native breeds. Upon one of these a thousand cows of one breed are maintained. In Mysore the best breed of cattle has long been kept up by the state.

"Have you many fine horses?"

"Our horse breeding is chiefly for the army. We have government farms, and several hundred stallions which are distributed to the districts where horses are bred. We find that the Arabs and thoroughbreds form the most desirable sires. We have also thousands of registered mares. Horse breeding is encouraged by prizes offered at fairs, and by the purchase of good stock by the government. We have altogether a million or so of horses and ponies in India. We are also breeding mules for military purposes and have something like 500 donkey stallions, many of which have been imported from Cyprus and Italy. We get them also from Spain, Persia and America. We have about 25,000 pony mares and a large number of donkey mares as well."

Opium and the Chinese Market.

Our conversation here turned to the efforts of China to abolish the use of opium, and I asked Mr. Miller whether this would not seriously affect poppy farming in India.

"Most assuredly it will," was the reply. "If China stops using the drug the greater part of our opium farms will be wiped out and we shall lose a large revenue. We have agreed to cut down our production and to restrict our importation to China if the Chinese government can show that it is really in earnest in abolishing the opium evil. As it is now we are getting a revenue of about $24,000,000 per annum out of opium. The loss of that sum will mean much to the government. It will also mean the cutting down of the government service, as we have a number of employes who control the crop and manufacture it for shipment abroad."

"How is the opium handled?"

"In British India it is a government monopoly and it is also raised in the native states. As to the product of the latter the government does not interfere, but it allows no opium to come into or pass through the British territories without payment of duty.

"The amount of land under such cultivation is comparatively small. In the British territories it is not more than 1,000 square miles, or about equal to your state of Rhode Island. The government decides what fields may be planted in poppies and restricts these to certain sections of Bengal and the United Provinces. The cultivators receive advances to enable them to prepare the ground and raise the poppies, but are bound to sell their whole crop to the official agents at the government's price. They send it to the factories, where it is prepared for the markets. It is then put up in chests and shipped to Calcutta, where there are auction sales monthly for export abroad."

India's Opium the Best.

"Why does China, which raises opium itself, take Indian opium?"

"Because our opium is the best of the world. We have one kind called Malwa, which brings in something like $5,000,000 a year. As to the Chinese, we have agreed to stop sending them opium if they will stop using the drug in the space of ten years. They must also stop raising opium. We have begun to carry out our part of the contract and are gradually reducing our manufacture and the areas planted. If the Chinese do not carry out their part of the contract we shall continue to export and produce."

"Is much opium consumed in India?"

"It is used in every province, although not to the extent of China. The consumption is highest in Assam, where it amounts to about seventeen pounds per 1,000. The United Provinces use something like five pounds per 1,000, and the people of southern India less. The drug is not smoked, but is usually taken in pills and sometimes is drunk dissolved in water."

FRANK G. CARPENTER.

Wide Variety of Practical Every-day Uses for Electricity

Seasoning Timber by Electricity.

IN A recent issue of the Timber Trade Journal, published in London, England, a new light on the problem of seasoning timber is thrown by the description of an electrical process, the invention of a Frenchman. The article descriptive of this method is as follows: Short cuts toward seasoning timber required for joinery and cabinet purposes have long been desiderata to the timber trade, both at home and abroad. The increasing use of drying kilns, especially in America, as a means of conditioning and seasoning lumber, is evidence of the modern-day desire to accelerate nature's somewhat tardy methods. It has been left to a Frenchman to devise a system which is certainly somewhat startling, judged by the canons of precedent. Still, we live to learn, and in these scientific days, as may be expected, the agency which is to revolutionize the tedious process of seasoning timber is electricity, the method being known as the Nodon-Brottonnean. The timber is nearly immersed in a tank of water containing 10 per cent of borax, 5 per cent of resin and a little carbonate of soda and rests on a lead plate connected with the positive pole of a dynamo. Another similar plate lying on the exposed surface of the timber is connected with the negative pole. Thus a current of electricity can be played around the wood, from which, it is said, all the sap appears to be removed, while the borax and resin take its place in the pores. In a few hours the timber is taken out and dried—by what means is not stated—and, hey presto, the seasoning is complete. Any of our readers who possess a dynamo for power or lighting purposes or who take a supply of electricity need not find the rest of the plant very difficult to obtain, and we shall be happy to record the results of the experiment. The quick conversion of the sappy parcel of Rio quality pitch pine deals or of some discolored archangel redwood into serviceable timber is something worth achieving.

When Great Inventions Went A-Begging.

Sixty-five years ago, on the first of April, Prof. Robert Morse, accompanied by his associates, stood before congress and offered to sell the patents on the electric telegraph for $100,000. After a long and bitter debate, congress appropriated $30,000 for the construction of a line between Washington and Baltimore in order that the merits of the invention might be fully tested.

It is recorded that President Polk thought the invention a good thing for the government to own, but the postmaster general, in a long report, gave as his opinion that the revenues could never be made to cover the expenditures in the telegraphing of messages. Today, in this country alone, the Morse systems are capitalized at $220,000,000.

But this little anecdote is seldom told by the officials of the Western Union Telegraph company, for it is a matter of history that Prof. Alexander Graham Bell offered to sell his telephone patents to the telegraph company for the paltry sum of $30,000, but the officials of that company only smiled and declared the invention a toy with no commercial value. Today there are more than five million telephones in use in this country earning $150,000,000 annually.

Photographs by Electricity.

An important improvement has recently been introduced into the methods of transmitting photographs by electricity, invented by M. Belin some three years ago. In this the photographic image which is to be reproduced is prepared in relief in the form of a negative, with bichromatized gelatine. This is rolled on a cylinder which is rotated evenly by clockwork, and the relief on it controls the strength of the current in the line, which in turn acts at the receiving station on a Blondel oscillograph. By this a beam of light is thrown more or less obliquely on a cylinder carrying sensitized paper and moving at the same speed as the transmitting cylinder. The relief on the negative being proportional to the intensity of the different parts of the photographic image, the latter should be reproduced at the receiving station. Mr. Belin's improvement relates to the transmitting arrangement. According to his old method the relief actuated a lever which governed a rheostat and thus varied the strength of the current. His new transmitter is really a microphone on which the higher portions of the negative press more or less strongly and thus instantaneously affect the current in the line. The microphone consists of a cylindrical box, with its bottom formed of a disc of carbon. On this rests a thin insulating washer which is pierced with three concentric rings of equidistant holes. In three of these holes (3mm. in diameter), chosen at the angles of an equilateral triangle, are placed three grains of carbon, 90mm. in diameter. A light metal arm, fixed to the top of this, carries a double point which works over the relief of the negative.

Test of New Apparatus.

The French liner Provence arrived in New York recently, having made a satisfactory test on the trip across the Atlantic of an apparatus which determines the direction of a ship or land station sendinf out wireless calls or messages. The novel appliances, called the Compas Azimutal Hertziennes, is the invention of two young officers of the Italian navy, Signors Bellini and Tosi, and steamships of the French line have been placed at their disposal for a year in order to perfect the delicate electrical apparatus. Captain Poncelet of the Provence, said that the use of the instrument would increase the safety of travel on the sea 100 per cent.

The electrical apparatus is connected to sixteen wires hung from spreaders aloft. The instrument adjusted, the placing of a telephone receiver to the ear of the operator and a slow turning of the arm of the circle of the compass and the faint tick of the ship or station in the distance may be heard. The index finger then points across the compass card to the exact direction of the sound.

The French government has equipped a station with this system at Boulogne, and while the Provence was less than half a day out from Havre is communicated with the Boulogne plant and got its exact bearings from it. Captain Poncelet said he believed the contrivance told the direction of a station or ship equipped with wireless within a point and that he believed collisions at sea between vessels fitted with such direction finders would be impossible in fog or shine. He looks on the system as likely to revolutionize transatlantic navigation, already made safe except in thick weather by the ordinary wireless, not to mention the submarine bell system.

Lighting Trains by Electricity.

To light a steam train, traveling at nearly sixty miles an hour, with electricity, would seem hardly possible, yet it is being done every day.

Electricity for use on a passenger train is made right on the train itself. Mounted on top of the huge locomotive boiler is a small Curtis steam turbine engine no larger than an ordinary train water cooler, taking steam from the main boiler, which swirls a small but powerful electric generator mounted on the same shaft with the moving parts of the turbine. This electricity is carried through the train by concealed wiring, where it is used for lighting purposes. Sometimes the Curtis train lighting set, as it is called, is located in one corner of the baggage car and connected to the locomotive boiler by a flexible pipe. The turbine set is so small that it takes up no more room than a large trunk and requires no attention whatever, once it is started, as it is designed to run automatically.

At first electric lighting for steam roads was only used on the largest and fastest through passenger trains, but now it is extending to the suburban lines. The Burlington suburban lines out of Chicago have been equipped with electric lights for some time, as well as other interurban steam lines about other large cities.

The greatest argument for electricity in train lighting is in the case of wrecks. With electricity, the instant the train is wrecked, the lights go out. But with gas or oil, the lamps continue to burn and in a few minutes the whole train is burning, preventing the work of rescuing the imprisoned passengers. A train equipped and piped for gas lighting is exceedingly dangerous in case of accident, for the flames have been known to follow the broken pipes through the train, setting fire to every coach and even causing disastrous explosions.

Telephones in Mines.

Telephone men say that within the next ten years every mine of importance in the country will be equipped with intercommunicating systems. Following the disaster at Cherry, says the New York Sun, the Illinois legislature passed a law requiring the installation of telephone systems in mines as a life-saving, precautionary measure, and the value of the law has been such that other states and mine owners are likely to fall in line. The apparatus manufacturers have been too busy getting the demands of the above-ground fields to study the needs of mines, and not until within the last year has there been any special effort to contrive apparatus that would overcome the difficulties. It is now believed that the former defects of telephone systems for mines have been remedied. The economy of time in communicating by telephone with the various foremen and superintendents and with the various parts of the mine makes a strong appeal to the mine owner, and the protection afforded by telephones through quick service in case of emergency, and the ability in case of a cavein to inform the rescuing parties of the exact location of the imprisoned miner, are self-evident. A number of lives might have been saved at the Cherry mine if the imprisoned men could have guided their rescuers. The telephone sets made for mine use are incased in cast-iron boxes with a hard enamel finish through which gases, moisture and acid fumes cannot penetrate. Some have the ringer in a separate box on the outside, but also protected. The door to the box is closed with a pin when the instrument is not in use. To make it waterproof a second door must be opened before the transmitter and other parts are accessible to the trouble men or inspector. The wires are brought in through pipes. The ringer armature and gongs are enclosed in a hood that protects them while it does not muffle the sound. Special treatment is given to pieces of wire exposed. The metal parts, such as gong posts and bells, are zinc and copper plated, and the screws are of brass, reducing rust and corrosion to a minimum.

Palatial Roost for Birds.

Approximately $250,000 of the estate of Thomas J. Emery, who was by far the largest realty owner in Cincinnati, has been set aside by his widow, Mrs. Mary Emery, for the founding and perpetuation of a home for birds. Mrs. Emery has completed the purchase of a tract of land in Evanswood Place of about two acres and has signified her intention of turning it over to the care of the department of biology in the University of Cincinnati. This ground is to be built up with different kinds of houses where the feathery tribe can be sheltered. It will be made secure against the invasion of cattle and small boys, and there will be housed there possibly 100 different kinds of birds and their several species. In addition to this there will be houses for the birds of mixed "nationality" and places where these may be studied in their different classes and under different conditions.

All the work of this gigantic bird colony is to be done under the direction of Assistant Prof. H. M. Benedict of the department of biology of the University of Cincinnati. He says that this has been for many years a kind of meeting place for the birds of Cincinnati and that thousands of them have gone there to rest and to eat. He says he will arrange a place where they can rest undisturbed by passers by.

"We are in a new field as yet," said Prof. Benedict. "We must study the best way to teach birds to congregate and nest in a locality where they are safe. The action of Mrs. Emery was the first of its kind to my knowledge in the world and will have a decided effect in aiding other communities. It will be known as 'The Mary Emery Bird Preserve' and we will take special delight in showing it to all the people who care to see it when it is finally arranged."

Mrs. Emery and her husband were both great lovers of birds.—Cincinnati Enquirer.