I would like to start this brief meditation with words that have been much in my mind since a friend of mine, who had recently experienced much of the evil of this world, and saw little hope in the immediate future, used them to express his attitude. They are the words of the three friends in Daniel 3: 17, 18.

"If it be so, our God whom we serve is able to deliver us from the burning fiery furnace; and he will deliver us out of thy hand, O King. But if not, be it known unto thee, O King, that we will not serve thy god, not worship the golden image which thou hast set up." Those brave words "but if not" express the determination of men to keep the integrity of their souls whatever the outward circumstances may be. It is an attitude that we must all admire, and at times it seems the only policy, as to-day in Germany where the pastors of the Confessional Church see little chance of deliverance in the immediate future, and yet feel they must bear witness to the ultimate supremacy of God over the human soul.

Yet while we admire we do not feel satisfied that these verses express the full and complete Christian attitude; endurance of evil is good but it is not enough, nor is the preservation of the integrity of one's own soul; the suffering must be creative, it must in some way help forward the Kingdom of God. The Christian must surely be able to say with Paul—whatever the outward circumstances may be that "to them that love God all things work together for good".

But those words also seem at times to ring not quite true, to savour of an unreal optimism. As we look at the world to-day and see the sufferings and the terrible helplessness of many good Christians, it seems hard to accept these words as being in any way a picture of reality; still further are we from the optimism expressed in the words "God's in His heaven, all's right with the world". God may be in His heaven but certainly all is not right with the world.

And yet to be completely overwhelmed by the evil, to see no ray of light in the future surely is not right though with myself I find it hard to differentiate sometimes between what is legitimate optimism, and what is a tendency to evade facing the evils squarely and fully by taking refuge in a hope which is mere wish-fulfillment.

The note of hope runs consistently throughout the New
Testament under all circumstances. What is the legitimate ground for hope in the world to-day, so that however black the present, we can look forward with confidence to the day when through that very suffering and evil, God and his purposes will triumph.

One answer of the Christian as to what is the legitimate ground of his hope, is of course that he believes in a Living God who is behind His purposes, and cannot ultimately be defeated. But I want just now to stress rather the necessary condition on the human side if in any given situation the will of God is to triumph. I think it is clear that we can only legitimately hope, if the suffering in the situation is absolutely real, and costs all that a man has. I do not think it is a harsh judgment to say that many Christians and Christian groups are relatively ineffective to-day, because they have the optimism of the New Testament without having gone through the suffering. We sometimes wonder where the sacrifice for the Christian comes in, when he is getting something so much greater than what he is giving up. One possible answer is that he does not know what he is getting; faith is never the same as proof. When the sacrifice is made, the Cross taken, the faith, (always an insight which is beyond our grasp the whole time) burns low, and the present suffering is far more real than the future triumph; in fact one cannot even be sure that there will be a future triumph at all. It was in such a mood that Jesus faced the Cross; He did not know, He did not see clearly; and His cry on the Cross "My God, My God, why hast Thou forsaken me?" indicated to what an extent the forces of evil and the fact of suffering has severed Him from the ultimate ground of His faith and hope - His trust in God - so that for the moment He lost it altogether. This means that at one time in the development of the Christian life, we too have to be prepared to act almost, though not quite, as the three friends did, doing what is right even if we do not see what the consequences will be.

The Christians of the first century, who made such a tremendous impact on the Roman world were most of them men and women who had stripped themselves of all that they had valued in the past in order to become Christians—old traditions, convictions and prejudices, sometimes economic security, often pride of race and nation; and then the leader that they followed - who could have been proud of following such a leader? To-day the long history of Christianity has made of Jesus a figure crowned with reverence and tradition - we can sing

"In the Cross of Christ I glory,
    Towering o'er the wrecks of time
All the light of sacred story
    Gathers round its head sublime."
But the cross of that day was simply the sign of a convicted criminal, and who could glory in following such a one? And the Resurrection, which took away the sting of the Cross for the Christian who believed, was then, as it is to-day, merely an unlikely tale invented by credulous disciples for the outside world. Those Christians were Christians in truth, and not for any ulterior motives.

Think of all that Paul stripped himself of to become a Christian - of pride of race - of pride of religion - of pride of learning. Of what in comparison have we stripped ourselves of to-day - of what has the Church stripped itself? For I am sure that the Cross must be a recurring experience in the life of the individual and the Church if the Kingdom of God is to go forward. I sometimes ask myself how much I have given? I have left home to come out here, but I expect to go back again from time to time. Would I have come if it meant never seeing my family again, as it does with the Catholics? I rather doubt it. Have I stripped myself of pride of race? I rather think not. I was rather appalled to find that the threat of war in England moved me more than the war in China, and when I came to think about it, I realised that through all the turmoil and chaos in China my mind rested upon the security and order in England; that while I repudiated much in her policy, I yet was very deeply rooted in her power, and took much more real satisfaction in being the citizen of a great nation than I really believe to be right or justifiable. Or to put it rather crudely my faith in this life was far more in England than in God, so that when England was threatened, the very roots of my being were disturbed. What about other Christians, are they willing to renounce their national and economic security rather than to obtain it by methods which, to say the least of it, are open to question from a Christian point of view? How many of us are willing to risk not only their own, but their family’s security for the maintenance of truth and Christianity? How many of us are willing to be called and to look fools because we cannot see what will be the outcome of walking the way of the Cross? Very few, if any, and yet that is surely what is asked of us.

For the word of the Cross is to them that perish foolishness; in a Europe distracted by fear of war to urge England to disarm, is that the way to save the situation? No, we must prepare to defend ourselves as bravely as the Germans do their way of life. That seems to me a good policy, far better than that of re-arming and yet giving way, but it is not the policy of Christ. He neither armed nor gave way, he suffered and triumphed. And that it seems to me is what His followers must do.

Why is the suffering that Christ asks so much harder
to give than the suffering that the nations are asking of their citizens and receiving. I would mention just two points. In the first place if your nation calls upon you to fight, you hope that you will not be killed, that you and your country will have the glory not the suffering; when you suffer for Christ and a principle, the suffering is certain, it is the unescapable price that all must pay. In the second place when we are called upon to suffer for our country, everything is done by mass appeals and mass meetings to rouse the individual to a frenzy of enthusiasm, and he suffers with the group; suffering for Christ must be done in cold-blood and individually - you will be separated from your friends, you will have to depend on your inner spiritual resources, and that is much harder.

But no suffering that we can be called upon to endure can be as hard as that which Jesus bore, since He walked the way alone and for the first time; we have His companionship and the hope of His Resurrection.

I am sure it is in going that way of the Cross to-day, with all that means of the renunciation of national pride, economic security and whatever else we cling to rather than God and his love which will mean that the Church and the individual can be re-born and have sufficient strength to redeem the world. Are we willing to pay the price?

(Notes from a sermon preached at Hart College, Chengtu)

A PRAYER

We pray Thee to-day for thine own strong courage. Give us courage to combat Thy enemies and to suffer in Thy cause. Spur us this day to challenge the grim realities of pain, disease, injustice and sin, and by gallant service to conquer these Thy foes. Amen.

(Oldham - Devotional Diary)

CHINA’S RURAL CHALLENGE TO ALL CHRISTIAN FORCES.

For nearly eighteen months large areas of China have been the scene of aggressive warfare, and now one third of China’s great countryside has been trampled on by retreating Chinese armies offering opposition to any invading army, while the latter devastates cities, towns, villages and open-country as it advances like a cruel juggernaut further and further inland. More than one third of China’s rural population has already experienced the merciless and barbarous cruelties of modern warfare, while the remaining two thirds,
some of whose homes are being encroached on during these anxious days, are being called upon to make extra-ordinary efforts to produce more food for their gallant soldiers, and the hundreds of millions in the remainder of the country where the spirit of determination, and the will to do, is not daunted with the recent losses of Hankow, Canton and Changsha.

It is exceedingly difficult to portray adequately the actual rural-life conditions of the farmers and their families on the farms, who try to make China more self-sufficient than any other country in the world, and of the village folks, who act as service centres for the teeming multitudes. Chinese farmers and the villagers have worked out a life of close co-operation. In general, the farmer purchases his salt and his vegetable oil for cooking, meats and other delicacies with which to enrich his diet on festive occasions, his luxuries like wine and tobacco, his wearing apparel for weddings and funerals, from the village service centre. At the village market or country town the farmer sells his surplus rice, corn, wheat and other numerous products from the variety crops where he utilizes his labour through-out the growing season.

Chinese agriculture is really a puzzle to agricultural economists, who find Chinese agriculture almost as different from European agriculture as is Chinese civilization from European civilization. Cheap labour and high land values means that land which in other countries might be marginal for farming, or used for pasture or forests, is actually used for farming purposes in most parts of China. Fragmentation of land into tiny fields or patches, using up land in boundaries, limiting the size of fields, determines farms of microscopic size and puts farm business on a comparatively minute scale. Behind this picture, millions of people are compelled to live on marginal lands - which means marginal homes, marginal schools, marginal religious institutions, and practically all of life's activities lived on a marginal basis. In villages and open country we see "relative poverty", and marvel at the microscopic empirical economics which enables so many millions of people to live on what seems like the indivisible family income. Their system of economics and monthly budget reminds one of a delicate piece of laboratory apparatus - which must be handled with exceeding great care for fear of collapsing. So when one once begins to allocate the actual cash income into the various items for family living, one realizes how near millions of families are to the border line of mere existence.

We of the west have been thinking so largely in terms of "maximum production and maximum efficiency," that we would find it very difficult to understand the conditions
of life in either the family or village organization, where the whole mental attitude and community activities are based on terms of "minimum production and minimum efficiency." It has been stated again and again, that, approximately 85% of the people of China are dependent on agriculture and allied home and village industries for their livelihood. Eighty five percent of 450 million humans in the "Land of the Blue Gowu," are engaged in producing on their small farms and marginal lands, food for the 100%, while in Canada 25% of of the farmers produce enough for the 100%, and have a big surplus annually for sale.

For years, long before the Jerusalem Conference of 1928, here and there on many mission fields, there were missionaries who were actively engaged in exploring new avenues through which missionaries could relate the church’s programme to the outstanding needs of the people in the countries where they lived. Agricultural Missions are now organized to effectively take scientific agricultural practices to the farms, and to assist the families in the solution of the economic, social and right-living needs.

New movements and organizations launched in China during the last decade indicate the trend in national needs, and these imperative needs are a direct challenge to the Christian forces. These are Mass education, rural reconstruction, co-operatives, adult education, rural leaders’ training schools, schools for training mid-wives, and many other phases for education in addition to the determined effort of the National government to provide academic education for a gradually increasing number of boys and girls each year. One of China’s insistent needs amongst these millions of country folks is the interpretation of religion in terms of service and the attachment of religion’s enormous driving power to the tasks of individual and community service.

There comes a time to movements and people when their environment presents a more friendly face than heretofore. The time has already dawned for the Christian forces in China. At no time in the history of missions in China have the Christians felt the positive stimuli of implicit invitations to a wider relationship with the Chinese people than they have during the last year.

At the present time, Chinese agencies - local, provincial and national are offering opportunities and appealing to the Christian forces to join them in co-operative movements for the welfare of the whole nation. In addition to the will for co-operation, financial resources are being made available to make possible more effective the work which can be done. It is well for us to get the real meaning of this, for we see that China is no longer just permitting Christian forces to function within her boundaries, but she is inviting Christians
to help do those things which both want, the rebuilding of character and human welfare. These invitations to closer co-operation in national reconstruction have not sprung up suddenly due to any national crisis, but rather have they been gradually growing out of the "Line upon line, and precept upon precept" deposits of several decades of persistent work for the good of the Chinese people. Surely these put together make a new and convincing challenge to the Christian church. While most missionary societies have concentrated their personnel in large cities and towns, it is becoming increasingly clear that the greatest latent resources of the Christian church 'in the making,' in China, are at present in the rural areas. A new chapter has begun on the part of foreign missions for those to whom the gospel is preached. Missionaries and native workers must show an interest in the whole of life and in the elevation of its quality. As expressed in the New Testament, the establishment of the kingdom of God among peoples embraces all normal everyday activities from birth to the grave. Progress for the individual and for the nation lies in the process of achieving levels of health, knowledge, righteousness, wealth, and appreciation of all life, for an ever increasing number of the population. All these challenges are opportunities to project religious living into wider circles of life in China, a service to the whole of life. It promises to tie up the remaking of people more closely with the remaking of life in general.

To make known its faith is the intrinsic task of the church itself; to project that faith into the community's life must be a co-operative enterprise. In many quarters Christianity is recognized as a force indispensable to China's reconstructive aims, and the aid of Christianity is being sought in many organizations and in an increasingly large number of places, and these and many more pressing invitations present The Challenge of Rural China to the Christian Forces of the World, who are prepared to share and cooperate in mutual services.

The church and her forces facing this colossal challenge at the time of China's greatest national crisis in her four thousand years of history, must hold that efforts for social-direction, a planned society, a higher standard of living, are futile unless the fundamental values of human life are made clear and are firmly established as the true goals of economic planning, social welfare, political leadership and any other aspect of human endeavour. If religion has the place that we claim for it, if the teachings of Christ are really the essential gospel to humankind, if the church is to be the most effective incarnation of Christian principles, then logically the church can be the great integrating force in a planned society. The church can achieve this command of the situation not because it becomes an authority in the technique
of economics or politics, but because it sets up the adequate goals for the application of this technique and consistently evaluates human progress in terms of human well being.

Can the Christian forces set before the two great groups of Chinese—those living in the areas occupied by the invader, and those still living under their own flag—in these days of previously unknown opportunities, those objectives of working towards;—

A better chance for each person to develop his full personality,
A family and community life that satisfies the deepest needs of farm and village people,
A greatly improved country-life, with its economic, social and political implications,
A permanent agriculture without a peasant type of living,
A fair deal and a properly functioning co-operation between city and rural interests,
A planned agriculture and country life so that more of the good things of life may be shared in the hearts and minds of China’s vast rural population?

This is the Challenge

The ills and ailments of village life are legion. But there are these splendid qualities of Simplicity of Life, Love of the Soil, Spirit of Independence, Spirit of Industry, Cooperative Spirit, and the Need of, or Dependence on God that should be retained and cultivated. The first four are perhaps more individualistic, the fifth has to do with one’s neighbor-love for one’s fellow man, and the sixth indicates one’s relationship to God—love for the Creator and Preserver. But all are most essential to the full and rounded development of wholesome and abundant village life. They can easily be preserved and developed in all our efforts at rural reconstruction. In fact, all these qualities are so essential that without their growth and fruitage, rural life will be very barren. Conserving and utilizing them will doubtless introduce the Kingdom of God to Reconstructed Rural India.

John L. Goheen in News and Views on Rural Reconstruction, Sangli, India

THE MILK OF GOATS FOR HUMAN CONSUMPTION IN CHINA.

Europeans and Chinese alike, and particularly those living in large cities like Chungking, Chengtu, Kunming and Kweiyang are being impressed with the greatly increased prices of canned milk, cream, powdered milk and cheese, and the growing scarcity of fresh milk which can be produced by the available cattle now being used for dairy purposes. Chengtu community has had another shock during November, as rinderpest has started to carry off numbers of native and improved dairy cattle. The total result is that there is something like a state of famine with regard to fresh milk, and practically none of the canned milk products available
in the stores, even at greatly exhorbitant prices. Scarcity of milk for children and butter for the table, has raised the question of raising goats for milk.

In Chengtu, by far the greater bulk of fresh cows' milk produced is consumed by Chinese families, according to a recent survey made by the West China Union University. Chinese are being educated to the value of milk as part of the diet of children and invalids, and this is helping to swell the demand for fresh milk.

The writer would like to suggest that Goats' Milk is one of the sources that should be marshalled in these days of dire need, and a definite programme of utilizing this important food should be set going, and kept going when the war is over. It may be started as a war measure, but, the feeding, care and management of dairy goats should be one of the important things to carry on with increasing tensity for the welfare of infants, invalids and adults even after the war is over. While this may be a comparatively new innovation for Western China, we know that goats have been kept for milk production in many countries bordering the Mediterranean, other parts of continental Europe, as well as in many other countries. Switzerland, with an area of only 16,000 square miles, supports close to one half million goats, where it has been estimated that the value of the milk from these animals totals over eight million dollars (gold) annually.

In spite of the fact that the goat has been domesticated in China for thousands of years, it is strange that the value of milk as a food has never been seriously established by the people of Szechuan. In Western China the goat has been kept chiefly for its hide and meat, the hide being the most important for cash returns.

There is a growing realization in many parts of the world, and among a very wide group of people including the medical profession, that the milk of the goat has a special quality and a value different from that of the milk of the cow.

The quantity of milk that can be drawn from a goat naturally depends upon the breeding of the animal. It is well for those who are looking for goats to supply their needs of milk, to purchase goats with big frames, big udders, and teats that can be handled easily. The writer would suggest that goats well along in pregnancy would probably be the better animals to purchase on a chance that they would be much better to train, than those that already have kids.

In the great majority of cases goats' milk cannot be distinguished from the very best cows' milk, except the colour is whiter. There is a common prejudice built up against the milk of the goat, but this is largely due to the fact that the care of the goat has been neglected, and worst of all the buck or "billy" goat has been kept with or near the does. A
carefully kept doe, which is groomed every day, is absolutely free from the objectionable odour, even more so that the cow. But this is not true of the 'billy', and especially in the breeding season. The odour of the buck, or of unclean quarters is promptly absorbed by the milk, and gives the milk such an unpleasant taste that many persons are sure they could never use the milk for human consumption. However, this unfortunate prejudice can usually be dispelled by one glassful of sweet, clean rich milk from a goat that is properly handled and cared for. It is interesting to note that the milk of the common goat usually tests fairly high in butter fat, although the cream does not 'rise' as quickly or even as well as does the milk of the cow.

The following table illustrates the approximate comparison of milk - from the goat, cow and human.

<table>
<thead>
<tr>
<th></th>
<th>Goat</th>
<th>Cow</th>
<th>Human</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casein</td>
<td>4.06%</td>
<td>4.48%</td>
<td>1.52%</td>
</tr>
<tr>
<td>Butterfat</td>
<td>5.14</td>
<td>3.13</td>
<td>3.65</td>
</tr>
<tr>
<td>Sugar</td>
<td>5.28</td>
<td>4.77</td>
<td>6.50</td>
</tr>
<tr>
<td>Salts</td>
<td>0.58</td>
<td>0.60</td>
<td>0.45</td>
</tr>
<tr>
<td>Total solids not fat</td>
<td>15.06</td>
<td>12.98</td>
<td>12.02</td>
</tr>
<tr>
<td>Water</td>
<td>84.94</td>
<td>87.02</td>
<td>87.98</td>
</tr>
</tbody>
</table>

Other tests would give all the above figures a little different, but, the comparative figures should be interesting and instructive to those who are trying to solve the problem of milk for humans in Szechuan.

Extensive studies have been made in different parts of the world, and it is claimed that the goat is practically immune from tuberculosis. There are a growing number of large hospitals in many parts of the world who daily use large quantities of goats' milk for their tubercular patients.

On the whole the feed required by goats is of the same nature as that for dairy cattle, and whenever possible they should be provided with a place to browse. The goat is frequently looked on as an animal that will consume any rubbish dignified by the name of feed, and though they do utilize much that would otherwise be wasted, they cannot act as scavengers and produce profitable yields of milk. There is considerable difference of opinion as to the number of goats that can be kept on the feed required for one cow, but, probably not more than six or seven can be supported on the same amount of roughage and concentrates. Wheat bran, cracked corn, ground barley, and oats if available might form the basis of feed in West China. Availability of different grains would be the deciding factor in what makes up the ration.

The following brief statements by members of the medical profession, will I trust help to convince the wavering and fearful.
"It is conceded by all who have made a careful study of the subject that goats' milk is the nearest in chemical and physical composition to mothers' milk."

Dr. Carl G. Wilson.

"I am satisfied that the more extended use of goats' milk in the feeding of infants would be followed by healthier children and a greater decrease of disorders due to tubere bacilli."

Dr. R. E. McNamara.

"We have been using goats' milk in the artificial feeding of infants and as food for invalids, both in hospital and private practise. We have kept accurate records of our cases, and therefore feel we are in a position to speak with some authority with regard to the use of goats' milk. Some of the more noticeable features in their development were: Exceptional muscle tone, as evidenced by the firm feel of muscles, as well as by the remarkable activity of these babies as compared with those who were being reared on other artificial foods; the beautiful clear pink complexions and happy dispositions, all of which indicated perfect physical, and hence mental well being."

Dr. Verdo B. Gregory.

Kids should never be allowed to nurse their mothers; they should be taken away from their mothers as soon as dropped. They should receive the colostrum or first milk from their mothers, not direct from the teat, but by milking the goat and feeding the kids from a baby bottle and teat, the same as a human baby is fed. Kids should be fed from five to six times daily at least for two weeks, and then gradually reduced to three times a day.

The undersigned will be glad to answer by mail any questions dealing with this problem of using the native Chinese goat for milk, for it is impossible to go into complete details on such a large subject as milch goat raising.

Frank Dickinson.

**MUTTON RAMIKINS**

Chop finely enough mutton left from the preceding evening to fill two c. Make 1 cup brown gravy (2T butter, 2T flour, browned 1 cup liquid), add 1 t chopped mint, simmer a minute, and add the chopped meat and the yolk of egg, beaten well. Then cut and fold in the white, beaten stiff, turned into buttered ramikins and bake, set in a pan of cold water. Heat thoroughly, pour over toast and serve.

The teacher was giving his class a lecture on charity. "Wil­lie," he said, "if I saw a boy beating a goat and stopped him from doing so, what virtue would I be showing?" Willie: "Brotherly love."
The 15 here refers to mature cows, and the 8 to eight heifers bred or of breedable age. (Since this survey was made, one of the eight heifers has calved and gone into the milking stalls. She gave birth to a bull calf that weighed seventy-two pounds. The circumference of her udder, the day before she calved measured five feet (English). Already this newly freshened heifer has given 56 tea-cups of milk in one day, and we expect her to improve a little on this before another week.)

F. Dickinson and John Liu.
The domestic cattle of the world are probably descended from one parent stock, but variation began at a very early period. Through ancient sculptures, drawings and other historical records cattle can be traced back at least four thousand years, and the earliest evidence shows that animals of different types were then known. In various parts of the world there are now cattle so distinct in their characteristics as to justify their claim to be regarded as separate breeds, and these breeds exceed one hundred in number.

In the early history of these cattle natural causes tended to divide them into two general classes; first, those adapted to the more mountainous and less fertile sections of a country, and second, those of the plains and richer regions. The former, owing to greater scarcity of food and more difficulty in obtaining it, were smaller, more rugged and rougher in type than the better-fed animals of the latter class. Later, breeding and artificial conditions together with natural causes, resulted in additional variations among cattle, and led to distinctions which became fixed in different breeds. The chief characteristics resulting from man's scientific breeding and control were to be seen, first, in a tendency of the animals to mature at an early age and easily to lay on flesh and fat; and, secondly, in prolonging the natural period of milk flow and increasing the milk production—much beyond the needs of the calf. Through better breeding of dairy cattle, which is the using of bulls from the best type cows that are heavy producers, we have moved from the cow which gave only enough milk at one lactation period to suckle her young—probably not more than one thousand pounds during the full lactation period, to the modern cow that has actually given 38,000 lbs of milk in one lactation period covering 365 days. In other words, there are dairy cattle in many countries of the world which are now giving more milk in one week, than breeds that have not been improved give in a whole lactation period of several months.

The rapidly increasing demand for fresh milk in a large number of cities in Szechuan, together with the extraordinary prices that are being paid for native and improved milch cows, indicate, that it would be very much in the interests of the Chinese dairymen to begin as early as possible to improve the native stock, first by selecting the very best native cows, and secondly breeding these animals to bulls from heavy milk producing cows.
The best way to improve the native cows of Szechuan is to use pure-bred bulls of known ancestry - sons of high milk producing parents, definite records of whose ancestry have been kept for several generations. Due to the scarcity of pure-bred bulls now available in Szechuan, the writers feel that it would be in the interest of cattle improvement, as a first step in improvement schemes, if good grade bulls, carrying purebred blood in their veins, were used in certain areas where there are concentrated larger numbers of native cattle. Such a move would be laying the foundations for better and quicker results as soon as a larger number of pure-bred bulls were available.

If "like begets like or the likeness of some near ancestor," then it is essential that definite steps should be taken in Szechuan to place better bulls in specified centres for breeding purposes, and that the careless, non-scientific use of native bulls should be gradually reduced and eventually eliminated. Not only would the use of pure-bred bulls of the Holstein, Shorthorn, Ayreshire and Jersey breeds, in service to the native Szechuan animals, improve the breed in the production of more milk, but there would result a bigger animal, more power for work either on the farm or as beasts of burden, more meat, bigger hides, and greatly increased value of the stock to the farmers on the low-lying hills who could carry on their breeding with a view to selling thier best heifers to dairy-men in the cities where the sale of fresh milk is rapidly becoming bigger business. The breeding of better bulls would bring a larger income into the sum total of the animal industry in the province.

A recent survey of the dairy cattle population of Chengtu and environs indicates that the dairy business, which is chiefly the sale of fresh milk on a tea-cup basis, is a business which has grown considerably during the last fifteen years. 63.26% of the families engaged in the dairy business live in rather a limited area between the south and east gates in the suburbs of the city, and keep 58.49% of the mature dairy cattle used for producing fresh milk for the market.

The survey has revealed a few very interesting features in dairy cattle improvement. In spite of the fact that there has been no high-powered attempt to educate budding dairymen in the scientific facts of better breeding, by the use two imported pure-bred bulls, the first in 1924, and the second in 1924, improvement has gone ahead.Probably the most convincing piece of education has come by way of the first purebred bull's stock where first generation improved mature cows are being credited with producing twenty to thirty pounds of milk daily, while the best their dams could do would be seven to eight pounds a day. The value of these improved cows and heifers, demonstrating greatly improved
ability to produce so much more milk daily, and with longer lactation periods, is seen by the prices that have been paid by Chinese dairymen for outstanding animals. Quite a number of improved cows have changed Chinese hands during the early autumn at prices ranging from $250 to $650. These prices, compared with the prices paid for native cows when dairy cattle improvement started fourteen years ago, seem fabulous. While the mature native cows now being used for milk production exceed the improved cows in number by 73.88%, the chart reveals that the young improved heifers now being raised to take their places in the stalls hold the lead over local native heifers by 90%.

The study shows, for the first time in the history of milk production in Chengtu, that a dairy with considerable capital has set up business, and has purchased only improved stock for milk production. These and other trends suggest to the writer that the time has come for something more concrete in the way of organizing co-operative bull associations for dairy cattle improvement. The "Better Sire" is the foundation of dairy cattle improvement. Properly organized, the whole cow population of Chengtu can be improved year by year. The cost of milk production can be reduced and the value of dairy cattle increased. Experimental results during the last fifteen years show that milk production can be improved by the use of high class dairy sires 50 to 150 percent. Having eliminated all native bulls from service in the Chengtu area, not by any government order, but by the sheer empirical demonstration that blood counts, the next move is to organize and have only pure-bred bulls, from the best type cows that are heavy producers, for all services in the Chengtu city area. What is needed in Chengtu is a definite plan and organization to secure the maximum results from breeding purebred bulls to the largest number of improved cows and heifers, or to native cows, and the gradual elimination of the few improved bulls now in service in the Chengtu area. Fewer bulls will require less feed and care. A well organized bull association in Chengtu could be the pattern for other improvement associations in other parts of the province. The inspiration and enlightenment which comes from the organization of a co-operative bull association would have its own influence on improving other phases of agriculture. Greater interest would be taken in feeding, care and management of cattle as well as in disease control. A greater confidence grows up between dairymen, and even the social side of the community is improved - in addition to the economic side.

F. Dickinson and John Liu.
GEOGRAPHY AND AGRICULTURE OF SZECHWAN.

III Farming; The Present.

There are two outstanding facts in Szechwan agriculture: one, the high fertility of the Province, excluding its mountainous fringes; two, the great diversity of its crops and agricultural products. Practically every crop and economic tree grown in China can be found in Szechwan.

The high general fertility is evident in the fact that the average crop yield for the Province is 8% above the average for all China: for wheat, which is here, of course, a winter crop harvested in spring, the mean yield is 23 bushels per acre, and for rice it is 75 bushels per acre. The production of food per head of farm population is much higher than that of any other province in China. That this is so in spite of the poverty of the mountain land, is due to the inherent richness of the Red Basin (which was explained in the previous article) and to the relatively high level of productivity to which the Chengtu Plain and other alluvial soils have been brought by irrigation and manuring. And, of course, the mild winter climate also plays its part, making it possible to grow the summer crops of colder countries as winter crops in Szechwan.

This very productivity of the province encourages a high population on the land, and if the weather betrays the farmer, as for example, by a dry spell in the spring, when water is needed for rice transplantering, a famine may result because of the pressure of population on the scanty stocks of stored food. These famines are not usually so devastating, however, as those of North China, because it is not so long before alternative crops can be grown.

In the higher hills and among the mountains, where soils are poor, winters are more severe, and little rice can be planted, farming is very different from that in the Red Basin. The farmers here have a hard struggle for a bare existence, illustrated by the wretched huts of corn-stalks and straw in which they live; the land is "marginal" and in times of crop failure, whether due to drought or disease, much of it is abandoned. Then banditry ensues, if it is not already endemic, and the re-settlement of the land becomes a problem of extreme difficulty.

The diversity of cropping in the province cannot be shown better than by listing the more important or more interesting crops. The chief winter crops are wheat, barley, field peas, broad beans and rape seed (for oil); the chief summer crops are rice, maize, sweet potatoes, and soy beans.
Other cereals, including kaoliang, millet, oats, and buckwheat, are also grown; likewise many sorts of beans and other legumes, not excluding peanuts, to the number almost of the proverbial "fifty-seven varieties." The fibre plants are cotton, hemp, ramie (or China grass), palm (for ropes) and bamboo (for ropes and paper). Miscellaneous crops include sugar cane, tobacco, sesame (for oil), peppers, Irish potatoes, and countless other vegetables - many of them so completely unknown abroad that they have no English name. Drugs and medicines are produced in and near the western mountains. Tree fruits are abundant, especially different kinds of citrus, and also apples, pears, peaches, apricots, cherries, persimmons, the so-called "olive" (no relation of the Mediterranean oil-olive), walnuts, and some lichees and lung-yu. Small fruits are also grown, including grapes and strawberries. The chief economic trees, excluding those used for timber and firewood, are tung oil, mulberry (for silk culture) and the tea-bush. There are also such less important but not less interesting trees as those producing "soap" pods, vegetable tallow, varnish, and white wax.

The white wax industry is such a strange one that it deserves especial description. It illustrates a parasitic life-cycle which reminds one, in its complexity, of that of one of the more ingenious and less desirable parasitic worms: but here man is the voluntary, and literal, "carrier" of the organism. The scale insect which secretes the wax occurs naturally as a pest of privet trees in the southwest of the old province, around Ningyuan or Sichang. Here the egg masses of the insects are collected in early spring, rolled in leaves, and brought by porter to the Omeihsien district. The porters travel night and day so as to get the eggs to their destination before they hatch: the distance is something like one hundred and fifty miles. When they arrive the little bundles of eggs are tied to the young branches of a common species of ash which is grown as a pollard tree around Omei, and the emerged scale insects attack the branches, producing a furry coating of small, white fibres of wax. At the end of the summer the branches are cut off; they are steamed to remove and collect the wax; and next year the whole cycle has to be repeated over again.

Although many of the crops and trees are widely distributed in the province, there is a tendency for certain ones to predominate in certain areas. For this reason the provincial authorities distinguish the following regions; (1) tung oil and rice, in the east and east-centre of the province; (2) rice and mixed food-crops (especially wheat and maize) in the north and north-east; (3) sweet potatoes, rice and cotton, in the centre and south-east; (4) rice, on the Chengtu plain and adjoining hsien; (5) rice, wheat and
maize in the mid-west and south-west; (6) maize, in the far west and the mid-north-west; (7) grassland, in the far north-west.

Were there space, it would be interesting to trace the relationships between these distributions and such factors as climate, land form, altitude, soil, transport, and - not least- local custom. One may point out, for example, that cotton requires not only a warm summer but a dry autumn, and these are best found in the centre of the province. The grasslands of the far north-west occur on the high plateau, beyond the ‘rain-screen’ mountains, where the climate is too dry and the winters too cold for forestry or ordinary cultivation.

Of other crops, not mentioned in the regional types, barley is commonest in the mountainous fringe to west and north; rape-seed is grown chiefly on rich, alluvial or paddy soils like the Chengtu Plain; sugar cane is localised along the alluvial and hillside soils of the T'o Kiang (also known as ‘River of Gold and Sugar’), and the Min Kiang near Suifu; kaoliang, although widely distributed, is only really dominant north and west of Chungking, where in some places it completely displaces maize; Irish potatoes are found in the higher hills and mountains of the province, usually on acid, sandy soils; peanuts and tobacco are both found on alluvial soils too light to grow rice. Citrus fruits occur usually on upland soils alongside rivers and near cities (probably for reasons of transport); tea is grown in several localities among the western mountains, notably at Yachow (which is outside the new provincial boundary); varnish trees also occur in the western mountains, usually at a rather high level; wax trees are almost restricted to Omei and Kiakiang hsien; mulberry trees are mostly located around Kiakiang, Nanchung, and Sichung, and near Chungking. Sericulture was formerly more widely spread, but many mulberry trees were cut down when the price of silk slumped seven or eight years ago. Bamboos for paper-making are generally found on the upper slopes of high hills or mountains. There are few real forests left in the province, except in far-off valleys of the western mountains, but there has been a good deal of unsystematic tree-planting in various parts of the Red Basin, notably south of Kiating.

There is quite a large number of animals in the province, but very little animal husbandry or stock raising and grazing as it is understood abroad, except in the far north-west. The animals kept in the Red Basin are chiefly the water buffalo, bullock and pig, in relatively small numbers per farm, and they are fed on by-products of farming rather than on regular fodder crops or pasture fields. Around the chief cities dairy cattle are now being kept, in much the
same fashion: indeed, it is difficult to see how land can be
given up for pasture when the pressure on it for human food
is so high.

Many of the farm crops are grown in rotation: not the
year-by-year rotation which one takes for granted in Europe
or North America, but a closely-knit and interlocking system
of cropping, more like market gardening. Individual hold­
ings are small, as everywhere in China, and labour is plent­
iful, so the farmer has both the need and the opportunity
to get the utmost out of the land. There are at least two
crops in the rotation each year on dry land: one winter and
one summer crop; but often the number is raised by mixed
cropping, and by sowing or transplanting a new crop before
the old one is out of the ground. Thus, in winter, wheat
and broad beans may be grown in alternate rows; in spring
they will be followed by maize, with soy beans, climbing
beans, or even cucumbers or sugar cane, between the hills of
maize; after the maize is harvested the beans ripen, and after
them a catch crop of vetch may be grown for green manure
before next winter's wheat is planted. Orchard trees, again,
are often grown with food crops, such as wheat, kaoliang,
maize, or peas, planted among them. It is not everywhere,
of course, that the land is used so intensively. On the poorer
mountain soils a simple rotation of a thin crop of wheat and
some stunted maize may be the year's total.

Rice, with its demand for flooded or paddy land, differs
from the other crops. On the Chengtu Plain it is grown in
rotation with winter dry-land crops like wheat, rape-seed,
broad beans or vetch; but elsewhere in the province the
paddy fields are generally used for one summer crop of rice
and no winter crop. Instead, the fields are flooded during
the winter, to ensure a supply of water for the following
spring. On the Chengtu Plain, with its remarkable and
ancient irrigation system, this is not necessary, and winter
cropping becomes possible.

The economic trees are often grown along the boundaries
of fields, or on the edges of terraces in hilly country; they
are also planted in orchard fashion, and ordinary farm crops
are grown among them.

Such intensive utilisation of the land could not continue
without adequate manuring, and indeed one can readily
observe that the most fertile land is that near towns and on
the lower slopes of hills where most manure is given. The
basis of manuring, in Szechwan as elsewhere in China, is the
age-old use of night soil and ashes. In this way the elements
removed from the land are largely returned to it (the chief
losses being that of nitrogen), and a closed cycle of plant
nutrient elements is maintained. Animal manure, composts,
and extra fertilisers like oil-seed cakes are also used at certain
stages in the rotation or for special crops. The rice fields receive further considerable, if unintended, supplies of plant food in their irrigation water: especially when this is run-off water, washing down fine mud and organic matter in suspension from the cultivated fields above the paddies. In this way some of the loss caused by erosion of the hillsides is cancelled out by the benefit to the rice; but even then much of the fertility of the upland fields goes down the rivers to the sea.

H. L. RICHARDSON

THE WEST CHINA MISSIONARY NEWS

Editor—Homer G. Brown
Business Manager—Jane Hibbard.

Subscription Rates. In China, Mex. $2.00 per annum, from July 1st, 1938, postpaid, Abroad, Mex. $2.50 per annum, postpaid; $1.10 in gold if remitted from U. S. or Canada, 4/6 if remitted from England.

The West China Missionary News Publication Committee met at the home of Mrs. Hibbard on Saturday afternoon November 19th.

All members were present, Misses Argersinger, and Heusman Mrs. Hibbard, Messrs. H. G. Brown, A. S. Kerry, W. G. Sewell, F. O. Stockwell.

The question of renewals and of continuing to send the News to subscribers whose renewals are long overdue was discussed. It was decided to have New Renewal Slips printed to be inserted in the Dec. issue. All China Subscriptions not paid up three months after due will be dropped. Subscriptions from abroad will be carried for six months.

But before dropping subscribers from the mailing list, the Business Manager will communicate with the representative of their mission on the Committee.

Complimentary copies of the News will be sent to recent arrivals, with a view to interesting them in the News.

The question of changing the title of the “News” was again discussed and the name “West China Christian News” suggested as it is felt that the “News” should be rather broader in scope than its present title implies.

As several have made enquiries re a West China Mission Directory, of which there has been no issue since 1935, it was decided to issue one as soon after the Annual Meetings as the information can be gathered, this to be sent out when ready but to be a substitute for one month’s issue of the News. That means the July-August issue will be a single number, instead of a double number as is usual.

The cover design for 1939 received some attention and a committee was suggested. Mr. Brown outlined some of his suggestions for the coming year and asked for suggestions from the Committee. We feel sure you will enjoy each copy as it comes to you.

JANE HIBBARD
Business Manager.
A RAPID PROCESS FOR MAKING COMPOST
or “ARTIFICIAL MANURE” IN FOUR WEEKS

By C. Y. Pan

The Szechuan Provincial Agriculture Improvement Institute, Chengtu.

The decomposition of straw, city garbage, farm wastes, etc., leading to the formation of so-called “artificial manure,” involves the creation of a favourable condition for aerobic micro-organisms, by the action of which a part of the cellulose and hemi-cellulose may be rapidly decomposed into a condition suitable for plowing under in the field.

In the old method the compost is made under anaerobic conditions, and it takes at least four or five months to complete or to get ready for plowing under. A large portion of the decomposed organic matter and nitrogen may be lost by leaching or otherwise, because most of the stacked material is carelessly exposed to rainfall during the long period of curing. To teach the farmers how to save plant-food in compost manure is a very important problem.

“Compost starter” is made especially for distribution to the farmers for the purpose of rapid decomposition. One can of this “compost starter” is good for two thousand pounds of straw or plant residues. To work with, it is added to four piculs of liquid manure, stirring to ensure a good mixture. The straw or plant residues is first soaked for at least twelve hours. Grasses or fresh plant materials should be weathered under sunlight for two days before stacking.

It is necessary to have the compost made under shelter or protected from rainfall with a layer of straw. Since the micro-organism in the “starter” is aerobic, requiring air for best growth, some stones, wooden sticks or bamboos are advisable to be laid on the ground for the foundation of the compost.

The thoroughly wetted material is now stacked on the foundation about six feet wide, and one to two feet high; a mixture of liquid manure and “compost starter” is poured on it evenly; the stack is built thus layer by layer until it has a height of about five feet. Press by the weight of men and add more water if necessary. The whole stack is covered with dry straw to maintain the temperature and prevent evaporation. After four or five days the stacked material gradually becomes heated, reaching a temperature as high as 60 to 70 degrees centigrade. At the end of four weeks the temperature drops greatly, the stack decreases—in volume about one-third, and the plant material under the covering changes its colour; a compost of distinctly different composition and appearance from the original material results. Scrape off the outside covering and spread out the compost.
evenly in the yard, until dry enough to be easily broken in pieces. Pass the material through a bamboo screen, having holes about half an inch square, to eliminate the undecomposed portions. The manure is now ready to be applied to the fields.

The "starter" has been distributed this autumn (1938) to eight counties, each securing one thousand kilograms from our extension service. Over one thousand cans (250 grs each) have been sent to different districts in Szechuan and some to other provinces. For a try-out any institute or farmer may send for two sample cans, without any charge except a report of the result. Five cents for 250 grams in addition to freight is charged to cover the cost of materials if large quantities are required.

Note:—The method of treatment is available in the Chinese Language.

THE REPORT OF THE RURAL CONSTRUCTIVE EXPERIMENTAL STATION OF HAI WU TSI, PENGHSIEN

S. C. Tsao.

We were anxious to go to the village in the spirit of love and service of our Lord Jesus, to do a little actual work. Fortunately, the Executive of the Synod of the Mei Dao Hwei agreed to our projects, and meanwhile both the Committee on Popular and Compulsory Education of Penghsien were in complete sympathy with us in this matter. We were very glad that the Government of the Fourth Local District of Penghsien permitted us to open our rural productive and educational reconstruction work at the Tenth Local Neighborhood of this district.

We began a survey of this hilly district in order to compare the conditions of summer 1937 with those of autumn 1938. The results which we found were the lack of education, the lower quantity of produce, the very poor livelihood and also great superstition in religion. There were eleven chiah—one hundred and twenty-two families; three hundred and eighty-seven males, three hundred and twenty-eight females. The total population was seven hundred and thirteen. The average of each family was six. Among four hundred and seventy-two adults, only one person was literate—an old teacher, fifty one were half literate, four hundred and twenty were uneducated, really blind folks. The children of school age were one hundred and twenty, but there was no school. The children under the age of six were one hundred and twenty-one. There was no kindergarten, creche or baby welfare for them at all.
The main products of this village are maize, bean, potatoes, barley and a little wheat. The produce of each year generally is not sufficient for the people who dwell there. The tenants are often short of food for three or four months in the year because they must pay rent—the maize to their landowners. From whom they also borrow money at excessive interest charges, (3 or 4% monthly). They labor hard digging or transporting coal, cutting or carrying wood, etc. for their plain living. The boys, about six years old, also begin to do this work to earn a little money to assist their parents. The women and the big girls are important operators, cultivating, planting and harvesting on the farms. There are some fruit trees, as cherry, peach, pear, persimmon etc., but the fruits are not many. The domestic animals and fowls are few in quantity.

We recognized what should we do from our survey, then we started to plan an experimental orchard behind the chapel of Hai Wu Tsi. We rented four rooms for an office from an owner named Chu, at Tsu Ku Tien, in this village, last summer. It is about six li from the town.

I lived there about one year and tried to be friendly with the people. We began our work gradually, such as: Free school for adults, short term school for children and a small people’s library on this phase of education; a headquarter for the loaning of money for the purchase of materials for farming, preparatory co-operatives, the model farm, introducing the Nanking wheat No. 2905, collecting the seeds of wild persimmon, citrus, oil tung and some young fruit trees from Messrs F. Dickinson, Li Ming Liang and Chang Ming Chün, on this phase of production; the health medicines, clinic—five hundred and twelve people in one year meetings for hygiene along the lines of public health; the monthly neighborhood conference, national memorial ceremonies, reporting news from the radio, repairing roads and bridges etc. along the line of civics; and we have personal evangelism in the village and preaching the gospel to the public in the chapel of Hai Wu Tsi each market day, and other work along the lines of religion.

We have the ambition to do our best with all our efforts to serve the village by the scientific method, government assistances and religious spirit. Thanks are due to Rev. G. E. Rackham, Miss A. Harrison and Mr. Hsieh Chung An—a church member of Penghsien, for raising money. Thanks are also due to some of the institutions and individuals for the assistances in our work, material or spiritual. Moreover, thanks to God for giving us the opportunity to preach good tidings to the poor. We hope these kind friends will help us continually until we reach success and glory to our Heavenly Father.
There is a Chinese proverb to the effect that: "The most difficult part of any enterprise is the beginning". Efforts to awaken the rural people of China to the need for improvements in farming and rural conditions which have drifted on unchanged for centuries have proven the truth of this proverb. However, in rural communities throughout the world there has always been great hesitation in breaking with tradition, and such hesitation is, quite naturally, in indirect proportion to the amount of education and contact with the outside world. Roads, radios and schools have revolutionized rural life in the West. China was well embarked on a road building system, particularly in the coastal provinces until the Japanese invasion interrupted all constructive work in these areas. The National Government and many of the educational institutions have now moved into western China, particularly into the large and underdeveloped province of Szechuan which has long been known as a region rich in natural resources, but which has never been developed because of its great distance from the coast and the tremendous expense of building up adequate transportation.

Szechuan rural communities by the nature of their location and lack of communications have been more isolated and more reluctant to accept new ideas than similar communities in the coastal provinces. It is easy to understand the unwillingness of the rural people to break with tradition and try anything which may upset the ever-important "rice bowl", but Chinese farmers as a class are awakening and interested, and once the initial hesitation is overcome and they can see some results, they are quite willing to accept innovations. This "doubting Thomas" attitude means that extension workers have to put on a strong advertising program at first, but after the break has been made, the problem becomes one of education and keeping pace with the growing interest.

Probably one of the greatest contributions which the Mission schools have made to China is the way in which they have demonstrated to the Chinese government, both national and provincial, the possibilities for rural improvement, and the response of the government to this stimulus. We are all aware that thousands of dollars of Mission money are spent in China each year for the whole Mission enterprise, medical, evangelistic and educational, but when these funds are spread over all phases of work in such a large area, it is obvious that the actual amount of mission money available for the one field of agricultural extension is small; and yet this particular work touches the lives of about eighty percent of the

RURAL DEVELOPMENT IN SZECHUAN
population of China. Government interest in rural work is the very thing which the Missions are interested in developing, because it makes available the funds and authority needed to carry on really large scale projects, while the Mission schools are of necessity limited to certain small areas.

Now that the war has pushed the center of China into Szechuan, the Government is very anxious that the rural people be educated and awakened, particularly to the possibilities of increased production of this fertile province by better methods of producing, fertilizing, storing and marketing of the fruit and vegetable crops of the province. To this end, the Ministry of Education has urged that all colleges and universities take on themselves the task of some form of education, and demonstrate how these institutions of higher learning can be of value to the rural masses. The College of Agriculture and Forestry of the University of Nanking which moved to Chengtu after the fall of Nanking has had requests from several branches of the Government for cooperation in rural improvement, and the following are a few examples of instances in which the College of Agriculture and the government, both Provincial and National, are working cooperatively for rural betterment.

The Wenkiang Extension Center

The extension center at Wenkiang, an area about 15 miles west of Chengtu, is a venture of the kind described above - the outgrowth of Government interest, supported by local organizations, with financial help from both national and hsien governments. The College is responsible for the technical end of the work, a task undertaken at the request of the local government. Throughout the whole set-up, the part played by the College is that of the stage director, invisible to the audience, but very essential to the working out of the plot, in this case, the plan.

The Wenkiang organization is under the direction of the Wenkiang Rural Reconstruction Committee, with representatives from the hsien government, the local government, local organizations and the College of Agriculture of the University of Nanking. More than $3,000 (Chinese currency) each were contributed by the hsien authorities and the Szechuan Cooperative Commission, about $2,500 each by the Szechuan Cooperative Bank and the National Production Promotion Commission, and $1,200 by the University.

The plan is to establish seven Farmers' Associations in the area, each with a committee made up largely from the local residents, so that the activities are carried on by the farmers themselves and not by a superimposed group which, while well-trained, are only temporary residents. In
the early period there is need, of course, for a good deal of help from outside, both in the way of supervision and finances, but unless the farmers can be educated to carry on by themselves the work is bound to slump and disappear when the "imported" personnel leaves. Activities at Wenkiang may be divided into four categories, as follows:

1. **Rural Finance and Cooperatives.** The crying need of most farmers is capital - capital to buy seed, to buy implements and fertilizers, to have enough to live on so that they may "hold" their harvest instead of selling when the market is flooded and prices are at their lowest. The purpose of the cooperative credit societies is just that to allow the farmers a little financial leeway through loans at reasonable interest, so that they can rise above the bottom level of poor seed, poor implements, and the extreme of poverty that makes it necessary for them to "dump" their harvest on the market in order to meet their daily needs.

By October of this year there were 88 such credit societies organized in Wenkiang with outstanding loans of about $100,000. In addition there are 58 "Mutual Aid Societies" for the purpose of warehousing farm products such as rice, wheat, rape seed and other grains. Besides furnishing storage, the Mutual Aid Societies make loans to the farmers up to the value of 70% of the market value of their stored products. To date the 58 societies in the Wenkiang area have loaned a total of $85,000.

In both these types of societies the farmer repays the loan after marketing his harvest, but he has the advantage of being able to market when he chooses and thus keep the market price up. In the past, farmers have been able to borrow money but at such a staggering rate of interest that they carried the burden of the debt throughout their lives. The cooperatives are for the benefit of their members, not for an outside individual, and the banks are willing now to lend money at reasonable rate because they have recently come to realize that agricultural investment is profitable.

2. **Agricultural Production.** One of the best ways of increasing income is, usually, to increase production, but it is difficult to improve on the intensive, careful attention which the Chinese farmer gives his soil unless some outside element is added, such as improved quality seed. The Department of Agronomy has been working for years to find high-yielding, disease-resistant varieties of the common Chinese crops. For instance, the variety known as Nanking wheat No. 2905 has qualities which make it far superior to the ordinary Chinese wheat, and the improved seed has been distributed for several years in the Yangtze Valley. As usual, the innovation had to prove itself in Szechuan, and for this purpose demonstration farms were set up in the Wenkiang
area, giving visible evidence of the superiority of No. 2905. Since September nearly 11,000 catties of wheat seed have distributed, and about 1,300 mow of land in the Wenkiang district is now sown to this seed. "Wheat Clubs" are sponsored among farm boys who, in turn, carry the news into their homes and demonstrate to their conservative parents.

3. Education. Most farm children do not attend school at all, and those who do rarely get beyond the primary classes before they are taken out of school to work on the farm. Also, the old type Chinese school offers little except reading and writing which would be of value to a farmer. An effort is being made to introduce agricultural subjects into the curriculum. The Yun-shan Farmers' Association has made a start by opening a half-day training class for farm workers who cannot afford to spend a whole day at school. The Chinese respect for learning is almost as strong a characteristic as their practicality, and, as in other rural centers, if they are given the opportunity they are sure to take advantage of it.

4. Social welfare. The need for this phase of rural work is self-evident, but it is such a new idea in the Chinese rural community that it takes some time to "take hold". Women's institutes have been formed, military training is encouraged, and some effort is being made toward social gatherings and teaching the people group activities and games.

There are other phases of agricultural improvement which have not been touched on here, such as cooperative purchasing of machinery and other necessary equipment, cooperative marketing of farm products which makes for higher prices because the group is better able to bargain than the individual, and numerous other activities. However, if we want the growth to come largely from "within", all of these developments take time and we must not be impatient. An excellent start has been made in the few short months since the work was inaugurated. There have been too many instances of rapid development by imposing ideas by outside workers on whom the local people look askance so that the project has remained a "foreign" intrusion which soon died out.

The Jenshow Extension Center

The Rural Leaders Training School of the University of Nanking is a two-year course which is intended to develop practical rural leadership in men who have had some rural experience. Through the courtesy of the United Church of Canada Mission, this school is now occupying the buildings of a former boys' school at Jenshow, about 50 miles southeast of Chengtu. The possibilities of this school have caught the interest of Government authorities, with the result that
the National Agricultural Production Promotion Commission has made an appropriation of $5,500 to be used in setting up extension machinery in two districts, Jenshow and Wen-kiang. The object is to work out a system which can be used in other communities throughout the country.

The Provincial Cooperative Control Commission which has funds for organizing credit societies but does not have adequate staff for the territory to be covered, has also been attracted to the possibilities of the training school students as organizers of cooperatives, and is now working through the school.

General W. H. Pan, a native of Jenshow has also become interested and has purchased and put at the disposal of the school a piece of land which may be used for experimental studies. Once the initiative is taken, it is obvious that local and national organizations are willing to cooperate. Such cooperation is essential because the technical advantages of the school would be valueless without the necessary finances to back up the work.

Four sub-centers have now been set up in the vicinity of Jenshow, one at Nan-taiian, two along the Jenshow-Chengtu highway, and the fourth at Fu-chia-jen. At each of these centers, the College has provided $1,000 Chinese currency (about $175 U. S.) to cover the salary of one extension worker, a few student apprentices, and the running expenses. Both faculty and students from the Training School participate in the extension work. Second-year students spend one solid month each term at one of the centers.

Demonstrations are used to arouse the interest of the farmers. For instance, a series of strange looking heaps and mounds appear, exciting the curiosity of the villagers. Then after a few days, the extension agent gives a lecture on the making of compost and its value. Demonstration farms are planted with Nanking wheat 2905 so that the farmers can see the improvement "in action." The farmers can more easily understand the need for fertilizer than they can for a different kind of seed, and they were at first reluctant to try the new variety which has been proven a heavy yielder with better than normal resistance to disease. However, some have agreed to try it and about 400 catties have been distributed in each of the three centers, making a total of 1200 catties in the Jenshow area.

Another task of the extension agents is to make clear to the people the need for keeping the improved seed separate from the mongrel variety which they are accustomed to use. It requires a good deal of education to make clear the necessity of maintaining the purity of good strains, much as it is always difficult to make uneducated people see the value of eugenics. It often seems impossible to approach the old
established farmers and try to make them change the methods which they have followed for half a century, but the extension agents are approaching the educational problem through the schools, first winning over the teachers, and then offering agricultural courses to the higher grades in the rural schools to put before the developing minds the need for improved agricultural production and marketing, and the part that cooperatives can play in furthering such improvements.

When harvesting is over, the extension agents plan to establish part time agricultural schools for boys between the ages of 15 and 20 because it is these young farmers who will take the lead in adopting new methods and improvements.

In point of accomplishments, the Jenshow Extension center has not much to show except the beginnings of a number of projects for the few short months that the school has been established there, but there is every reason to believe that these beginnings will grow steadily. The splendid spirit of cooperation evidenced by the Canadian Mission in contributing their school buildings, and the financial help from the Government are making this extension program possible.

Szechuan Fruits

Szechuan is one of those areas where fruit, especially citrus, has just naturally grown for hundreds of years, without any particular effort at breeding or importing new varieties except by some missionary workers in the vicinity of Chengtu. Also, during the last few years the Government has opened citrus experiment stations, but long before such work was started Szechuan produced, and is still producing, some of the best citrus fruits in the world. Citrus production has never been considered a promising industry in Szechuan, probably because of the lack of transportation and storage facilities which limited the farmer to keeping a small number of trees and having the fruit carried when ripe to the nearest market town. A certain quantity of fruit was shipped down river in time of peace but the distance is so great and the storage so uncertain that the Shanghai and Nanking markets were largely supplied from Chekiang province.

With the influx of refugees into Szechuan and the desire to develop this hitherto remote province both industrially and agriculturally, the great possibilities of the citrus industry are receiving attention. The province is large and fertile with various climatic regions, ranging from temperate on the higher altitudes to subtropical on the Chengtu plain and in the Yangtze Valley. The rainfall is heavy during the
growing season, and there is rarely a killing frost or severe freeze during the winter. Because of the climate and topography, orchards are found scattered all over Szechuan, apples, pears and citrus often growing side by side. Stone fruits, such as loquats and persimmon also grow successfully, but the present major interest is on the pome and citrus fruits which are more easily shipped and more generally marketable.

A number of missionary workers, particularly Dr. Frank Dickinson of the Canadian Mission at West China Union University in Chengtu, are responsible for the introduction of many good varieties from abroad for experimental planting, including Eureka lemon, Duncan grapefruit, Valencia and Navel oranges. Some of these have shown a ready adaptability to this climate.

**Citrus Fruits**

The Rockefeller Foundation has made a grant of $2,600 Chinese currency for a study to select the best varieties of citrus, with reference to flavor, storage qualities and other characters, with a view to wide propagation and distribution of the desirable varieties.

A grant of $10,000 has been made by the Farm Credit Administration Bureau for improvement of the marketing of citrus fruits, including picking, packing, storing and shipping. Part of the sum is to be used to build a storage at Chiangtsing, one of the best fruit districts, and to purchase 150,000 oranges for storage experimentation.

In these studies, as in the case of extension work, the College provides the technical knowledge while the finances are contributed from government or other organizations. Both sides profit thereby - the College has an opportunity for research which it could not otherwise afford, and the students have a chance to work on practical problems; while on the other hand, the applied results of selection and storage result in economic betterment for individuals and for the province as a whole.

**Apples and Pears (Pome fruits)**

The importance of Szechuan as a citrus producing region has long been acknowledged but its possibilities for pome fruit production have not yet been explored. The ordinary rather coarse-fleshed pear has been on the market for years but little else has appeared. In the higher altitudes of the west and northwest there is enough cold weather to break the dormancy which is recognized as essential for apple and pear production. At the same time there is adequate summer heat to increase the sugar content of the fruits, and enough
diurnal fluctuation in temperature to produce high color and good quality.

In some parts of the province, the climate is similar to that in southern Oregon, southern Ontario and some New England districts, and missionaries, again referring especially to Mr. Dickinson, have brought in a number of varieties such as Red June and Grimes Golden which have shown themselves to be well adapted to these regions. There is room for a great deal of experiment on varieties and root stocks which, under favorable conditions, should lead the way to the development of apple growing as a profitable industry.

The pear has been grown over a large area in the province but, as already mentioned, most local varieties are rather poor in quality. Foreign varieties have not been introduced except for experimental purposes, and while the climate may be favorable, the humid weather also encourages the pear blight organism so that great care is necessary.

The Provincial Agricultural Improvement Bureau has proposed to open a pear and apple experiment station outside of Chengtu which will start work this winter. Mr. Chang Wen-tsai, one of the staff of the University of Nanking who returned this fall from horticultural study abroad, is especially interested in the pome fruit development and he has been asked to have a part in the new experiment station.

The development of the pome fruit industry would open up a new and profitable business for Szechuan.

**CONCLUSION**

There are numerous other fields where Mission universities and Mission workers are doing their utmost to improve the lot of the rural population in China. It is primarily in the fields of rural organization and crop improvement that the College of Agriculture of the University of Nanking has placed its chief emphasis because it seems apparent that neglect of development in these fields has forced the Chinese farmer into poverty and debt. There are many people who believe that you cannot attract a person's mind to higher cultural and moral grounds while his body is starving, and while many may argue this point and there are undoubtedly exceptions, it is fairly generally accepted that the economic grind for subsistence does not allow much time or desire for mental and spiritual wealth. By improving the farmer's economic lot, there is every reason to believe that he is going further and further along the road towards a well-being which is based on more than physical grounds.

College of Agriculture and Forestry of the University of Nanking, Chengtu.
RINDERPEST CONTROL IN WEST CHINA

Rinderpest is a dreadful disease of cattle. When it breaks out it spreads over a wide area and kills a large number of cattle if it is not controlled. Rinderpest is not present in Canada and the United States, but it has a strong foot hold in China, where veterinary measures are lacking.

Rinderpest is an infectious disease of contagious nature. It is caused by a filterable virus and has an incubation period usually from 4 to 10 days, sometimes longer. It gives high fever, causes the formation of vesicles on the mucous membrane of the oral cavity which break into ulceration with foul smell. At the same time constipation and later fluid diarrhea are noticed. At the height of epizooties the percentage of death is as a rule from seventy to ninety percent.

This year there is a great epizootic of rinderpest in West China. Nearly eighty seven districts in the Southwest and Northwest of China have reported. The loss has been estimated as much as ten million Chinese dollars. Beginning from last year both the Central and the Provincial government has been working in a cooperative venture in combating this dreadful disease. Veterinary regulations have been promulgated. And veterinary forces have been quickly organized and dispatched to the infected regions. In the province of Szechuen more than twenty men are working in the field, and in the province of Kweichow more than thirty and in Hupeh about ten.

Recently rinderpest has broken out in the dairies in Chengtu. About hundred head of dairy cattle died of the disease within a period of about a month. It resulted in bankruptcy of some small dairies. The dairymen from tradition and superstition are very skeptical of vaccination against rinderpest. For this reason Mr. Dickinson of the West China Union University is using his influence to convince them to have their cattle vaccinated. The provincial veterinary force has put Chengtu under quarantine. Cattle transportation is restricted, and all cattle on the highway must be inspected. Vaccination is given free of charge. Their plan is put a stop to the epizootic within a very short time.

Physically all who have passed 40 begin to deteriorate; but mentally some men and women never grow old, no matter how many years they have to their credit. If they maintain a constant interest in the world about them they will actually live longer than those whose curiosity diminishes or decays.

I think I can point out the exact moment when a man begins to grow old. It is the moment when, upon self-examination, he finds that his thoughts and reflections in solitude turn more to the past than to the future. If a man's mind is filled with memories and reminiscences instead of anticipation, then he is growing old.—William Lyon Phelps
GROW MORE NUTS IN SZECHUAN

One of the nationwide slogans in China during the last year has been, "Grow More Food". National and provincial governments have set up many organizations, appointed large numbers of research and other workers, and devoted large financial grants to help and stimulate farmers, market-gardeners and others to extract still more food from 'The Good Earth'. Naturally, crops that could be produced quickly in short seasons by improved care, and management and stimulated to quicker growth by additional and better fertilizers, have received first consideration. Improved seeds have been distributed to the farmers - and bigger crops harvested. Citrus fruit orchards are being carefully studied; storage and marketing of citrus fruits are receiving scientific attention. Definite plans are being made for setting up modern orchard practices for the cultivation of apples, pears and other fruit-bearing trees.

Now, when people are being made conscious of the need and opportunities for improving agricultural conditions and raising the standard of living, it seems wise that some consideration might be given to what are called long-time projects, and the writer has chosen "Nuts" as a series of crops which could well be included in the war-time programme. Nuts of the very best varieties should be planted as freely as oranges, peaches, apples, etc. Nuts grafted on vigorous stock will bear as early as many varieties of apples. Gradually nut industries could be developed in many parts of western China, and the growing of many more varieties of nuts than are now available would go a long way towards insuring a splendid nutritious food for rich and poor alike. Thousands of square miles of hilly land that are now only growing meagre crops of corn and beans, and often being badly eroded could be put into economic fruit and nut trees. The tremendous loss of land through erosion in hilly districts concerns not only the people of to-day, but the generations of the future. Nut trees, which may be grown upon almost every habitable acre in western China, might usher in a new, large improvement in the art of production. Distribution is facilitated by the fact that nuts are not perishable like some fruits, vegetables and meats, and this allows time for gathering the crop and spreading it about over various markets. The tree is a machine that is working day and night with less attention required from man than the annual plant requires, or the care necessary for any type of farm animal. Nut crops with their large average yield per acre, at less expenditure of labour, could be made to produce an excellent food for local consumption, and gradually grow
into an industry that would find a high ranking in the annual value of crops grown in western China.

Extensive food value studies show that nut trees of many kinds furnish many of the proteins, oils and vitamins belonging to the meat group of foods. This does not mean that we are going to substitute nuts for rice, pork, fish or poultry. It means, however, that, if a larger portion of nuts could be added to the daily diet, the diet would be enriched. Pecans, hazels, walnuts, chestnuts, pines, beech, almonds and butternuts of many varieties selected for their adaptability to western China would furnish a much needed supplementary food for the daily diet.

Nuts furnish starches, fats, and proteins in varying proportions, and a study of the following facts will help to show some of the value wrapped up in shells.

\[
\begin{array}{cccc}
\text{Protein} & \text{Fats} & \text{Starches} & \text{Ash} \\
\text{Almonds} & 21\% & 54.9 & 17.5 & 22\% \\
\text{Fresh Chesnuts} & 6\% & 5.4 & 42.1 & 1.8\% \\
\text{Peanuts} & 30.5\% & 49.2 & 16.2 & 2.5\%
\end{array}
\]

The average number of food units per pound furnished by the more common varieties of nuts is 3,231 calories, while the average of the same number of varieties of cereals is 1,654 calories. The average food value of the best vegetables is only 300 calories per pound, and of fresh fruits 278 calories.

One writer has pointed out that one pound of good walnut meat is equal in food value to: 5 lbs of eggs, 9½ lbs of milk, or 4 lbs of beef.

In nut trees we combine utility with beauty, and if in these next few years of rural reconstruction in the provinces this side of the battle line, we can initiate the growing of nut trees for the hill sides where only meagre cereal crops are grown, for highways, private gardens and public parks, we shall have set in motion a movement that will bring to future generations of China a remarkable investment for future food production, and an industry that will gradually stand high in the agricultural economic value of crops produced.

Professor D. S. Dye, of the West China Union University, loves to relate that the large peanut which can be purchased in almost every hamlet, village or town in China was imported into this country not so long ago. This gives interested people courage to make a beginning with other Nuts.

F. D.
WHAT HAS THE SZECHWAN PROVINCIAL
AGRICULTURAL IMPROVEMENT
INSTITUTE BEEN DOING?

During recent years, the Szechwan government has been interested in agriculture and its betterment. Nine organizations of an agricultural nature were established in succession. Each one of them has done its part and, thus, the foundation of Szechwan agricultural re-construction has been well laid in its first period. It comes now to the second period.

Szechwan is a large province with many varieties of agricultural crops. It seems necessary to consolidate the agriculture organizations in order to make them more efficient in rendering their service to the rural public at this unusual time. For this reason, the nine organizations were officially amalgamated into a single one on the first of September, this year, namely, the Szechwan Provincial Agricultural Improvement Institute. The Institute consists of nine divisions: the Division of Food Crops, the Division of Industrial Crops, the Division of Animal Husbandry and Veterinary Science, the Division of Sericulture, the Division of Forestry and Pomology, the Division of Plant Pathology and Economic Entomology, the Division of Agricultural Chemistry, the Division of Agricultural Engineering, and the Division of Rural Economics. It has a Central Experiment Station and several sub-stations in various natural regions throughout the province.

The chief object of the Institute is to increase agricultural production and improve rural economic conditions by keeping close contact with farmers through extension workers, teaching them better methods of farming, giving them scientific agricultural knowledge and helping them in every other possible way.

Besides agricultural survey, research and experimental work, attention is paid to the extension work which has a more direct relation with farmers. The following is a brief account of our extension work.

Concerning food crops, a survey of rice varieties of some thirty-five districts has been under way with a view to discovering the best varieties in each district and making a thorough study of their comparative merits. The survey resulted in the discovery of two good varieties, namely, the Meiguo rice of Kwanghan and Chu-a rice of Yiping (Suifu). These two varieties will be put out for demonstration in the coming Spring. Besides, a pure line wheat, Selection No. 2905, has been introduced into this province. It gives a much higher yield and better quality than the native wheat
Referring to Industrial crops, the Institute has on hand a large number of sugar-cane varieties, two of which give a much higher yield of cane and sugar content. Some nineteen thousand pounds of cane stock of the two varieties are now available for planting in the demonstration fields in the important sugar-cane growing districts.

Better cotton is now greatly needed, as many cotton mills have been moved inland. Our Cotton Experiment Station has discovered that two American varieties, namely, Delfogs and Trice, are superior to the local varieties. Enough seeds of this type were distributed to the farmers for growing as many as fifty thousand mow of land.

With regard to animal industry, the chief work is to improve hog breeds and to stamp out the epidemics. The result of a survey shows that rinderpest epidemic, anthrax, and foot-and-mouth disease are prevalent among the cattle. The hogs are often troubled with erysipelas, typhoid fever, and cholera. Epidemics and cholera also, often, steal into the poultry farms. The Division of Animal Husbandry and Veterinary Science is manufacturing sera as a preventive for cattle diseases and vaccine for anti-hog cholera. A group of trained men has been active in much disease control work. In the Eastern and Northern parts of Szechwan, animal disease prevention clubs were organized and in Chengtu a clinical service for domestic animals was founded.

Sericulture, a sericultural extension commission was organized to take charge of the extension work, with 41 field stations and 121 extension workers ready to render service along every line in sericulture, more especially in the supply of improved silk-worm "seeds" and grafted mulberry trees.

As for the program of plant disease and insect control, it is surprising to state that twenty-two per cent of the rice crop is destroyed annually by stem borers, and about ten per cent of the cotton crop by aphids and leaf rollers. The damage done by scale insects on oranges is also enormous. These are the present serious insect pests that the Division of Plant Pathology and Entomology has to combat with. Mechanical as well as chemical methods of eradication have been practised with good success. The Division plans to put out fungicides and insecticides in large quantity next year. In addition, a campaign has been made against barley smut through seed treatment with copper carbonate or hot water.

Great attention has been paid to soil fertilizers. In order to hasten the decomposition of organic matter or farm wastes for artificial manure, a kind of microorganism culture is prepared in cans by the Division of agricultural chemistry, for distribution under the name of "Ywan Ping Starter."
Forty thousand cans of the "Starter" were given out free to 8 districts. Each can is enough for making 2000 catties of compost. Fifty pounds of steamed bone meal, which contains more nitrogen and furnishes much more plant food than the burnt bone ashes or the hand-crushed bone meal usually made by farmers or local dealers, were given to each district in cooperation with some intelligent farmers for demonstration experiments. To make winter vetch popular as a green manure crop, in the Southern and Eastern parts of Szechwan, an area of 2000 mow in each of the Luhsien and Hochwan districts was sown with it in the hope that enough seed will be produced for distribution in the adjacent districts next year.

As to our extension system, there were several drawbacks in the past. We all, now, realize the importance of a united effort of all the forces for the improvement of agriculture and the rural life. It is earnestly hoped that a new system of agriculture extension will soon come into existence. The Institute has taken in a large number of agricultural school graduates for further training so that they may become efficient workers under the new extension system.

The Institute is yours and is ready to render its service to any place where it is needed. Your cooperation will be highly appreciated.

Dr. F. L. Chao.
Szechuan Provincial Agriculture Institute, Chengtú.

"Smart Clothes Are Best Assets."

HENG KONG- MY TAILOR

and

GENERAL OUTFITTER.

563 Szechuan Road,
Shanghai, China.

We invite all missionaries passing through Shanghai to visit our shop and inspect our goods which are of the very best quality. Reliable workmanship guaranteed. If you cannot come to visit us, please send us your measure and we will do our best to give you satisfaction.
CONSERVE WESTERN CHINA POULTRY FOR EGGS, MEAT AND REHABILITATION.

It does not take much imagination to picture the terrific losses in the live-stock of China that must have taken place in all areas which have been the scene of serious military activities for nearly eighteen months. In all areas where hundreds of thousands of soldiers have been living off the land and ransacking farm homes for food, cattle, pigs, goats, sheep and poultry must have been reduced to the vanishing point. To this reckless slaughter of live-stock in the war areas of China must be added the extra-ordinary demand being made for food in those areas where millions of inhabitants and tens of thousands of refugees have been compelled to seek refuge and secure the necessary meat and eggs for their daily sustenance from the ordinary peace time supply. No planned programme on behalf of the government to conserve the sum total of live-stock population, and no opportunities to import from out-side sources, indicate the seriousness of the food situation as being supplied by the Chinese live-stock population.

In European countries there has been a remarkable development of poultry culture during the last fifty years. In fact, this is one of the outstanding achievements of scientific animal husbandry, due to a better realization of the productive value of the hen.

For a number of years the West China Union University has been working on the problem of improving the Szechuan hens by breeding local stock to imported purebred, pedigree cockerels. Three breeds have been used in the experiments—Rhode Island Red, Black Orpingtons, and Singlecombed White Leghorn. The main purpose has been to demonstrate the actual improvement that can be achieved in a comparatively short time in both meat and egg production. Rhode Island Reds and Black Orpingtons have been the favourites for breeding as they combine both egg and meat production. There are those who state that the average egg production of the Chinese hen is approximately eighty eggs per year. We have felt that the egg-laying efficiency of the hen must be increased if the millions of hens kept in China are to be an economic asset rather than a liability to the farmers and to the nation. In our experimental work at the University, we have found, that by crossing native hens with purebred pedigree cockerels whose ancestry tracest records have been kept for several generations, and where the average has been over two-hundred and eighty eggs per year, we have been able to secure an average of 184 eggs per bird in the pullet year, (from the day the first egg is laid until the
year of 365 days is completed), and our best first generation improved pullet laid 217 eggs in her year on trial. These results indicate returns in more and bigger eggs, and more meat per bird.

While interest in European countries in poultry breeding has centred largely around greater egg production, and this has given the White Leghorn wide publicity, it is only a question of time when the problem of developing meat qualities along with egg production will command attention. The local Chinese hen presents a splendid avenue for constructive betterment in which thousands of people can be enlisted, and where almost unbelievable results can be quickly assured. In addition to breeding the native hen so that her progeny will lay more eggs, one can by using dual purpose cockerels also assure the house-keeper that there will be more meat of better quality on the bones than there is to be found on the best native hens. Greater perfection in meat qualities in the fowl should be one of the objectives set before the people of Western China, as well as that of breeding pullets that will average more than 160 eggs per year. By crossing native Chinese hens with pure-bred pedigree cockerels of outstanding ability, the vigour and vitality of the progeny can also be improved. Heavy egg production requires a high expenditure of energy, and to maintain this production the fowl must have stamina. Experiments have shown that a hen weighing three pounds, will produce twenty-nine pounds of eggs a year - or approximately ten times her body weight. To withstand this strain on her reproductive organs, the hen must have vigour and vitality. The following table of the American Poultry Association "Standard of Perfection" for poultry, may be of interest to some of our readers who are interested in the problem of poultry improvement.

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<tbody>
<tr>
<td>Orpington</td>
<td>10</td>
<td>8</td>
<td>8½</td>
<td>7</td>
</tr>
<tr>
<td>Rhode Island Red</td>
<td>8½</td>
<td>6½</td>
<td>7½</td>
<td>5</td>
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<tr>
<td>White Leghorn</td>
<td>5½</td>
<td>4</td>
<td>4½</td>
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<tr>
<td>Brahma</td>
<td>12</td>
<td>9½</td>
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<td>8</td>
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<tr>
<td>Cochin</td>
<td>11</td>
<td>8½</td>
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Such breeds as the Orpingtons and the Rhode Island Reds are often called 'general purpose' birds, because they are not only good egg producers but their carcasses are also well suited for the table. They are therefore amongst the best breeds for improving the general farm flock in China, where practically 100% of the poultry are found. In size these breeds are intermediate between the smaller egg breeds such as the Leghorns and the larger meat birds like the Brahma and the Cochins. In temperament they are also intermediate, being less active than the egg breeds but more
so than the meat breeds. They mature earlier than the meat breeds, but not so quickly as the so-called egg breeds.

The following suggestions are made to conserve and improve the present poultry population of West-China;—

1. Conserve the maximum number of Chinese hens together with selected cockerels necessary for breeding purposes.
2. Hatch the maximum number of chicks during the months September to May.
3. Use surplus cockerels for meat, old hens later, and other undesirables of both sexes.
4. Keep all the best pullets. Feed them better, and by better care and management encourage native pullets to lay the maximum number of eggs.
   (Over 95% of poultry lay the largest number of eggs in their pullet year.)
5. Keep over for 1939 breeding season all outstanding pullets - those laying the most eggs and showing better meat qualities.

The West China Union University Department of Poultry is prepared to supply at very reasonable charges, a limited number of Purebred Pedigree cockerels for breeding next spring. Also settings of eggs, fourteen per setting, of the best breeding in the department. Other settings of native stock bred to cockerels from imported stock, but raised in Chengtu, will soon be available to help prove the thesis of this article.

FRANK DICKINSON.

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Yu Hsien, Hunan.

Dear Sirs.—

Thank you very kindly for mailing the news so promptly.
A bit of local news from this southern-most corner of Hunan will interest you. Oh! how we hope this terrific aggression will be checked before it reaches West China.

Saturday, October 8th, 9.50 p.m.—2 a.m. 4 alarms. Heng Yang Chiu Choe, Hsian Tan and Ping Kiang all 4 caught it. The first two suffered the most.

Sunday, October 9th, 11 p.m.—3 a.m. 4 alarms, 2 a.m. 6 planes were seen. 3 a.m. motors were heard.

Monday, October 10th, 10.30—3 a.m. 4 alarms, motors twice heard.

We hear Heng Yang caught it 6 times this one night.

Heng Yang 3 enemy planes brought down.
At Hen San, 1 enemy plane was brought down.

Tuesday night at 10.30 it was a relief to again hear the hum of the mail plane. Some difference in the drone of enemy planes and the hum of home planes.

Prayerfully yours,

ROSE L. TECKER
We are glad to welcome back Dr. Cecil Hoffman from Ichang where he spent some time in the interests of the Red Cross activities. The fall of Hankow prevented him from going on there and turned him back to his home.

Dr. and Mrs. Schroeder had a short visit in the city from Luchow. They were called to minister in a professional way to a few of the members of the Political Congress in session in Chungking.

It has been a great privilege to meet certain of the leaders of the Political Congress, or the Control Yuan, as it is called and opportunities have been afforded non-members from time to time. The Missionary Community had the pleasure of meeting Dr. P. C. Chang of the NanKai University, lately from America and Europe at an informal meeting at tea-time after the regular Prayer service. It was good to hear his views and to know that so much is being done along the line of organization by the people and government of China.

We are glad to welcome back to our community, Mr. and Mrs. Liversidge who have arrived from the coast. But we are sorry to see the departure of Mr. and Mrs. Martin and their children.

Mr. and Mrs. Becker of the Central University announce the arrival of a son, Rolf, at the Canadian Hospital. Mother and son are both very well.

Mr. and Mrs. John Adamson, C.I.M. announce the arrival of a daughter, Sheila, at the Canadian Hospital. Both are doing very well.

Mr. Jack McMichall, representing the Christian Students of the United States, has been in Chungking for a few days. He brings greetings to the students in war-torn China and assures them of the interest and fellowship of their friends in America.

The Chungking International Women’s Club had a very successful organizing meeting the end of October when under the leadership of Miss Katherine Boeye, who was the choice for President, the year’s work was launched. The second meeting took place the following week on the first of November, when the guest speaker was Dr. ‘Bill’ Chang of the Wounded Soldiers Service Committee. As a result of this the service to be rendered by the Club will be under the auspices of the Social Service Section. We are glad to announce that the various sections are under way and have been meeting this month on dates arranged by the committee.

We are sorry to report that Miss Wellwood suffered a bad fall on Sunday November 18th and found herself with a broken wrist. She is resting for a few days in the Canadian Hospital while the cast is set.
UNIVERSITY NOTES

All the students have returned from Camp Training and classes are in full swing. The latest figures for the fall term enrolment are:

- College of Arts: 164
- College of Science: 128
- Agricultural Extension: 36
- College of Medicine & Dentistry
  - Medicine: 168
  - Dentistry: 77

Total: 573.

Cheeloo University has enrolled in the
- College of Arts: 29
- College of Science: 23
- College of Medicine & Dentistry
  - Medicine: 98

Total: 150.

Nanking University has an enrolment of 319, Ginling Women’s College 111 and the National Central University Colleges of Medicine and Dentistry a total of 113, making a total 1,266 University students on our campus at the present time.

The best wishes of all go with Mr. Albertson, and Mr. and Mrs. Smalley who have left for furlough. Vice-Chancellor S. H. Fong and Mr. Wallace Wang have left for the Madras Conference with representatives of Ginling College.

A cordial welcome is extended to Dr. Gladys Cunningham, Miss Annie Ward, and Mrs. Wilford on their return from furlough. We hope Dr. Ed. Cunningham and Dr. Wilford will be arriving shortly with baggage.

Consideration is being given to a scheme of cooperation between the Biology Department of Soochow University, the West China Union University and the Bureau of Education for the preparation of biological specimens for middle schools, and necessary finance to be secured from the Government.

There is considerable building activity on the campus. Progress is being made with the Isolation Block of the new Hospital, and with the barn to house Madame Chiang’s herd of dairy cows.

Ginling Women’s College are already using their small Music Building. They are commencing on the erection of a simple brick and tile gymnasium on the Baptist property to the west of Vandeman Hall and just south of the athletic field.
The University of Nanking is planning to erect a dining room and kitchen near their dormitories on Chiang Hsi Kai property, so as to free Hart College gymnasium for other purposes.

Staff and students are making special efforts to raise funds for War Relief. One group has just held a successful musical concert, another plans a dramatic show; and we hear that the Bazaar arranged by the International Association of University Women realized about $800.

The University has been asked to provide a weekly broadcast on Tuesday evenings, one week in Chinese and the next in English. The speakers this term have been: Prof. Liu Li-hsien of the Chinese Department; Mr. Jack McMichael “Greetings from America and Impressions of China”; Prof. Chang Shib-wen of the Sociology Department; Dean Frank A. Smalley “Western Ideas of the Relationship between the Individual and the Community”; Professor Paul C. Fugh, Head of the Department of Education; Rev. F. O. Stockwell “The Madras Conference”; Professor Li Hen, Head of the Department of Mathematics and Physics; Dr. Wallace Crawford of the Department of Hygiene and Public Health, on “Water”.

The topics chosen by speakers at the Sunday Evening Service have centred round the theme “Vital Religion”.

Recent visitors to the University have included: Messrs. Ho Ong, Lun Chu and Ho Hsu, high officials of the Central Government Administrative Yuan; Hsia Kwa bin and Lu Gi-tsen of the Kiangpeh Government; Wong Yuin-bei and many other representatives of the Szechwan Government; Heu Bin-ch’ang and Koo Chi-kong, members of the Peking Research Bureau, the former also a noted archaeologist and the latter a member of the British Boxer Indemnity Fund Committee; Gang Gin-shan a famous photographer; K. V. Li and Yang Teh-chan, representing the Central Trust of China; Mr. Hawthorne Cheng of the International Department of the Board of Publicity; Dr. Richard F. Brown of the Canadian Church Mission who has been working with the Eighth Route Army in the north west; Dr. and Mrs. William G. D. Gunn of the English Baptist Mission, Sian; Dr. Lily Abegg, correspondent of the “Frankfurter Zeitung”.

---

**SUGARED WALNUTS**

\[ \frac{1}{2} \text{- catty walnuts} \]

2 pieces each the—size of a hen’s egg, crystal sugar (bin tang)

\[ \frac{1}{2} \text{- catty lard} \]

2 honey
2 tablespoons barley sugar (ch’in T’ang)
2 tablespoons hong t’ang
\[ \frac{1}{2} \text{ cup of molasses} \]

Cut walnuts and lard into small pieces and mix with 5 kinds of sugar. Put ingredients into pan and steam 2 hours. Then cut into small pieces to be wrapped in paper.
SUIFU NEWS

L.B.J.

November 8th Miss Ada Nelson, just back from America, and Miss Edna Mao of Shanghai, having flown all the way from Kunming, arrived in Suifu. All steamers between Chungking and Suifu are over-crowded.

There are no longer steamers above Suifu, so Miss Nelson and Miss Mao will proceed to Kiating by small boat and to Yachow, probably, by chair. They expect to leave Suifu on the 18th.

Mrs. McIntyre, Senior, arrived by steamer 12th and pushed on by chair on the 14th.

About 300 refugee families have located in Suifu. Some are very helpful in Christian work.

DOWN RIVER NEWS

Everything in Nanking is going along so peacefully these days that there is very little to report. On Monday night, November 28th, it was announced over the radio that Dr. M. S. Bates of the University of Nanking had written a report on the drug traffic which has been introduced into Nanking by the Japanese. The brief summary given sounded pretty terrible, but we have received no details of the report as yet.

Several educational ventures have been started in connection with the University of Nanking. A Primary school for 150 has been opened in the buildings formerly occupied by the Rural Leaders' Training School. A Junior Middle School has been opened on the main university campus, being held in the three central buildings. An effort was made to open a Senior Middle School, but there were so few students of that grade in the city that it did not seem to be worthwhile, so it has been discontinued. The teachers who are employed in these schools are all persons in need of assistance financially, thus besides being of importance to the students this work means a great deal to quite a few people of good education who are experiencing great hardships during this time. Another piece of educational work being conducted is a one-year agricultural course for 20 students. This is for mature students who have had some education and the tuition is free.

The suffering in all classes is great, but a recent letter stresses especially the difficulties which face the educated class, such people as former graduates of universities. Many of them have been helped in the past by personal contributions and by gifts from the International Relief Committee. Others have been working in responsible positions for the International Relief Committee and have been receiving small salaries for their work. However, the committee plans to close down its work in the spring so that even these few will have no means of support. The following is an example given of a man who has been working for the International Relief Committee and who has been receiving $30 a month for his services, "on which he has to keep 13 persons, including the family of his tuberculous brother. They lost all their belongings in the burning last year. He and a number of others have nothing to look forward to when the relief jobs are gone and even now are on the edge of destitution."

Work on the farms in and around Nanking is going on quite steadily and the university is doing all it can to try and help the farmers in planting their crops. In spite of fighting very near the city the usual crops have been put into the ground. The farmers work with great handicaps for very few of them have tools and there are practically no work animals, I think the University owns two water buffaloes.
CHENG TU C.I.M. NOTES.

We have had the pleasure of visits from twelve Norwegian missionaries here. One is a new worker for the Norwegian Alliance Mission, associated with the C.I.M., working in central Shensi. One from the Norwegian Free Church field in S. E. Shensi. The others are members of the Norwegian Lutheran Society working in N. Hupeh, and S. Honan. Four of the latter party are returning to the field after furlough, the other six are brides-to-be whose fiancées are awaiting them in Labohoko, where we understand there will be a "community" wedding on the arrival of the ladies. These friends have had to make the long trip through Yunnan and Kweichow, Szechwan and Shensi it being the only way to reach their field. So far, transport from here has been a difficulty and they have been held up a week trying to get a conveyance.

We hope to see Mr. Sinton back here in the New Year. We expect that he is already in Shanghai where he will be attending Council meetings etc., before coming west.

THE WEST CHINA BORDER RESEARCH SOCIETY

Volume IX of the Journal will soon be off the press. The materials for Volume X are almost all in, so that this issue can be published several months earlier than the last one. The lectures this fall have been well attended.

The past success of the Society is due to the work of its leaders, but it is also due to the excellent support of its members. Your attendance and help will be welcome and appreciated. The program and the officers for the year 1938-9 are as follows:—


President’s Address and Annual Meeting.

T. E. Plewman  President.
S. H. Fong  Vice-president.
Gordon Agnew  Member-at-large.
R. L. Simkin  Treasurer.
L. G. Kilborn  English Editor.
K. C. Chen  Chinese Editor.
Mrs. J. S. Kennard  Librarian.
D. C. Graham  Secretary.
CHENGTU CITY NOTES.

The early part of the month saw special Union Evangelistic meetings being held at the Shu Wa Gai church. Miss Christensen was the leader, and, with her wonderful use of the Chinese language, her addresses and appeals, under the guidance of the Holy Spirit revealed in no uncertain manner the message of Christ to a sin-ridden world. The results from these meetings were greatly encouraging. From Chengtu Miss Christensen has gone to other parts of the province on special evangelistic work.

"Tho Christian Farmer," a paper established by the Literature Department of the North China Christian Rural Service Union, has established its office at the Canadian Mission Press, and this paper will now be published bi-monthly from Chengtu.

Bible Sunday was observed at the Sze Shen Ts church with a Pageant depicting "How the Bible Came to Be." The students of Fang Cheng Gai, Hsin Hang Dz, Bu Heo Gai and the Theological College took part. Rev. G. M. Frank led the service.

We look forward to the opening of the large Union Dispensary at the Men's Hospital on Si Shen Ts'i towards the end of the present month - November. Already the Dental section is in full swing and the other departments expect to be ready in a few days. The old Dental Hospital has been turned into a dormitory.

Japanese bombing 'planes visited the city twice during the month. No bombs were dropped in the city itself although a ton or more were dropped on the north and south airfields outside of the city. There was a minimum amount of damage done. The casualties amounted to one or two killed and a few injured. Air-raid shelters are being prepared at various places which will accommodate some hundreds of people.

The weekly service in English at Pi Fang Gai continues to attract, and meet the need, of a large number of students, especially those from down-river. The foreign service, held at the Si Shen Ts church on Sunday the 27th was in charge of Mr. Kerry.

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CHUNGKING
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Editor of W.C.M. News,
Suiying, Szechwan China.

Dear Mr. Editor,

In the November issue of the West China Missionary News, Mr. Veals commenced his article on "What of that Wounded Soldier?" with the following quotation: "I am unalterably opposed to war and I will have nothing to do with assisting any one who has taken part in it for whatsoever reason." The writer comments: "In some such words as those a forceful missionary expressed himself not long ago, and he was not a Friend either." (The italics are ours.)

We are quite sure that Mr. Veals did not mean anything derogatory to the Society of Friends, but the comment is open to objection in that the inference might be made that the "forceful missionary" was taking up the position occupied by Friends. Such is not the case. The Society of Friends objects to war of every kind; so far as is possible it will have nothing to do with the machine; as a body it does not like to do its work under the control of military authority, although in the European war an ambulance unit was organised by members of the Society, which afterwards came under military control and therefore was not organised by the Society as a body, though it had the support of many of its members. The possible inference from Mr. Veals comment that the Society would have nothing to do with helping wounded soldiers is quite wrong. Especially is this so in a country like China where the medical and surgical organization is quite inadequate to meet the needs of the men. During twenty years of the revolutionary period in China, our two hospitals in Szechwan have been continually at the service of the victims of civil war, whether soldiers or civilians. While we have not supported and will not support the military machine as such, yet in need such as exists in China we could not deny our help to any sufferer.

We write this not that we think many of our fellow missionaries in Szechwan hold this view about the Society to which we belong, but lest others seeing it should think that the Society of Friends takes up such a position as that represented by the "forceful missionary."

Yours sincerely,

W. Henry Davidson
Laura A. Davidson
H. V. Holder

POST-MADRAS CONFERENCE

Watch for Plans. Tentative Dates between Feb. 1-10.

Address Wellington Mong. (孟 葹 亖) c/o Y.M.C.A. Chengtu,