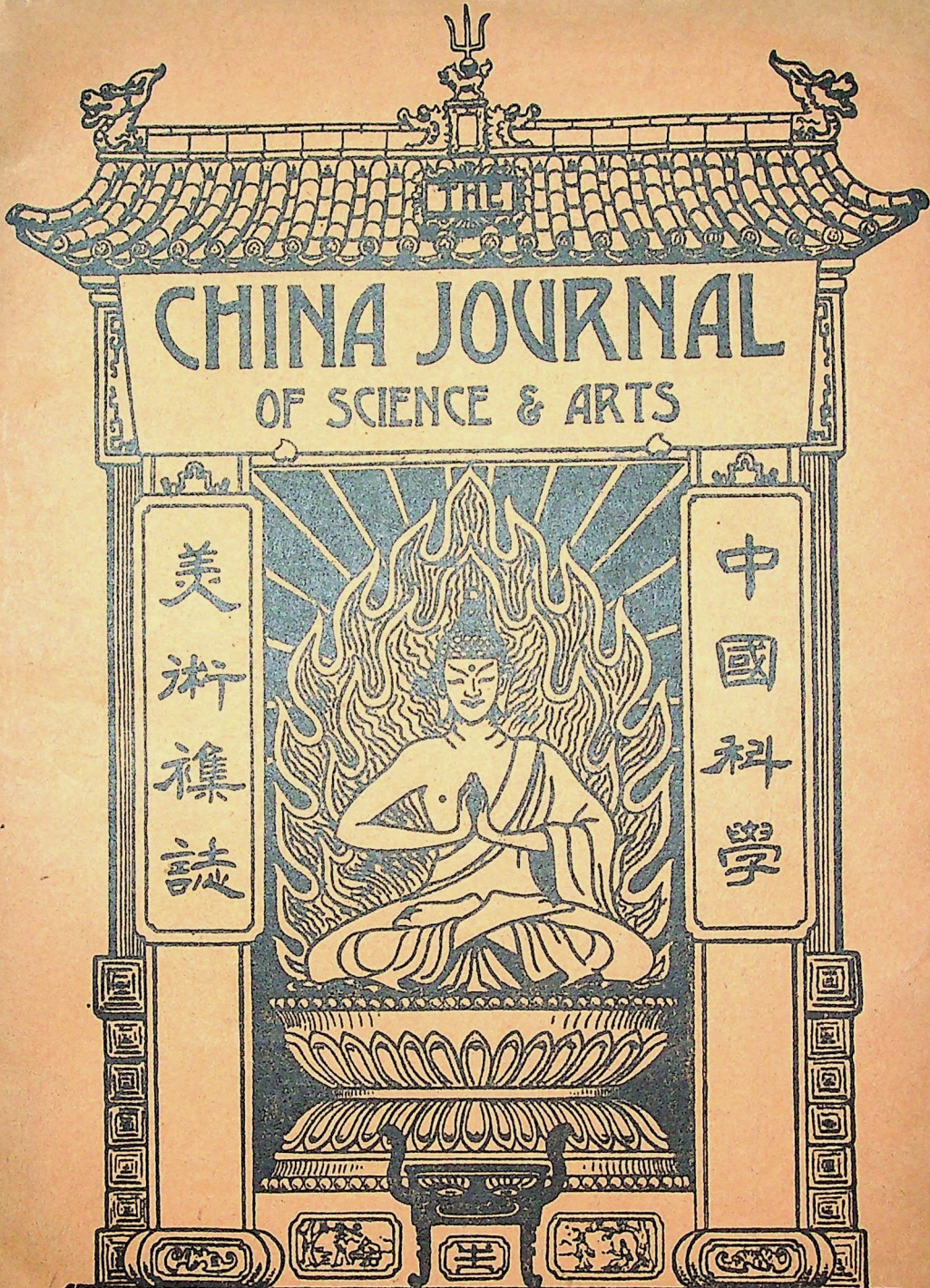




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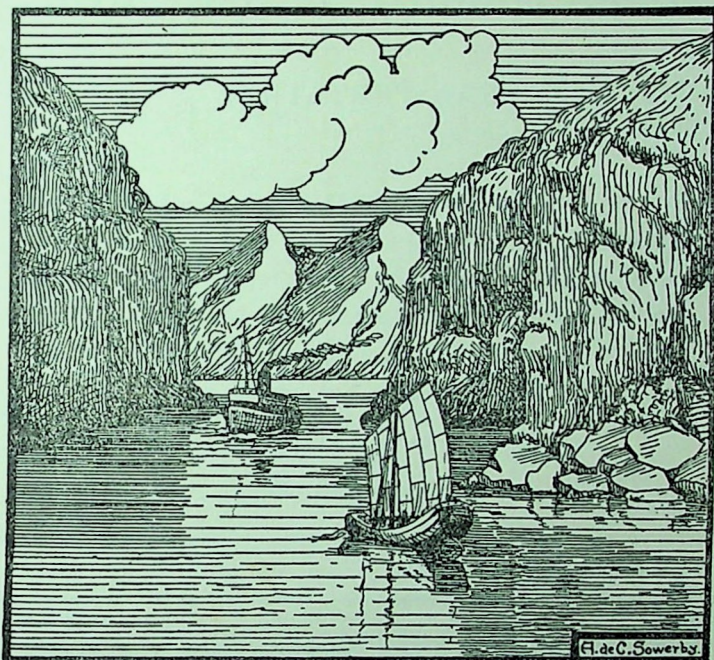
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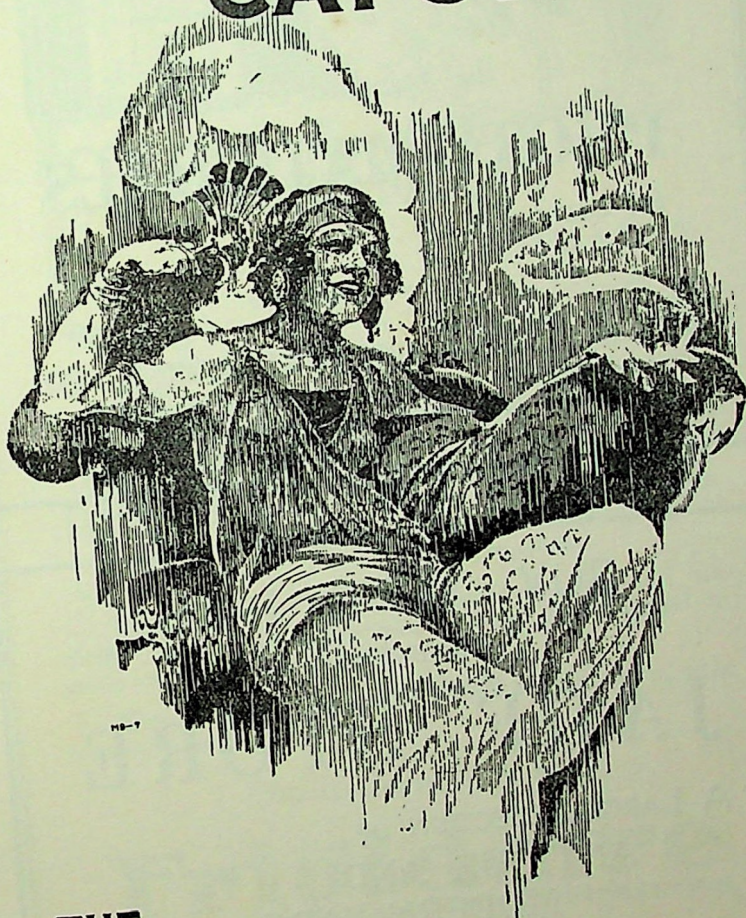
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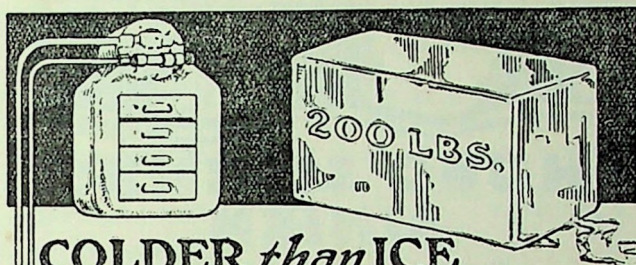
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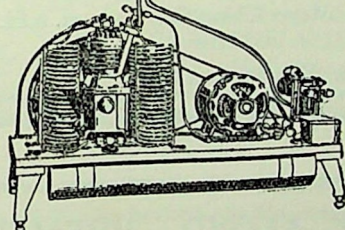
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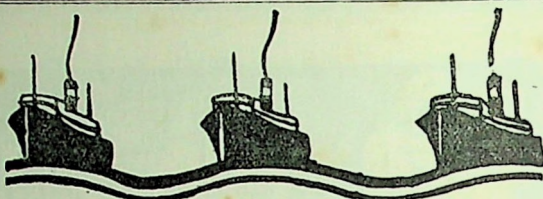
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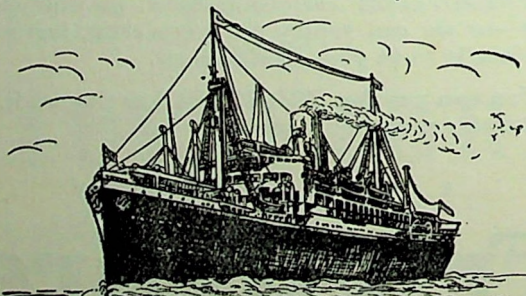
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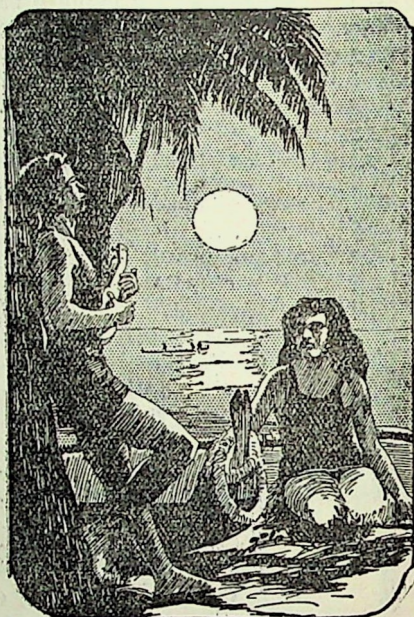
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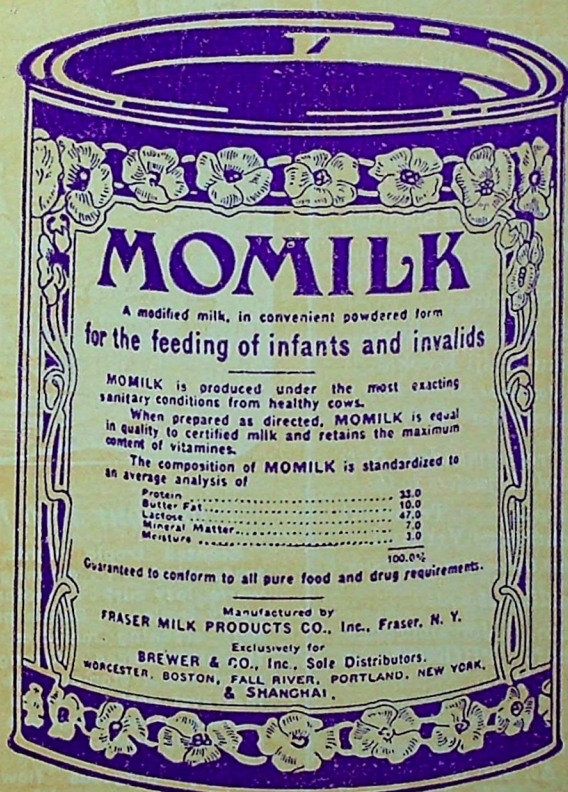
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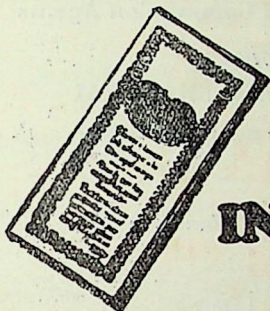
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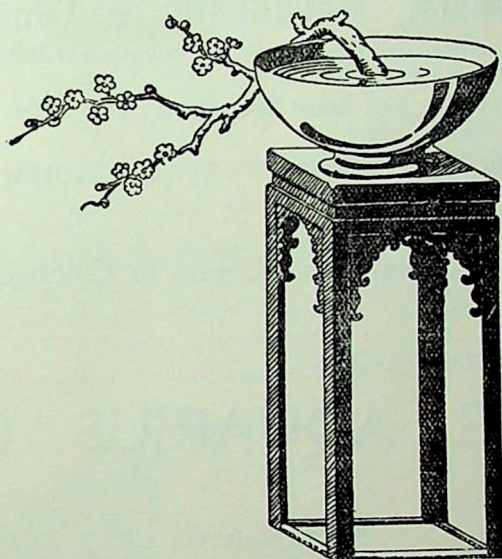
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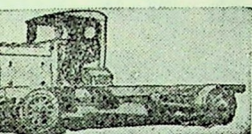
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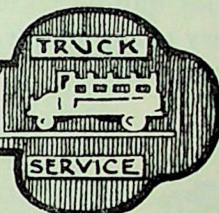
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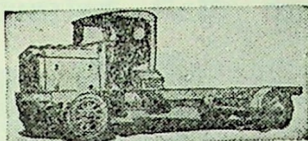


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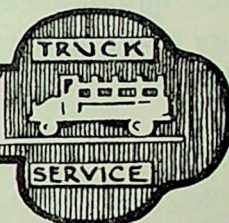
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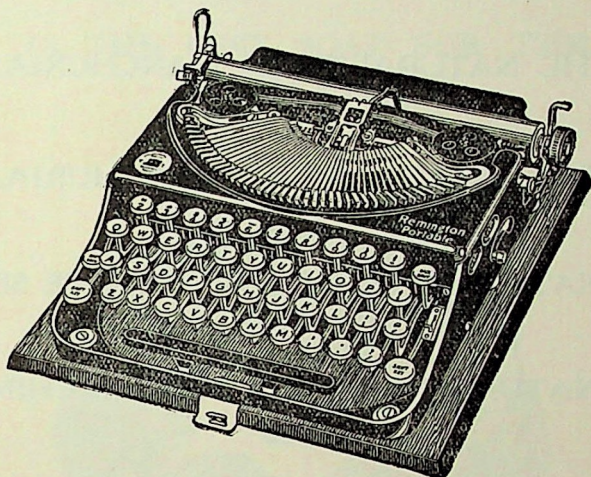
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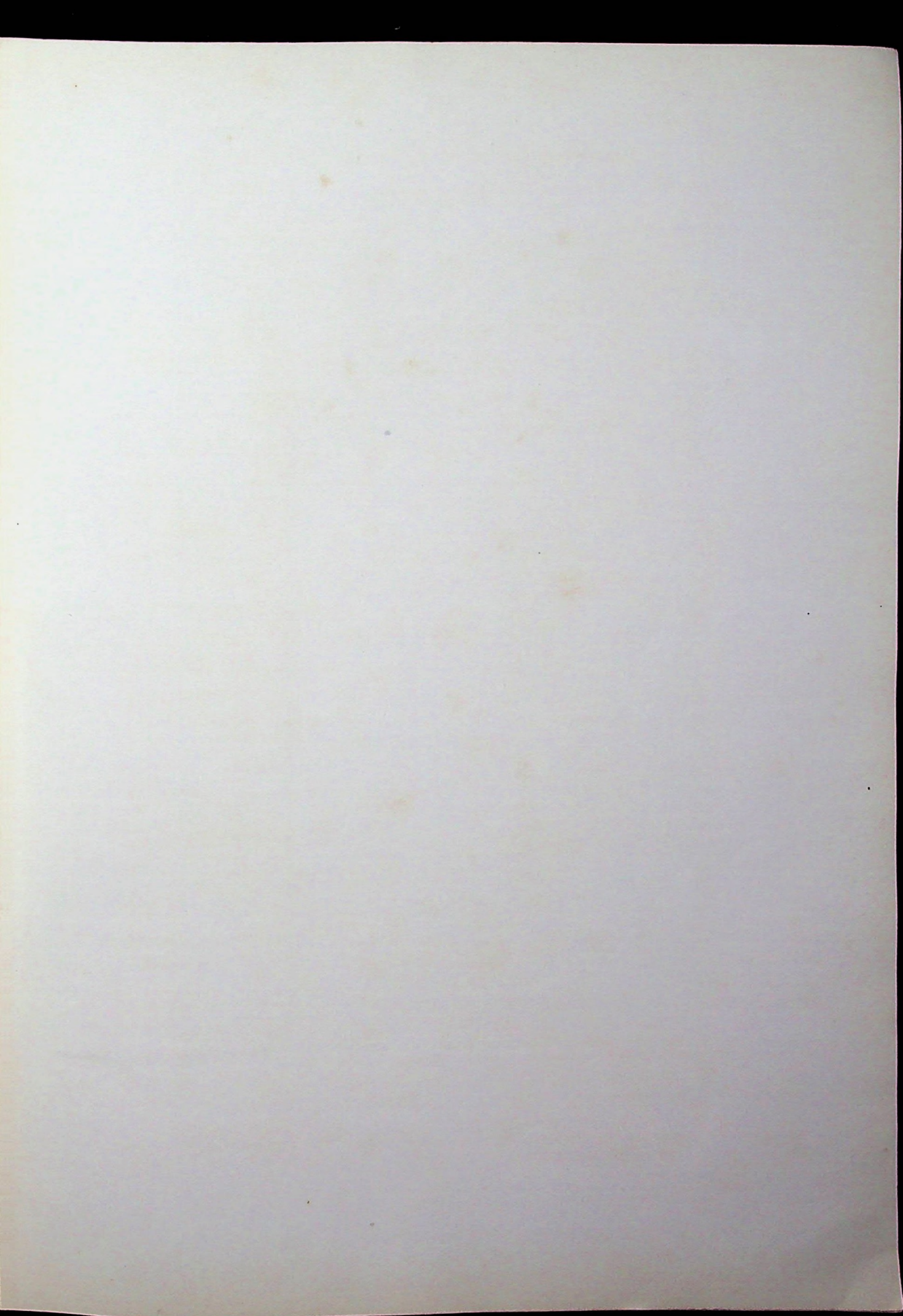
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天 王 洪 秀 全



Hung Hsiu Ch'üen

THE
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VOL. IV

APRIL 1926

No. 4

THE BRITISH BOXER INDEMNITY FUND

At a reception given in Shanghai by the members of the Anglo-Chinese Delegation representing the Statutory Committee which was appointed by Act of Parliament in connection with the application of the British portion of the Boxer Indemnity, on March 22, to editors of local newspapers and other members of the Press, Lord Willingdon outlined the policy, powers and proposed activities of the Delegation, and made a special appeal to the Press, both British and Chinese, to give its fullest support and cooperation in the difficult task to be accomplished. He made it very clear that the functions of the Delegation, as such, were limited to those of an advisory nature; but he also pointed out that, since the six members of the Delegation at present making a tour of inspection in China are also members of the Statutory Committee and since the Statutory Committee consists of eleven members, unless his arithmetic was very much at fault, the unanimous decisions and recommendations of the visiting Delegation should carry very considerable weight on the Statutory Committee.

The latter's duty will be to draw up a scheme for the disposal of the funds in question, which would then be submitted to the British Government for its final approval, and the opinion was expressed that the recommendation of the Statutory Committee would receive the very fullest consideration.

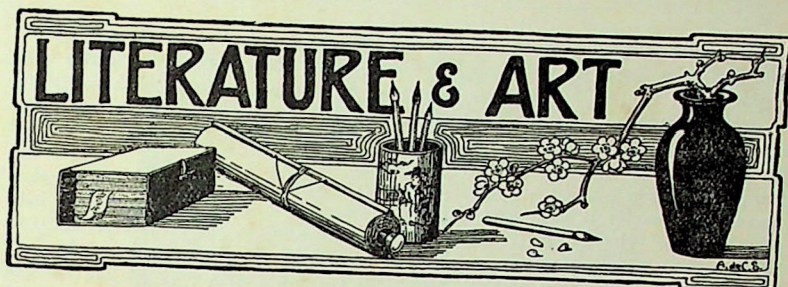
This frank statement of the situation should go far to dispel any misapprehension on the part of the Chinese as to the disposal of the British portion of the Boxer Indemnity Fund. We may point out to our Chinese friends that the British Government is not the kind of institution that gives with one hand and takes with the other. Furthermore, it may be pointed out that the decision to apply the funds in question to educational and other purposes in China was made in 1922, before

any of the unhappy incidents which have set up an estrangement between the British and Chinese people had occurred, so that it cannot in any way be construed as an attempt to curry favour with the Chinese on the part of the British, or as a belated friendly gesture.

On the other hand, the British people cannot be blamed for insisting that the funds be spent in such a way as further to cement friendship between them and the Chinese; and, indeed, it is only in so far as the Chinese people accept the gift in the spirit in which it has been offered, and co-operate whole-heartedly in its disposal on the principles laid down that the generous and friendly gesture will not have been wasted.

As to the method of disposing of the funds, amounting to \$11,000,000, to be distributed during a period of about twenty years, the members of the Delegation have no doubt received a plethora of suggestions. Notwithstanding this, we venture to offer some very definite suggestions for the consideration of the Delegation. The first of these is that the ultimate disposal of the funds shall be placed in the hands of a body of responsible British and Chinese in China, of about an equal number of each nationality, and appointed by the respective Governments concerned; and that this body shall consist of prominent business men and scientists as well as educationalists and others. The second suggestion is that certain broad, but very definite, lines along which this body is to work shall be laid down at the outset, and which shall be adhered to. The third suggestion is that the funds shall be used to establish and maintain (1) adequate primary schools for the Chinese in every British Concession and Settlement in China; (2) a series of scientific research stations at strategic points throughout the country, under proper supervision, and open to Chinese and foreign students alike; and (3) two or three up to date museums of science and art. These, too, should be stationed at strategic points, as, for instance, Shanghai, Hankow and Peking or Tientsin. In this connection, it might further be suggested that the body controlling and disposing of the funds might establish for its headquarters an institution in Shanghai, which itself might include a museum, a biological research station, and a well stocked reference library. The disposal of the funds along such lines as suggested above could not fail to be of the greatest value to China and the Chinese people, and the fact that Great Britain had, through her generosity and the farsightedness of her government, brought about these benefits should go far towards establishing once and for all her friendly intentions towards the Chinese people.

A. de C. S.



THE LONG HAIRED ROBBERS

BY

CHARLES A. STANLEY

It is seventy-five years since the inception of the "Great Peaceful Heavenly Kingdom," a period quite too long for the memory of man, and to most of us the "T'ai P'ing Rebels," as they were called by Europeans, stand for little more than a myth. They were the "Long Haired Robbers" (長毛賊) to the Chinese and for most of the period of fifteen years when they were carrying their activities into thirteen of the eighteen provinces it was one long record of pillage and rapine. The genius of the movement seems to have faltered after the attempt on Peking, when in 1854 a large force penetrated North as far as Ching Hai (靜海) only twenty miles South of Tientsin—and History, in the mood of *fait accompli*, does not permit the raising of the supposititious "if." Still one cannot but wonder what might have been the outcome had there been leadership adequate to the task involved. "It is a matter of pathetic interest to know that in the proclamation issued from Nanking in 1860 by the "Shield King," Hung Seutsuen's wisest and noblest adviser and general, foreigners were never to be called opprobrious names, missionaries were to travel and live and preach everywhere, steamboats were to ply on all the waterways, and railroads were to intersect the country. Fire and life-insurance companies and newspapers were to be freely introduced for the good of China; soldiers were forbidden to seize the goods of the people in the villages; the Bible was to be introduced as a text-book in the public service examinations, and, finally, the definite elevation in the status of woman was not merely introduced into a proposed programme but was actually begun under the T'ai P'ing in Nanking. Some genuine enlightenment and some true patriotism must have been stirring in the minds of the leaders in the rebellion, though the mass of their rank and file became a mere rabble with no ambition but that of rapine." (The East of Asia, 1906. Vol. V, pp. 1, 3.)

Hung Hsiu-Ch'uan (洪秀全), the "Heavenly King" (天王), was leader of this movement which proved to be one of the worst human

scourges known to history. It is easy to condemn him as a misguided, mentally diseased fanatic but "let us pause before we form harsh conclusions on the acts of a man of strong religious feelings, who, brooding over the wrongs he and his have suffered, takes to the hills with one or two hundred followers to wage war with an Empire." (Report of Sir Geo. Bonham's trip to Nanking in the "Hermes," April 22, 1853). Ample accounts and histories of the man and of the period have been written and are available so it is not necessary to go into detail here. Suffice it to say that the insurrection lasted from 1850 to 1865, when the last vestige of the "rebels" were stamped out in Szechuan Province. The best authorities estimate the loss of life during this period at 20,000,000—men, women and children.

The reason for bringing back to mind this shuddering fifteen years is the appearance about a year ago of a history of the T'ai P'ings in Chinese (太平天國野史) published by the Chung Hua Shu Chü (中華書局). This is a book of about four hundred pages and it goes into great detail in describing the organization, rites and teachings of the T'ai P'ings. The manuscript came to light in the following manner.

In 1911 Mr. Yao Ying (姚瀛), who happened to be in Ch'angsha, dropped into a book shop and overheard a man by the name of Wang bargaining with the proprietor of the shop for a piece of manuscript. Unable to come to terms, the man left and Mr. Yao asked to see the manuscript which proved to be an account of the T'ai P'ings. He gladly paid the price which the proprietor asked, and, taking the manuscript away, placed it with the Chung Hua Shu Chü (中華書局), who afterwards published it under the editorship of Mr. Ling Shou-ch'ing and with the title, "An Unofficial History of the T'ai P'ings." (太平天國野史)

The following is a translation of Mr. Ling's preface along with part of the chapter of the history having to do with the religious tenets, rites etc., of the T'ai P'ings—namely the General Introduction and the section on Worship (禮拜).

In passing, it is interesting to call attention to the fact that the late Dr. Sun Yat-sen has referred to himself as "a second Hung Hsiu-ch'üan."

AN UNOFFICIAL HISTORY OF THE PEACEFUL HEAVENLY STATE.

(太平天國野史)

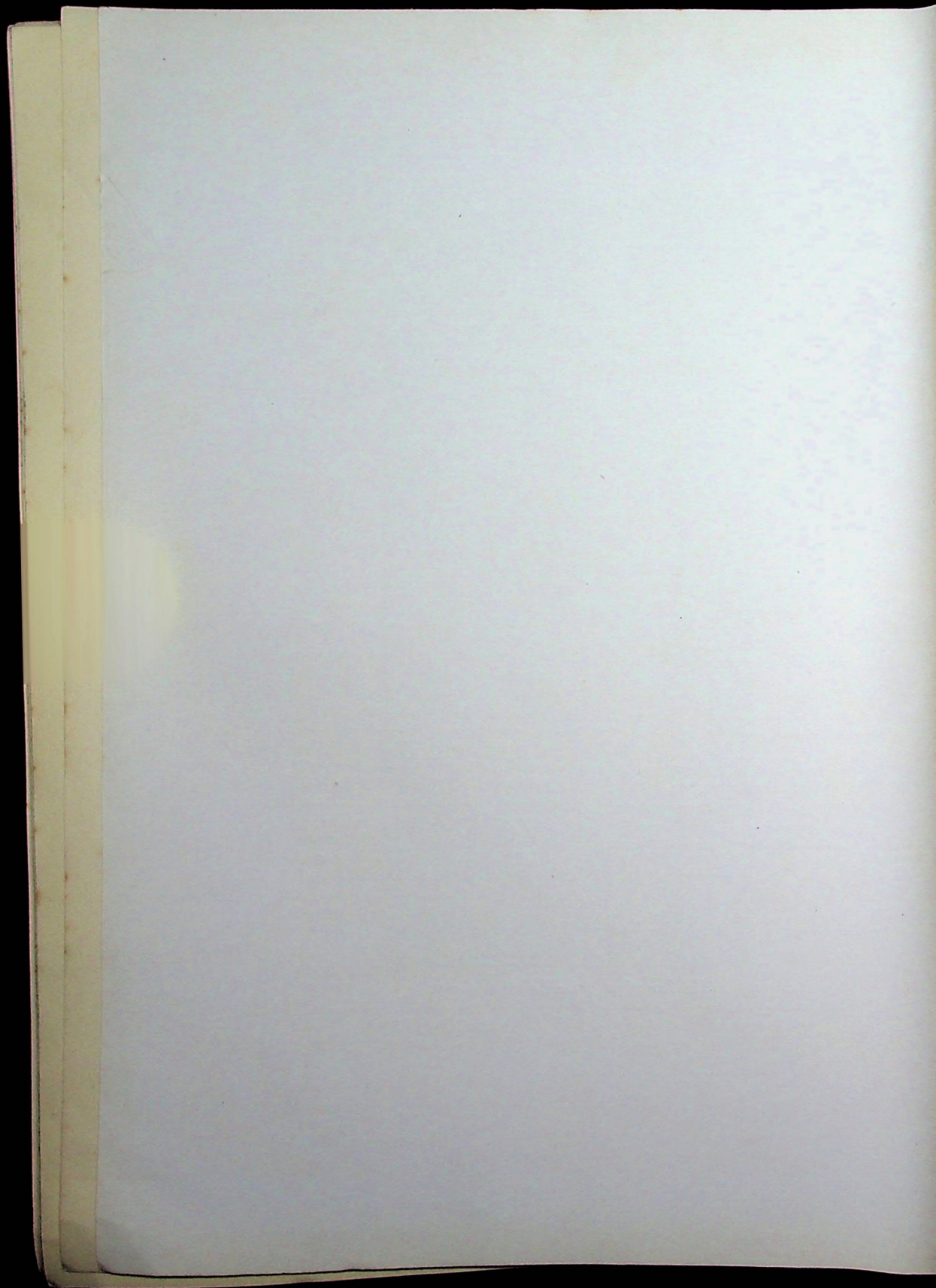
Preface.

The "Peaceful Dynasty" from its inception to the time of its disintegration covered fourteen years. [Hung's forces (洪軍) having siezed Yungan (永安) in the First Year of Hsien Feng (咸豐) of the Ch'ing Dynasty (清) the following year was denominated the "First Year of the Peaceful Heavenly State" (太平天國元年), consequently the actual duration of the state was thirteen years.]

軍 政 司 印



The Great Seal of the Ta'i P'ing Army.



THE LONG HAired ROBBERS

Active rebellion against the government covered a period of sixteen years [Namely from the thirtieth year of Tao Kuang (道光) to the fourth year of T'ung Chih (同治) when Prince T'an T'i Yüan (譚體元) was defeated and killed in Min (閩 Fukien)]. Victory and defeat varied with the rise and fall of fortune. Historically, this period cannot compare with that of Fu Ch'ien (福建) in duration; but in its benefits to the common people it was greater than the period of Wu and Yüeh (吳越). The ordinary individual cannot measure the importance to China of the changing fortunes of this period; but it may be that its influence will prove greater than the suppression of Yüan (元) by Hung Wu (洪武), or the supplanting of the Ch'ings (清) by the Republic (民國).

Intercourse between the West and China had its beginnings in Kuang-tung and Kuangsi and compelled the Chinese of the time, mostly natives of these two provinces, to enlarge their vision to a world horizon. The T'ai P'ing leaders lived at this time and it was when they were studying and teaching the Western religion and had been stirred by the disastrous effects of the traffic in opium that they set up their banners. Though there was little real peace during these years it must be acknowledged that the experiments of this period form the background of the reforms of the Ch'ing Dynasty, such as the doing away with civil examinations, the teaching of science, the prohibition of opium, the emphasis upon hygiene, the edicts against foot-binding and the emphasis upon female education; and the reforms in dress, the revision of the calendar, the fulfilling of treaties, the emphasis upon the new world spirit, etc., of the Republic. Furthermore the disuse of the term "Emperor" in favour of "King" and the copying of the British governmental forms would seem to have a deep significance as a preparation for a popular leader. Had Heaven furthered their original plans, the disturbances of our day might have proved to be a thing of the past and the great Asian continent—the heritage from our emperors—might have been brought to a condition of stability even greater than that of Japan. Still, who can say. However, the effort overshot the mark. At a time of great unsettlement, the attempt to impose by decree an untried form of government upon a people who inherently and for thousands of years have been conservative, produced general fear and uncertainty and unreasoning opposition, to the advantage of others. Thus a beam of light was turned to gloom. The words of Confucius find fulfilment in the T'ai P'ing Princes: "Undue haste will hinder."

When I was a child I used to beg my mother beneath the evening lamp to tell me a story. She would tell me of the cruelties and sufferings of the period of the T'ai P'ings, pointing out without favour the faults of both sides. She did, however, praise Shih Ta-K'ai (石達開) and Li Hsiu-Ch'eng (李秀成). When I was older I did a great deal of reading only to find that whenever anyone made reference to the T'ai P'ings it was always in derogatory terms. Especially was this so in reference to the two Princes, I (翼) and Chung (忠). [The two just mentioned.] When because of compulsion everyone's mouth is closed,

then one realizes the concealed suffering of the people. In what is written this fact is even more serious than in what is spoken, and so the real truth about the T'ai P'ings has been lost.

In the summer of Hsin Yu (1921) Mr. Ting Fu-Chih showed me a manuscript copy of Hung Yang Chi Shih (洪楊紀事), which was in the possession of Mr. Yao. The author had not subscribed his name. The manuscript contained an account of the T'ai P'ings up till the Fifth year of Hsien Feng (咸豐). [The fourth year of the T'ai P'ings]. Each of thirty people had written about one hundred words and it was all regarding officials and the military organization, all very careful and minute. This material was not found in other books. For this reason I collected all available material and compiled a history, adding what was lacking, altering what was incorrect, and being more specific in what was too general. This labour consumed a year. Though in copying the originals there may have crept in mistakes, yet everything from first to last should be here. Now that this account of the T'ai P'ings has been compiled, other students of the period may be able to make additions. This has been the original purpose of my labours.

The twelfth Year of the Republic.

The third Month. Wu Hsing (吳興)

Ling Shan-Ch'ing (凌善清).

CHAPTER FOUR.

Religion.

In the two Kuang and Fukien the Catholic Church (天主教) was the most in evidence in the early days. In the first year of Tao Kuang the local officials instituted a very serious persecution against them, whereupon the nomenclature was changed from a religious sect (教) to a society (會), such as Supreme Ruler Society (上帝會), Younger Brother Society (添弟會), Society of the Small Sword (小刀會) and so forth. By the close of the Opium War, with Chinese and foreigners living together up and down the coast due to the opening of five treaty ports, these clubs and societies had greatly increased. When Hung (洪) first organized his society it was called the Supreme Ruler Society (上帝會). This was changed to the Heavenly Ruler Society (天帝會), also known as the Younger Brother Society (添弟會). For this reason all who entered the organization whether old or young were called "brothers" (弟). Though the name of the organization was often changed, the purpose was similar to that of the Roman Catholic Church, except that there were some superficial differences. [During the Ming Dynasty foreigners, Ricci and others (利瑪竇, 湯若望, 南懷仁), came to China propagating Roman Catholicism and making many converts. They excelled in mathematics and astronomy, doing remarkable work on the calendar. They were good mechanicians and built artillery. By this means they gained entrance to all the cities in the Province of Chihli in which they built temples called Catholic Churches, very beautiful and awe-inspiring. In each church a foreigner was in charge. Anyone wishing to join the

THE LONG HAIREB ROBBERS

organization must first destroy his ancestral tablets and the five symbols of animistic worship, after which the one in charge would receive the applicant. They were known by the name of those who "ate the church" (吃教), also "church citizens" (教民). On their gateways they pasted a piece of red paper on which was drawn an oval encircling a cross. (In order to keep continually in remembrance the God whom they worshipped, named Jesus, who died crucified.). On the first and the fifteenth of every month members, men and women, met in the church behind closed doors for worship where they remained till evening. In illness they must have a member of the church to cauterize. Women also were to be naked when treated. In case of death the person in charge sent people to shroud the corpse. After the shrouding, the corpse was wrapped in a sack of white cloth which was sewed up around the neck, and then placed in the coffin. At first the Chinese looked upon the church as heterodox, and only by the moderate use of "benefits" (利) could its preachers gain a few adherents. Later, when the people became convinced that the organization was prompted by no motives other than compassionate goodness, some intelligent people became converts.] They (T'ai P'ings) taught that Heaven ruled the cosmos, and that the Lord of Heaven ruled Heaven. All altars for the worship of heaven, earth, nature, ancient worthies and ancestors should be abolished and one should worship the Lord of Heaven alone. Further, had not the Lord of Heaven from the beginning of things kept creation together, heaven long since would have fallen and the earth would have turned over. In addition they teach that Jesus is the son of the Ruler of Heaven (天帝), who was born in Judea during the reign of the Emperor Ai (哀帝) of the Han Dynasty. He influenced men by his goodness and performed many miracles. King Herod hated him, took him by force and crucified him. After seven days, he re-coordinated his bodily functions by a spiritual energy, broke the tomb and appeared living for three days. Reciting some precepts, he departed up into heaven, where he remains till this day as the Lord of Heaven for all eternity. Their books of salvation teach that you must serve no gods but Heaven. There are many Heavenly Precepts, such as against murder and wrong-dealing, adultery, robbery, being unfilial, knavery and all evil. Marriage must be performed by the proper authority and must not be illicit. The rules were very commendable. At the first the leaders observed them very carefully: but later with the establishment of a military organization carrying several tens of thousands of men, although the religious rules were the basis for the army discipline, it was inevitable that there should be a certain amount of robbery, murder and disorder, and it was impossible for those in command to punish all offenders. While the Great Peaceful Army (太平君) emphasized its religious tenets it was unable to carry out its own regulations and seemed to make use of these tenets as a sort of label.

Worship.

The T'ai P'ing army, when in cities and towns, was billeted in the homes of the people; but when they camped in the open they erected

large wooden barracks usable for purposes of religious worship. The following is a condensed account of these rites. Where tables and chairs are not available the people may be seated on the ground in the worship of the Heavenly Father. When in cities and towns every effort must be made to give them proper setting.

When a city or town was taken, the more pretentious dwellings were occupied by the higher officers and the smaller ones by those of lower rank. Each dwelling accommodated one hundred or a few tens of soldiers, according to circumstances. In the centre of the main room a square table was placed which had a table scarf, either plain red or of embroidered material. In each room there were hung curtains, a lantern, scrolls and pictures. Sacrificial vessels, vases and mirrors were in place. These might be appropriated by force as needed. Should there be four glass lanterns one should be kept and the others distributed. Decorative lanterns should be treated in the same way. Thus there were no "pairs" and nothing could be hung in order. Honourary scrolls with gilt lettering should also be distributed singly. Appropriate a different one to make up the "pair," thus there would be no order with these. Thus everything in the room, scrolls, pictures, lanterns and vases, was placed in order to produce an effect of gorgeousness. But not knowing where things should be placed and with everything in disorder, the effect upon one who really knew how things should be was one of secret mirth. Incense and candles were not placed before the table of the Lord of Heaven. Thus there were no incense burners nor candle-sticks. Near the front edge of the table were placed two oil lamps. There was nothing specified as to what was to be on the table except that there must be a pair of vases or hat stands, in each of which was stuck a small three-cornered flag of authority, made of yellow satin. In front of the table there was an upright of bamboo about three feet long and one inch wide, on which was the legend, "By Heaven's Authority." Behind the table were placed three chairs with cushions, etc. These chairs were for the highest in authority, the second and the secretary. Were there more secretaries, five or seven chairs might be used.

Every seventh day was reserved for worship. On the day previous the authorities ordered deputies, carrying the "flag of worship," to go through the streets beating cymbals and crying that "to-morrow is the day of worship." Everyone should be devout and there must be no disrespect. Just after midnight, each billet must light the two lamps and place offerings of three cups of tea, three plates of sacrificial meat, three bowls of rice, calling everyone together by the beating of a gong. The officer and secretaries assume the chairs placed in the centre while the soldiers sit about on either side. After a hymn of praise the secretary pens a memorial on yellow paper, writing down the name of each person in the billet. Holding this in his hands and kneeling, he reads the roll in a loud voice while all the others remain on their knees. After the reading the memorial is burned and the offerings are eaten by those present. These are the rites for the seventh day, the day of worship.

Every day for the morning and evening meal, the sound of gongs summoned the assembly. Three bowls of tea and of rice must be offered.

THE LONG HAIREd ROBBERS

From the highest down, everyone is seated. After a hymn of praise the secretary prostrated himself and in silence presented the memorial. This was called the silent litany. The assembly knelt during this ceremony, after which they partook of their meal. The T'ai P'ings, knowing the poverty of the country people, used to attract them by giving them three meals. Worship was conducted in the morning and the evening but not at the time of the noon meal. One could surmise the type of officer in charge by the attitude of reverence or disrespect evident at the times of worship.

There were those who, when kneeling and presenting the "silent litany," would say in low tones, "May the Heavenly Father, the Supreme Ruler use his great authority; thunder upon the Heavenly Prince (天王), and consume with fire the Eastern Prince (東王)." Those who knelt behind and heard these words dared not to divulge them but had to maintain an attitude of respect just as the brethren from Kuangsi did. (Note: This must refer to the lack of harmony which developed between some of the leaders.)

If when you were not ill you did not present yourself at the sound of the gong, or showed any levity, you were beaten with several hundred strokes.

The tables and chairs which were used for worship were also used for court when necessary. Whenever the "clapper" sounded, silence prevailed. If without excuse you were absent from worship three times you were reported to the general and publicly executed. The foregoing regulations were carried out in the smaller places.

In the Heavenly City (天京 Nanking) a platform was raised without the main gate of the palace as a place to celebrate birthdays and festivals, and to worship Heaven. Within the palace there was an altar for worship, elaborate almost beyond description. The palaces of Princes Yang, Wei and Shih (楊韋石) was similarly arranged. Before worship at the morning and evening meal, the cymbals must be sounded sixty-four times and music played three times. Concubines and female officials to the number of about one thousand joined in the hymns of praise with a volume of sound that swelled the halls. The order of the gongs was as follows: in the presence of Hou (候) or Hsiang (相) 48 strokes; before Chien (檢) or Chih (指) 36 strokes; before Tsung Chih (總制) or Chien Chün (監軍) 24 strokes; before Chün Shuai (軍帥) 20 strokes; before Shih Shuai (師帥) 16 strokes; before Lü Shuai (旅帥) 12 strokes; before Tsu Chang (卒長) 10 strokes; before Liang Szu Ma (兩司馬) 8 strokes. (Note. Various army rankings corresponding roughly to Major-General down through Sergeant.) From the rank of Prince (王) to that of Chih Hui (指揮) music must always be played.

Before each time of worship officials must make out signed orders to be presented at the various proper offices in order to procure the fruits, cakes, sea food, etc., for the offerings to Heaven.

This is the order of things at the Heavenly Capitol (天京). In the other camps it was not so, the offerings consisting of whatever they happened to have handy. When there was abundance there was variety;

but even when there was little in sight an offering must be made. Of the meats offered, dog meat was considered the best. When the ceremony was over the offering was distributed. On special occasions such as birthdays, festivals, the military occupation of a city—any occasion for rejoicing in the army—there was something out of the ordinary. A special banquet was prepared as an adequate offering to the Heavenly Father.

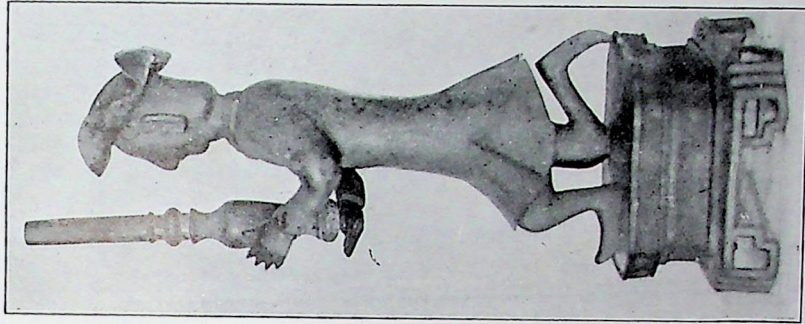
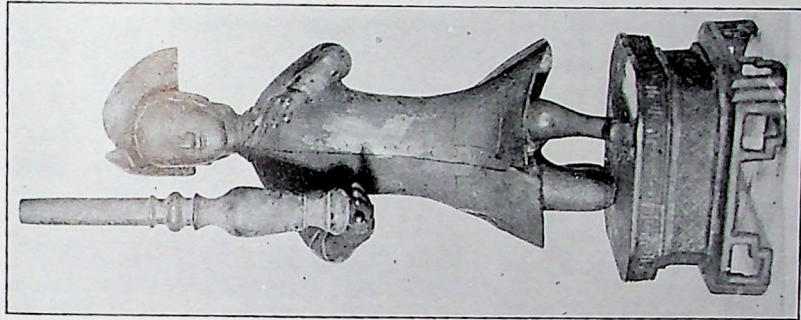
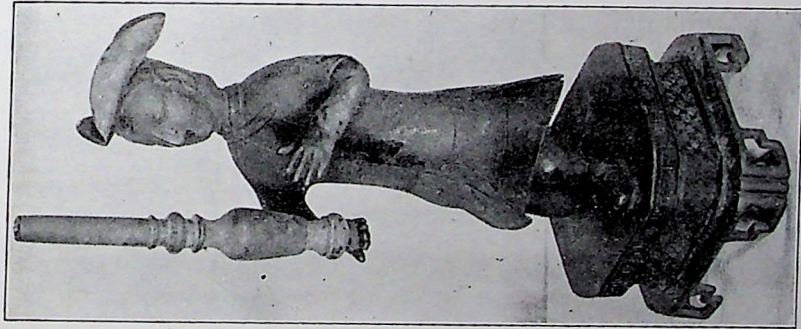
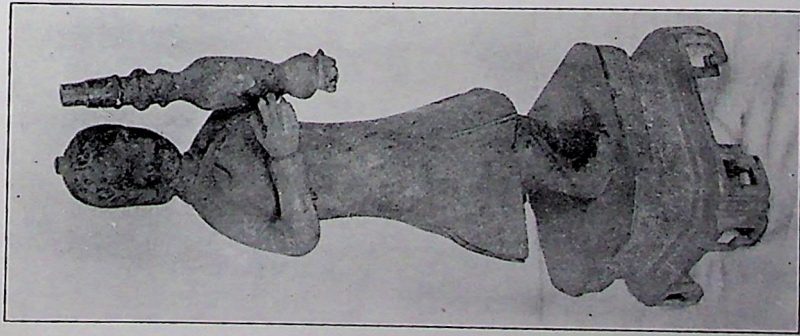
On occasions of illness or some special happiness, the event was written out in fashion similar to the Heavenly Rules. This was read and then burned as worship of the Heavenly Father, or as a petition for happiness. Special celebrations in the army must be on the Day of Worship and all inferiors in rank were supposed to present scrolls of congratulation. The period of punishment by the cangue was also determined by the Day of Worship. One's sentence would be for three days of Worship (weeks), or five weeks and so on. All affairs of the army were similarly determined. For instance, the proclamation that if Wuch'ang were not taken in three weeks the one in command would be recalled to the capitol for punishment. All requisitions for provisions must also be made on the day of worship.

A CURIOUS CHINESE CANDLESTICK

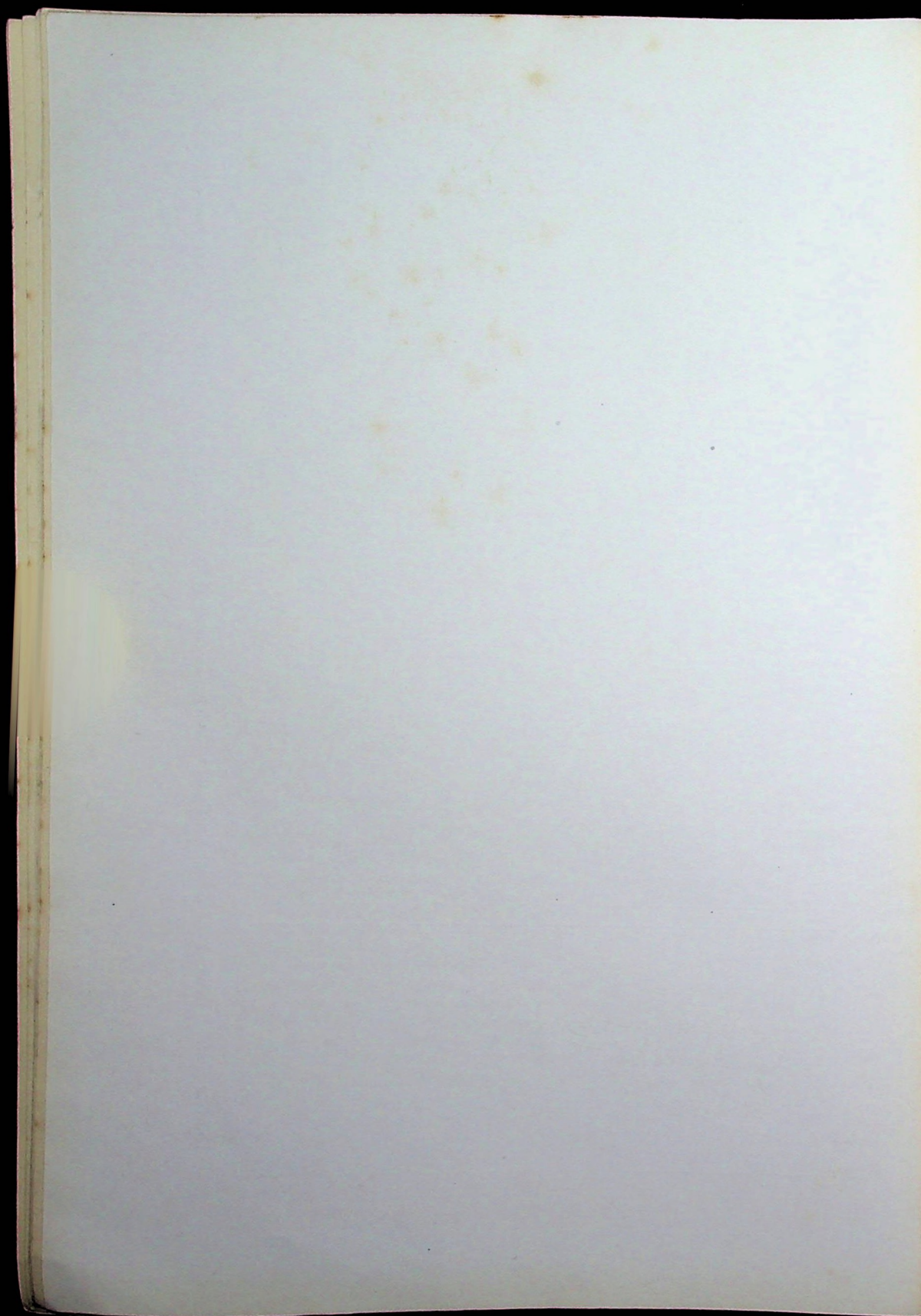
BY

R. P. HOMMEL

By mere accident I saw in a Chinese drygoods shop in Linkiang, Kiangsi, which I had entered to buy some trifling article, a number of old pieces of bronze. The shopkeeper had acquired them from a pawnshop, where they had been left beyond the period allowed for redeeming them. After some negotiating I acquired the pieces, among them a pair of candlesticks, representing a kneeling person in foreign, old-fashioned dress and a tricorne on the head. As the accompanying pictures show, of the two figures one kneels upon the left knee with the other merely bent, and balances upon the outstretched left hand a turned rod with a hole at the upper end for the candle; while the other figure, an exact counterpart, kneels upon the right knee and supports a candleholder with the right hand. The height of the figure with base is 13 inches. The base is typically Chinese. On the figure itself, however, nothing is Chinese except the slanting eyes, which the modeller apparently had not recognized to be a characteristic of the yellow race only. This is a slip of the artist, who undoubtedly wanted to represent a foreign person, not merely a person in foreign attire. This intention we perceive from the unduly high nose, the shape of the head, and the way the hair is treated. The forehead is framed with curls and the hair at the back of the head ends in what reminds us of a bag-wig, or a thick crop of hair,



Different views of a Pair of Old Bronze Candlesticks, showing old-fashioned European Figures, but evidently of Chinese manufacture.



A CURIOUS CHINESE CANDLESTICK

covering the neck and trimmed evenly to leave just a small space of the neck bare above the neckcloth which the figure wears instead of a collar on the coat. The tricorne and the long tightfitting coat with long outwardflaring flaps give us the clue to the age to which this figure belongs. It is the style of a gentleman's attire of about 1740. The coat buttons in front, and has a row of buttons from the neck down to a point where the flaps start to flare outward. There are slits in the coat on both sides from the hip down and one in the back, and the four flaps thus defined have each a large square pocket sewed on, which is indicated on the figure by incised lines. After careful scrutiny of the figure we come to the conclusion that the artist did his best to do justice to the task set before him—to depict a foreigner. That he has not succeeded in every detail is not surprising. We must remember that the Chinese artist is not versatile. He is not compelled continually to invent new things to gain the applause of a fickle public. In every line of endeavour, it is well established what has to be produced and in what manner.

Now the interesting question presents itself: What is the purpose of picturing a foreigner on a Chinese candlestick, in a kneeling position and, as it were, offering light?

We know that the bending of knees or "kow towing" before officials was a custom against which the foreigner ever revolted. Likewise the chagrin of the officials was also great at the arrogance of the foreigner who withheld this customary avowal of respect in China, their own country, the kingdom *par excellence*. Chinese etiquette (and no doubt sagacity) forbade the mandarin to censure openly the conduct of the foreigner, but what a chance to come back at him with sarcasm!

Picture to yourself an audience given by a mandarin to a foreign merchant; place, Canton; and time, the middle of the 18th century. The foreigner is a gentleman and quite distinguished from his followers by his courtly dress—a long coat with bepocketed flaring flaps and a tricorne on his head. He is ushered into the hall of the mandarin and finally, after exchange of many polite words, conversation turns to business, the purpose of the visit. Documents are produced and must be scrutinized. The hall is dark. "Hey boy, bring the candles!" And now comes the interesting moment. The candles are brought and placed before the mandarin. "What is that?" The foreigner starts and checks himself in the same instant, the thought has not escaped his lips, but the wily mandarin from behind his horn-rimmed spectacles has observed the effect produced by his carefully planned and skilfully introduced weapon, to wound the feelings and pride of the foreigner. A foreign gentleman kneeling before a Chinese with candle in hand, as a slave performs the menial service of lighting his master—indeed the sarcasm is deep and cutting.

It is, of course, not established that this explanation solves the riddle of the figure, and I give it only as a possible one which suggested itself after carefully studying the figure in all its details.

If further proof is wanted that the figures are of eastern manufacture, it is found in the markings for assembling the various parts. The figure is rivetted to the base, the trunk soldered to the legs and the hat fixed

to the head ; but all these once separate, parts of the one figure are seen to be marked with the Chinese 六, liu (six), and of the other with 九, chiu (nine). Besides proving my contention, these numbers admit of another deduction, viz. that more than just these two figures have been produced, and if any of the readers should be envious of my find, he has the consolation that he by chance may run across another pair of these interesting figures.

TO THE POETS OF T'ANG

Most lovely singers of the golden years,
How shall we thank you for your noble gifts ?
The slight praise of a singer little worth
Is less than naught. But as the moonlight sifts
Through latticed windows, if it bring the tears
Of Li T'ai-po in exile back, then say :
" They live yet who belong to our own day ;
Still are we known and loved upon the earth."

Your gracious Spirits so pervade this land,
We feel you press around on every side ;
Does but the Spring wind stir the willows' hair,
Or apricot with rosy down-pour hide
The violet, or little children stand
With grey, old buffaloes and watch the sun
Fall to the western hills, all blue and dun,
And birds fly homeward through the limpid air.

All that was beautiful in life you loved ;
Beauty in Man and Nature and in Art.
And now a lone cloud in a noonday sky
Is lovelier far because a poet heart
Thrilled to sweet music as a lone cloud moved
In a blue sky a thousand years ago ;
And ancient cedars, black against the snow,
Are richer for your touch of poetry.

The southward flying squadrons of wild geese
Bring more than a lament for Autumn's close.
And even the clatter of these civil wars
Becomes intensified because of those
Who suffered in your day, whose broken peace
You made into a music full of tears.
Do you know how in these dark, later years
New weeping rises to the ancient stars ?

TO THE POETS OF T'ANG

When the bright moonlight, falling softly through
The rustling foliage of some bamboo grove,
Makes bars of silver on a sable ground,
We listen lest perhaps one hurt by Love
Hides in the shadows, as they used to do,
With lute or "hsiao" to tell her heart's deep grief,
Till the night throb and every little leaf
Tremble for pity and sweetness of the sound.

The mist-girt hills lie charmed beneath your spell,
Where hermits gather fragrant, healing herbs.
Down cedar-shaded courts you walk with us,
By gold-roofed temples where no sound disturbs
The silence, save a solemn, deep-toned bell.
And by the willowed streams we almost see
The flutter of your robes as, leisurely,
You wander and so gently talk to us.

As that great music which blind Homer made,
Or sweeter flutings of Theocritus
Rendered Greece greater, Sicily more fair,
Gave meaning these could not have had for us
But for their music ; so you, too, have paid
Your land rich tribute ; for it is your art
By which we feel the strong beat of Her heart,
Learn Her old dreams and laughter and despair.

There lies the beauty of Life's little things
Held in the clear-cut crystal of your verse.
There, too, the chrism of dead women's tears,
The tread of marching troops and the perverse
Intrigues of courts and jealousies of kings,
Exile, the bitter parting friend from friend,
Death and the lonely path we each must wend,
And Hope that Death atone for Life's arrears.

Down through the curtained, twilit centuries
Your brave, sweet voices call to us to-day.
The flame still burns within your ancient shrine
That lighted others groping their dark way
To Truth and Beauty. God, I dare surmise,
Had wondrous joy to feel beneath His hand
An instrument that could so understand
And give again His melodies divine.

ALAN W. SIMMS LEE.

EDITORIAL COMMENTS

ASIATIC ART

Mr. Laurence Binyon has produced a most readable book in the English version of Vol. VI of "Ars Asiatica" which was published in French nearly a year ago. As might be expected from a poet and play-writer, Mr. Binyon writes most charmingly. No one has equalled him in the pleasing presentation of his views on subjects connected with art in various countries of Asia. He has a profound appreciation of spiritual mysteries which fits him to discuss Oriental culture. This has made him a valuable interpreter to the English-reading public of the art of various countries of Asia in the same way as Fenelossa's admiration of the art of Japan and China stirred a genuine interest in the subject on the part of American collectors and museums. It has been a hard struggle for the art of Asia to win a place alongside of western art and a right to be considered seriously; and the great ability of Binyon to express himself in happy phrases of the language of artistic literature, has contributed in a large measure to the standing which art products from Asia now have in the museums of the western world. Such pioneer work was necessary: and it has been most fortunate, both for the western world and the art-loving countries of Asia, that such an able writer as Binyon came forward at the time when easy communications made possible the free introduction into Europe and America of art objects from Asia.

Mr. Binyon has outlined in his introduction to this volume the steps that have been taken in bringing the art of Asia into its present position in the British Museum. Japanese prints, Chinese sculpture, Indian paintings, Persian miniatures all had their influence. "Thus in a few years our whole conception of Asiatic art has been entirely transformed. Taste meanwhile has changed and been enlarged. Rare æsthetic quality can now be recognized where a preceding generation found only an exotic curiosity." These phrases show the change which has come over the western world in its attitude toward the art of the countries of Asia. Curiosity and admiration have given place to a real desire to obtain accurate knowledge and correct estimates of Oriental art objects.

As far as western writers on the art of Asia are concerned, one further step must be taken; and that is to do away forever with the use of the term "Asiatic art." Okakura's statement that "Asia is one" is most misleading if applied to art from any point of view except that of a westerner. Viewed from Boston where Okakura lived and wrote or from London, such a phrase has a certain amount of truth. The ordinary westerner looking at two paintings, one Japanese and one Chinese, readily puts them into the same class; but no Chinese or Japanese critic would fail to separate them at his first glance. Okakura thought and wrote as a westerner but with his early life in Japan as a background, he did yeoman service in aiding the Boston group of enthusiastic admirers of Oriental things to see intelligently some of their really admirable features. It was the westernized and not the Japanese Okakura that said "Asia is one"; but unfortunately the phrase has persisted as the mature opinion of a scholarly easterner. Upon it has been built the fiction that there is such a thing as "Asiatic Art" in which art objects from India, Siam, Burma, Tibet, China, Japan and Turkestan are grouped together. Doubtless we have made progress in being able to have any part of our museums set aside for exhibits from Asia: and it may be said that the Orient is fortunate in that the West has shown sufficient catholicity to go as far as it has. Such reflexions, however, carry us back to the days of museums when Egyptian mummies and plaster casts of Greek sculpture could be found in the same exhibition hall as examples of "ancient art." There is about the same reason for putting the art of India in the same category as that of China, as there would be to put objects from Egypt and Greece together in a modern museum; and there is quite as good a reason for perpetuating the term "ancient art" as Asiatic art. Both terms belong to the amateur period of art criticism.

EDITORIAL COMMENTS

We have not yet begun to take the art of Japan, of China, of India, of Persia as seriously as they deserve or even with the same respect that we show to other departments of art in our museums. A curator of classical art is expected as a matter of course to know the Greek and Latin languages; the curator of Egyptology must know the enchorial writing of Egypt; but as for the art of Asia, or Asiatic Art as it is called, it is still thought by our museums that an admiration of or general interest in any one branch of it, such as porcelain or sculpture, is sufficient qualification for a curator without any greater knowledge of the language or literature of an Asiatic country than can be obtained by self-teaching. In other words, as far as our western museums are concerned, they are still in the realm of an "exotic curiosity" concerning the art of Asia; and too often this has been true of writers as shown by the publications of a London firm during the last few years. We would not for a moment discourage "exotic curiosity"; but, on the other hand, there is the clear duty of constantly bringing to the attention of our museums the need of progressing beyond the stage of lumping together the art of all the countries of Asia as "Asiatic Art." Already a start is being made: for there are now in China several young men who are devoting a few years to the study of the Chinese language and literature as a basis for work in western museums and as writers upon the art of China. There is no fear that these young men will have any use for such an expression as "Asiatic Art." They will at least endeavour to know thoroughly the art of China before comparing it with that of other countries. Until we take time to know more of the art of each country of Asia, it is idle to indulge in phrases of admiration concerning comparative art such as is implied in the title of this book.

Mr. Binyon refers to the "process of disenchantment that has gradually robbed us of many cherished illusions," and goes on to say that "the tendency has been for T'ang to become Sung and Sung Ming and Ming Ch'ing." It would be a most encouraging sign if this declassification had been proceeding along intelligent lines of patient investigations: but up to the present, the movement seems only to be inspired by timidity and the fear of taking a definite position respecting the period to which an object should be assigned. This timidity is natural to those who can make no use of material which is to hand on account of their lack of knowledge of the Chinese language. The process of retreat from the tendency to antedate Chinese paintings began with Mr. Binyon himself. In 1912 Mr. Binyon wrote his introduction to the British Museum reproduction of a painting of Ku K'ai-chih called Nü Shih Chen, and expressed the opinion that this was unquestionably "the actual work of the master to whom it is attributed." His opinion was based upon such information as he had received from the sinologues Giles and Chavannes. In "Adversaria Sinica," Series II, Vol. 1, Prof. Giles published a translation of the comments of the Emperor Ch'ien Lung on this picture, and the text was elucidated by notes made jointly by Prof. Giles and his son Dr. Lionel Giles. In the North China Branch R. A. S. Journal, Vol. XLIX, 1918, I called attention to the mistakes which had been made in translation, especially in regard to "Secretary Ku" and in the misreading of three characters. Later I gave a complete list of the seals found on this scroll, and stated that the evidence of these carried us back only to the Northern Sung dynasty or possibly to the T'ang. It should be noted that no statement which I have made concerning this scroll of Ku K'ai-chih has been based upon conjecture or opinion but upon evidence furnished by the scroll itself and by the statements of Chinese authorities. The result of my criticism of this scroll has been that Mr. Binyon's opinion of 1912 to the effect that this was a scroll "by" Ku K'ai-chih, has suffered a conversion in this volume to the statement that it is "by or after" Ku K'ai-chih. This last attribution, though an evidence of timidity, is also an encouraging sign. Perhaps in some of his later writings Mr. Binyon will say only that it is "after" Ku K'ai-chih. The only point of importance as to whether "by," "by or after" or "after" is used, is that the use of the preposition should be based upon evidence that can be adduced and not upon personal opinion or taste. T'ang should be T'ang on evidence, not on the statements of brokers; and it should not be declassified as Sung on any other basis than some new evidence that has come to light. The recent work of Mr. Lodge in the Freer Museum at Washington, in changing the period to which Mr. Freer had tentatively assigned his paintings and in changing some pictures from the artist whose names they bore either as signatures or on labels, to some other artist, must have been based upon a profound knowledge

of Chinese books if it is to prove of any value. It is more probable that the changes have been made on the basis of personal taste and we suggest that this is even not as reliable as the original signatures or labels which were placed there by persons who were probably more familiar with the works and style of Chinese painters as recorded in Chinese literature, than Mr. Lodge. This declassification of Chinese paintings in the Freer Museum cannot be accepted as an evidence of progress unless Mr. Lodge in each instance produces his reasons based upon recognized Chinese authorities. In the catalogue of the special exhibition of Chinese paintings in the Metropolitan Museum 1914, I quoted as far as possible in my account of each painting my authority from some Chinese standard book for the description which I made. This seems to me the only sound method for critics. We may disagree thereafter as to the reliability of the authorities quoted or the connexion between the quotation and the particular painting to which it is referred, but at least the discussion is raised above the level of personal taste.

It should be unnecessary to repeat, but knowing the sensitiveness of authors, curators and collectors, I must repeat that I have only words of commendation for the charming way in which Mr. Binyon has always called the attention of the western world to the attractions of the art of the various countries of Asia, and for continuing this good work in the present volume. Asia has been most fortunate, I repeat, in securing the devotion and advocacy of Mr. Binyon: but I feel sure that no one would be more anxious than he that the western world should pass as rapidly as possible beyond the stage of "exotic curiosity" into that of careful scholarship. It has never been a pleasant task to me to call attention to the lighthearted manner of many of those who have interested themselves in the art of China, and to insist upon the necessity of careful study; while at the same time I have sought not to drive them away from their enthusiastic admiration of it. I have always tried to keep in mind what the Chinese critics whom I know and with whom I constantly associate, would think of opinions expressed in western languages if these were translated into Chinese. Sometimes I have found that these opinions have been so exotic that they would seem absurd when translated; and therefore they can be immediately rejected as of no value. With the long line of Chinese critics and writers to whom reference may be made instantly, I may be pardoned if I pay but slight attention to the personal opinion or taste of any of the curators of Chinese art in our western museums or of western writers unfamiliar with the Chinese language. At the same time, I welcome the appearance of any statement made by them which is based upon a scholarly understanding of Chinese art literature. In my opinion we must wait a very long time before any Westerner is born who will be able to help the Chinese to revise their present canons of art criticism. For the present we must be content to learn from their writings what is the opinion of Chinese critics, and be guided thereby.

J. C. F.

REVIEWS

CHINA'S NEW NATIONALISM AND OTHER ESSAYS, by H. F. MacNair,
Ph. D., Commercial Press, Ltd., Shanghai, Price \$2.50.

Dr. MacNair, Professor of History and Government in St. John's University, Shanghai, here presents us with a series of very readable essays, most of which "have appeared during the past three years in the *China Weekly Review*," and which, as the author says in his preface, deal with random topics and are "attempts at interpretation of certain aspects of old and new China. . . . written primarily with two types of reader in mind, namely Chinese students and those foreigners who are not well acquainted with modern China." Thus the book has no special continuity of form and may be opened at any point and read with enjoyment and benefit. But the reader will soon find that there is a very definite trend or purpose, which may be summed up as an attempt on the part of the author to explain the East to the West and the West to the East and so bring about a closer understanding and sympathy between the two.

In the essay on racial and national superiority Dr. MacNair refers to "the abysmal depth of ignorance which prevails in Japan, America, and Europe concerning China and things Chinese" and to give point to his remarks he quotes from the innocent and sentimental maunderings in an English newspaper of one of the leading British politicians. There he hits the nail on the head. The chief source of all trouble between Westerners and the Chinese is misunderstanding arising out of ignorance on both sides. A thoughtful book, such as the one under review, if widely circulated, should materially help in dispelling this dangerous ignorance. "It is well for foreigners and Chinese to study each other with sympathy and to act as interpreters for the good they find in each other. To assume that superiority rests on one side and inferiority on the other is foolish. . . ." and, we might add highly menacing to the future prosperity and good relations of East and West.

China's new-found nationalism, which is discussed in the first essay, is given as one of the contributory causes of recent strained relations between foreigners and Chinese, but, as is well shown, foreigners can hardly blame the Chinese for their new nationalism when for the best part of a century foreign missionaries and teachers have been pointing the way to it. This new nationalism is finding expression in every walk of life, notably amongst Chinese Christians, where there is a decided move towards the establishment of independent native churches. It is fatuous for foreigners in China to groan over the ripening of the fruit of the seeds they have planted.

But Dr. MacNair is fair to both sides. Where he deems it necessary he does not hesitate to point out with no uncertain finger the faults and mistakes of the Chinese. He is not one of those writers who have become infatuated with the Chinese and all their works and write decrying foreign nationals in China and the attitude and actions of foreign governments towards that country merely because they are foreign. On the other hand, he takes many such writers to task, exposing their fallacious contentions and giving in the place of the latter fair and unprejudiced presentations of the matters under discussion. By a consistent and merciless application of the facts and lessons of history, of which he is a keen and able student, the author paves the way to a clearer understanding of present day problems than has been possible heretofore, simply because we have had no such students as Dr. MacNair. His analyses of conditions arising out of the contact of East and West are extensive in themselves and must prove far-reaching in their effects.

Throughout the pages a fine optimism is displayed, and we feel that for this alone the book has come very opportunely. He shows that many of the happenings in China to-day, so far from being abnormal, are merely the ordinary course of events that may be expected in the advance and progress of such a people as the Chinese, and the reader lays down the book after having perused its pages with a distinct

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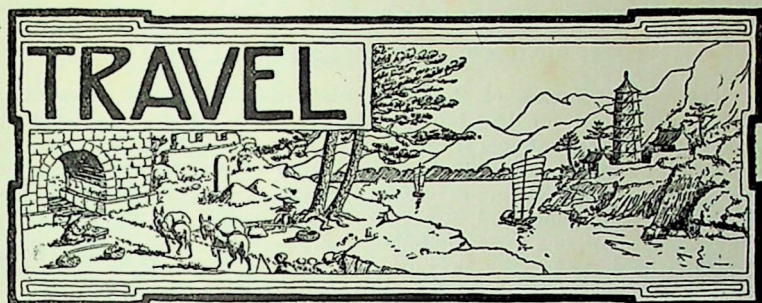
feeling that, after all, things are not as bad in China as they have seemed to be, and that, all things considered, China and her myriad people are working out their own salvation.

With these conclusions we have no quarrel after reading Dr. MacNair's book, for his case is always presented with keen logic, and backed by indisputable facts. We strongly recommend the book to all who have a stake in this country, to politicians in the homelands and to the Chinese themselves. It will prove an eye-opener and an education to all.

DEFENDU by W. E. Fairbairn : North-China Daily News & Herald, Ltd.,
Shanghai :

The art of self-defence is a very important one, especially in a town where the regular police force has to be supplemented by special constables drawn from the citizens. "Defendu," the official text book for the Shanghai Municipal Police, the Hongkong Police and the Singapore Police on scientific self-defence, exposes in detail a system of attack and self-defence. In a foreword the author describes the "Defendu" system as "entirely new and original, and, further, it requires no athletic effort to perform any of the exercises given." It has been devised "after considerable thought and several years spent in its preparation" as the best and easiest means of defending one's self against every form of attack. Naturally it is very extensive and comprises many holds, throws and counters, as well as methods of dealing with armed assailants, the use of batons and sticks, and the securing (tying) of one's opponent. The effectiveness of "edge of the hand" blows is well demonstrated. The required information is given in brief numbered paragraphs, in every case illustrated, so that the student of the art of self-defence as exemplified in "Defendu" can easily master his subject. The book is, of course, primarily for members of police forces, but it may be recommended to the layman. The practical mastery of its contents is bound to endow the student with a self-confidence that cannot fail to stand him in good stead.

A. DE C. S.



THE SALT INDUSTRY OF TZELIUTSING

BY

WALLACE CRAWFORD, M.D., D.P.H.

PREFACE.

Several years ago, the writer was asked to write a short article on the Salt Industry of Tzeliutsing. It appeared in the *North-China Daily News*, and was favourably commented upon.

It would not be out of place to mention here the volume which Mr. Lin, Acting District Inspector of Salt Revenue, Tzeliutsing, has written on the subject of the Salt Industry.

Mr. Lin's work is published by the Commercial Press, and is an exhaustive study of the subject. The work contains many tables and plans of the industry and the work of the Salt Revenue Department of the Government in Tzeliutsing. Mr. Lin is to be congratulated upon the excellent work which he has produced, and the Commercial Press for the splendid way in which they have published it.

The writer has two objects in presenting this article to the public, namely:—

First, up to date only two missions have entered this great field, where there is abundant opportunity for many more, or a much stronger concentration of forces of any mission. The facts revealed hereafter will be convincing as far as opportunity for mission work is concerned.

Secondly, trade follows the missionary. It will be our object to present every side of the industry here carried on, and show wherever possible costs of production, transportation, marketing, etc. This should afford an opportunity for the business man to compare prices of native and foreign methods, and also to get some insight into the opportunities for business in this hive of industry.

If these two objects are achieved the writer will feel that the time spent in preparing this work will not have been in vain.

I.

GENERAL REMARKS.

The whole province of Szechwan abounds in mineral resources. Anyone entering the province by the only gateway, the Yangtze Gorges, cannot help but see that coal is abundant, and as one presses inland, the colour of the earth assures one of an abundance of copper. Evidence of mineral resources is seen on every side. The gold washer is in evidence on the Yangtze foreshore, and, just after one escapes though the last great gorge at Kueichow, one comes upon the first salt wells of the province.

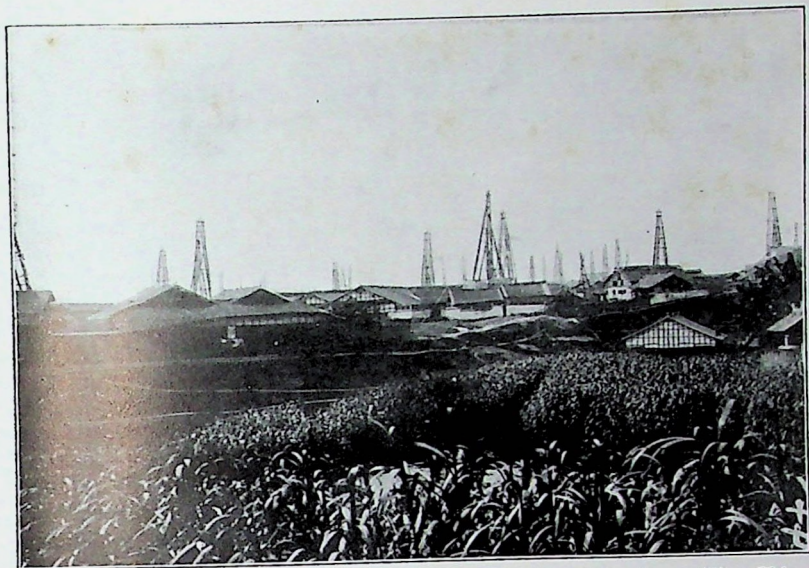
Up to the time of writing the only industry which has been developed on any scale is the salt industry. The total revenue to the federal government for this industry in Szechwan comes to nearly eleven million dollars per annum, of which Tzeliutsing supplies seventy per cent. Thus it will be seen that the great majority of the production of salt is carried on right in this district. It is stated that over fifty per cent. of the salt is manufactured at Tzeliutsing. Being the headquarters of the Government Salt Revenue Department, revenue is collected here for other districts as well as for Tzeliutsing.

The name "Tzeliutsing" which means "self-flowing well" is in great part a misnomer, if applied to the brine wells. The shallowest brine well of which we have heard is about thirty feet. But if the name be applied to the gas wells, it is quite true. There are places, not a few, where one can go along the road and touch a match to the gas. Even in some parts of the small river, one can see gas bubbling up, and it has been ignited by people sitting in boats.

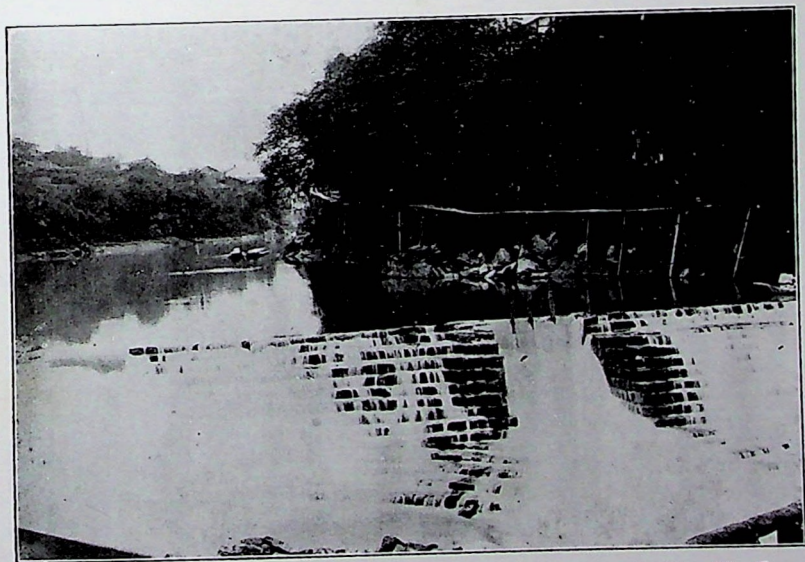
The district is divided mainly into two, Tzeliutsing and Kungchin, and in business the two are combined into the name of "Tzekung". They are known by the merchants as "the upper market" and "the lower market," Kungchin being the upper market.

The whole district comprises an area of about thirty by fifty Chinese miles or "li." The wells are not evenly distributed all over this area, and one may go for a considerable distance where there are nothing but farm lands. Then again, one sees the wells clustered together—"jammed in" would explain it much better—as it would seem that the searchers had found a particularly productive area. It would seem that nature had no settled plan in locating the wells and the gas, but simply had allowed them to spring up wherever they liked. Two areas are especially thick, one at a place known as "Ta Fen Pa" and the other, as "Chang Tu." It is of particular interest that these two districts are at the ends of the salt producing area. All through the district are distributed, here thickly, there thinly, wells, some producing brine, some gas, and some brine and gas together.

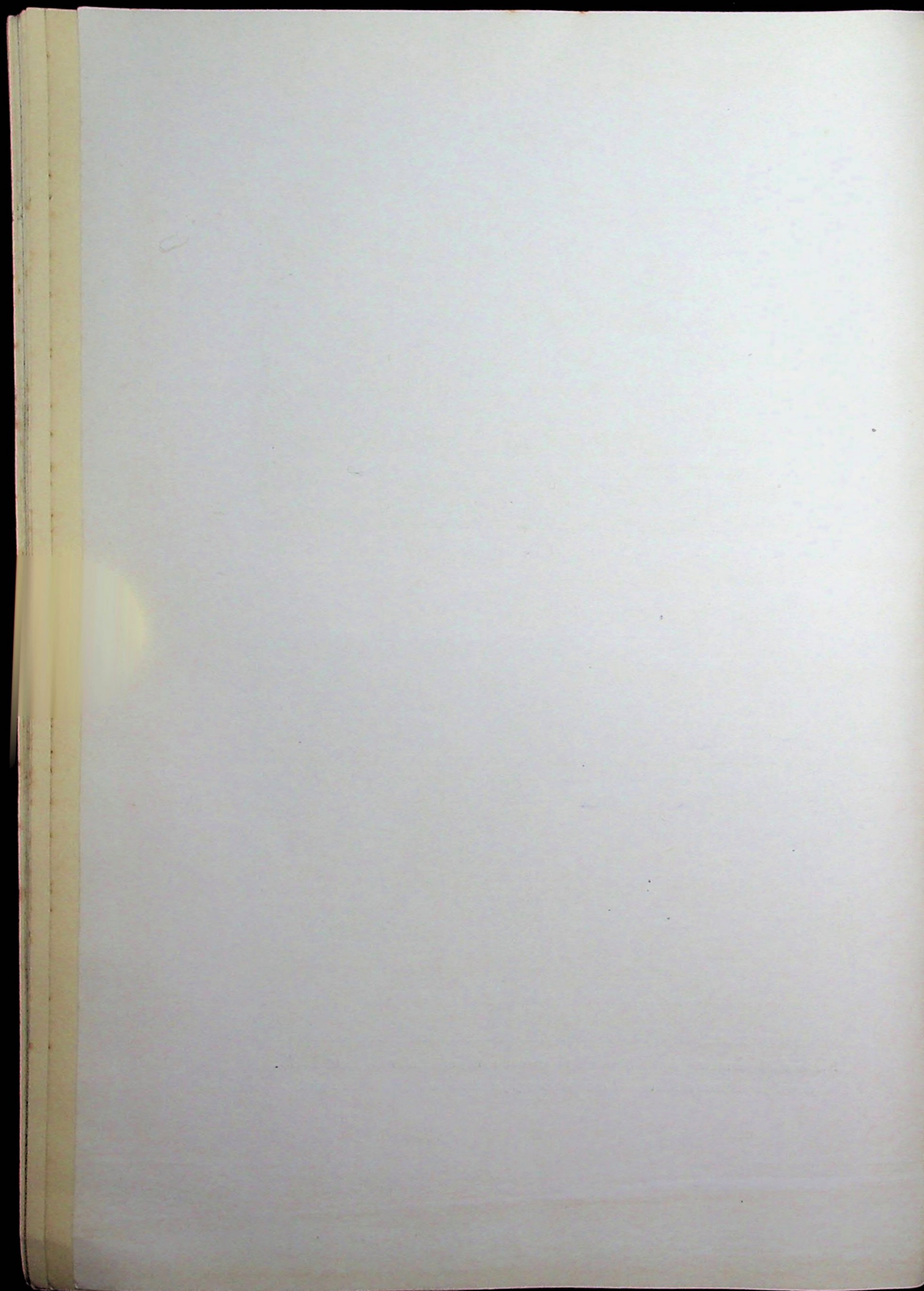
The history of the Salt Industry dates from antiquity. To get an exact date of its beginnings seems impossible. The well owners themselves do not seem to have any data on the subject. Indeed, to obtain this data, it is better not to lose time talking to the rich well owners, but to consult the mechanics who operate the wells. As to the date when the industry started, it would seem that it was first begun after

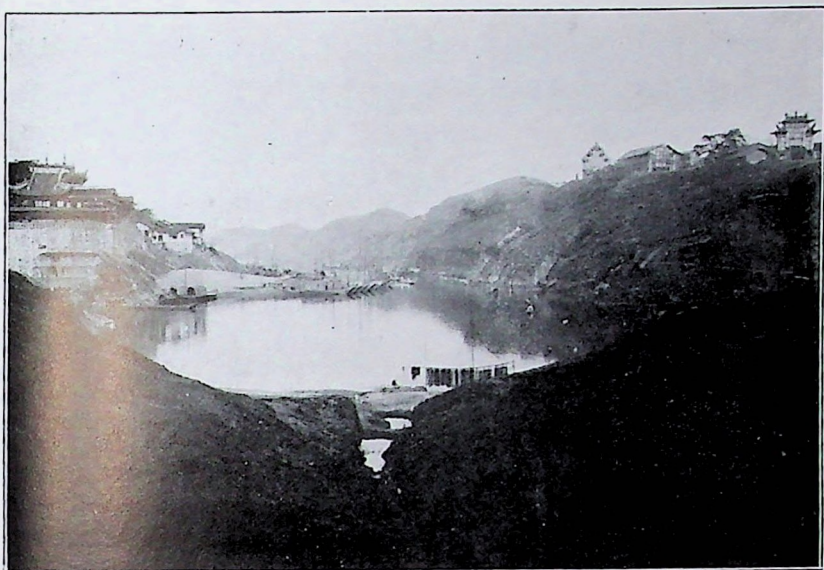


A dense group of Brine Wells in the Tzeliutsing District of Szechwan, West China

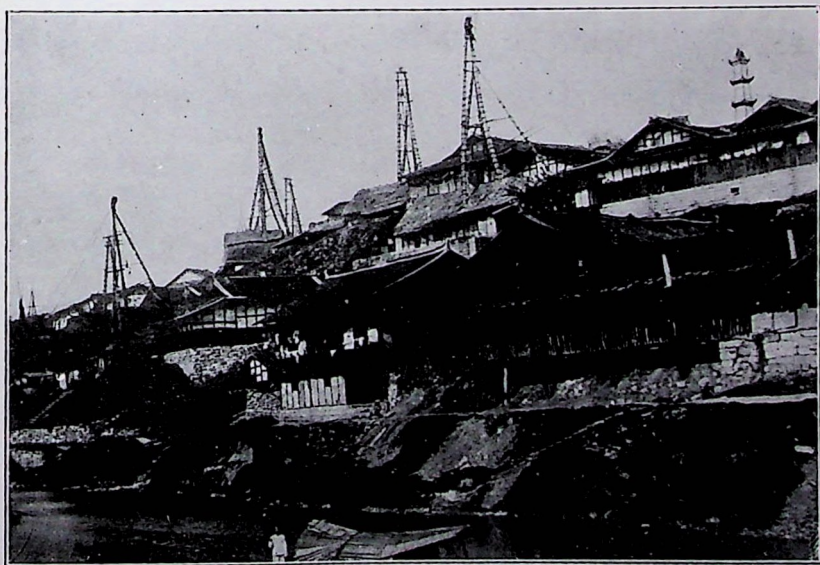


Method of damming small Streams to ensure sufficient water for Boat Traffic down to the main River. Bamboo lead pipes may be seen on the right.

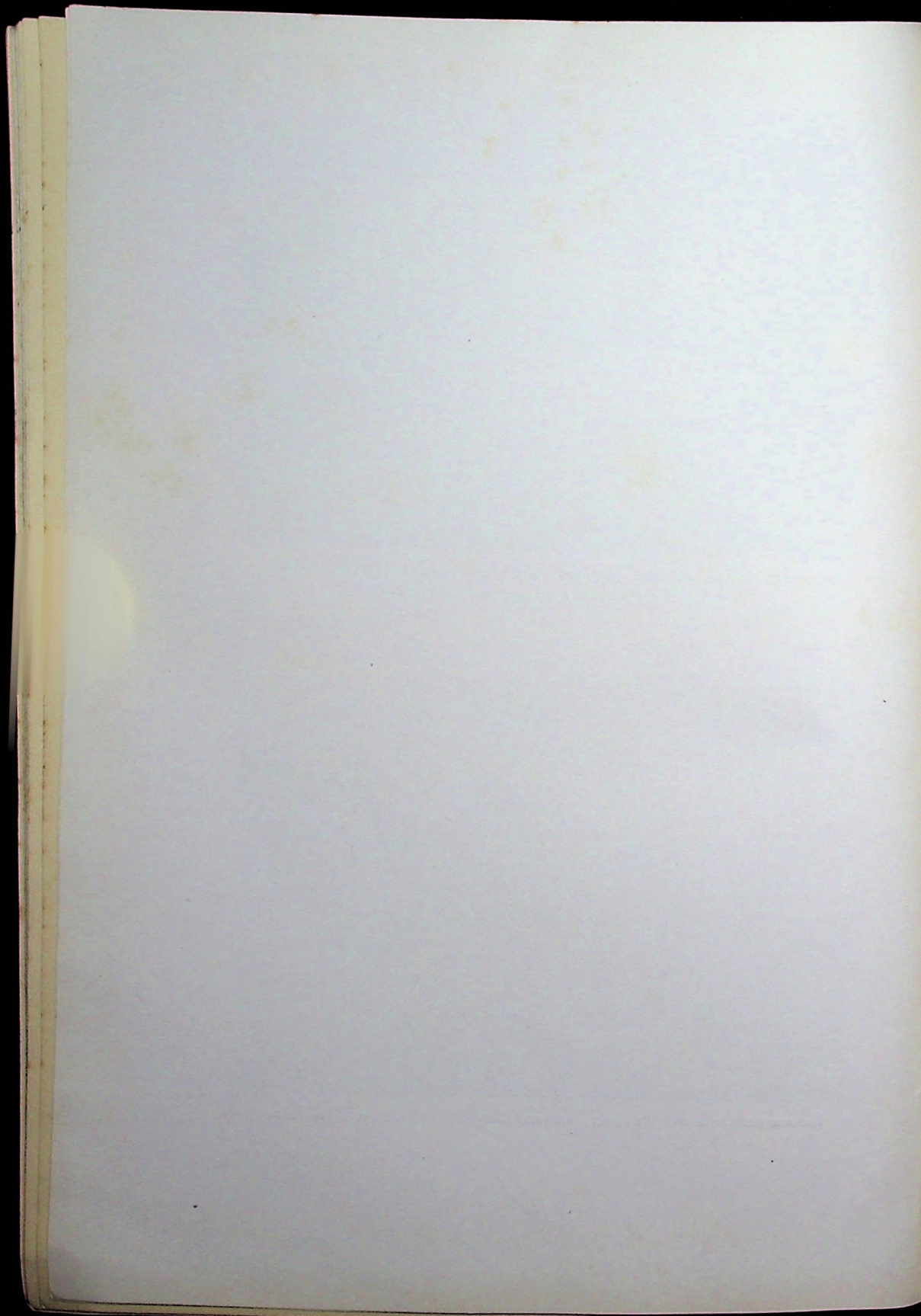




A pretty Scene looking down the River from close to the Salt Offices.
Usually the Banks here are lined with Boats.



Houses on the face of the River Bank and Derricks on Crests at Tzeliutsing.



THE SALT INDUSTRY OF TZELIUTSING

the natives of the provinces of Shansi and Shensi immigrated to Szechuan and West China. The industrious men proceeded to dig wells, and finding the water brackish, and not unlike the brine which they boiled down "at home," proceeded to boil their find and it produced salt.

Another story has it that in the former Han Dynasty there were actually "brine springs" here. Then came an earthquake and covered the springs, changing the contour of the country hereabouts. The natives then proceeded to dig for the brine and later they developed the business of boiling it, in the same way as it is boiled to-day. This would explain the name "self flowing" and justify it. Otherwise the beginnings of this industry are obscure.

The Salt Industry is mainly divided into four divisions.

- (1) WELLING THE BRINE.
- (2) TRANSPORTATION OF BRINE.
- (3) BOILING THE BRINE.
- (4) MARKETING THE PRODUCT.

Before taking up the direct work under the above headings we shall consider the topic of "the Bamboo."

II.

THE UBIQUITOUS BAMBOO.

Possibly there is no more indispensable article or material in China than bamboo. One missionary who had a knack for such work made a list of the uses to which bamboo could be put. The list was not finished with four hundred and forty separate uses. If it were uprooted from the soil of China, it would be worse than losing a right hand, and there are those who venture to say that the sons of Han could not get along without it. Indeed, so many and varied are its uses around a salt well, that one wonders what would happen if it were suddenly cut off from use. It is the first thing used, for does not the geomancer use bamboo tickets from which to choose when he is trying to decide the location of the new well? And does not the mechanic use a bamboo rule when he first begins to measure the land upon which the well is to be dug? And bamboo makes the stem for the joss sticks which are burned by the priest as he performs his rites when the digging of the well is begun.

As the well is dug and the derrick is raised, bamboo ropes are used to haul up the logs for the derrick frame; bamboo ropes are used to splice the logs together, wedged tighter by the bamboo wedges. The drum over which the cable is run into the well is bound with bamboo.

The edging for the wheel which carries the cable into the well is bamboo, while the band that is first put into the well to carry the drill is of bamboo, as is the cable which is later used to carry the brine pipe.

The conveyer of the brine from the well is a bamboo pipe, fastened to the bamboo cable by hemp. The cable which brings up the brine is twisted bamboo, its manufacture, an industry by itself, carried on some two day's journey from here. The cables are carried in by men. The break which is used on the windlass that winds the cable is of split

bamboo, and it runs on strips of bamboo which are lashed by bamboo rope to the wooden windlass. The water buffalo is harnessed with bamboo to the windlass to draw the cable out of the well, while the driver "persuades" the awkward beast with a bamboo whip. The rope with which he is tied by the nose is of smaller bamboo, and his stable is divided into stalls made of old bamboo cable. The sides of the buffalo barn are made of old bamboo rope twisted about the upright posts. The well coolie wends his way home by the light of an old bamboo cable taper.

The brine runs to the boiling pans through bamboo pipes. The brine pipes are supported by bamboo pieces split finely so that they may be wrapped around the brine pipes, thus preventing their splitting in the hot sun. Old bamboo cable lashes them to the trestle work when they have to be suspended. Bamboo hoops support the great brine vats as they hold the brine preparatory to its being run into the boiling pans. Split bamboo, supported by old bamboo cable, serves to run the brine from the vats to the pans.

Bamboo matting is made to separate the boiling rooms, while bamboo baskets make splendid beds for the attendants on the boiling pans. Woven bamboo makes skimmers for the refuse on the top of the boiling pans, and the finished product is carried in bamboo baskets and crates. As a delicacy the coolie enjoys bamboo sprouts as he watches the boiling of the salt, often boiled with bamboo fire wood.

The coolie carries his load of salt to market with a bamboo carrying pole, and his tally is recorded with a bamboo stick. His sun hat is made of bamboo, finely woven, to keep out the rain, while the mat upon which the pedler spreads his wares is of bamboo.

The perquisite of the labourers about the well is the bamboo when it is impossible to use it further in the industry, and this they either sell or take home to help them repair the home or to boil rice.

The expert boiler, watching the pans, blissfully smokes a bamboo water pipe, while his wife, not so far away, sews shoes, the soles of which are made of bamboo leaves, the darkness brightened by the light of a vegetable oil lamp made of bamboo. He dips the brine from one pan to another with the aid of a bamboo dipper and strains the refuse through a bamboo sieve.

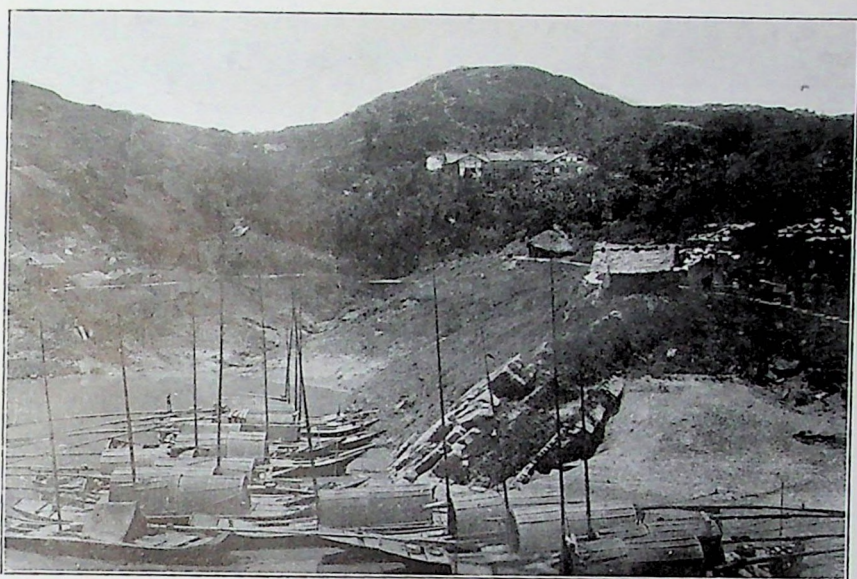
Bamboo guy ropes hold the mighty derrick secure when the great gales blow, and the wheel at the dizzy height at the top of the derrick is trussed with bamboo.

The subject of the uses of bamboo is not exhausted, as there are many other to which it is daily put. But the reader will readily see that, if bamboo were taken from the market here in Tzeliutzing, it would paralyze the salt industry.

III.

THE WELL.

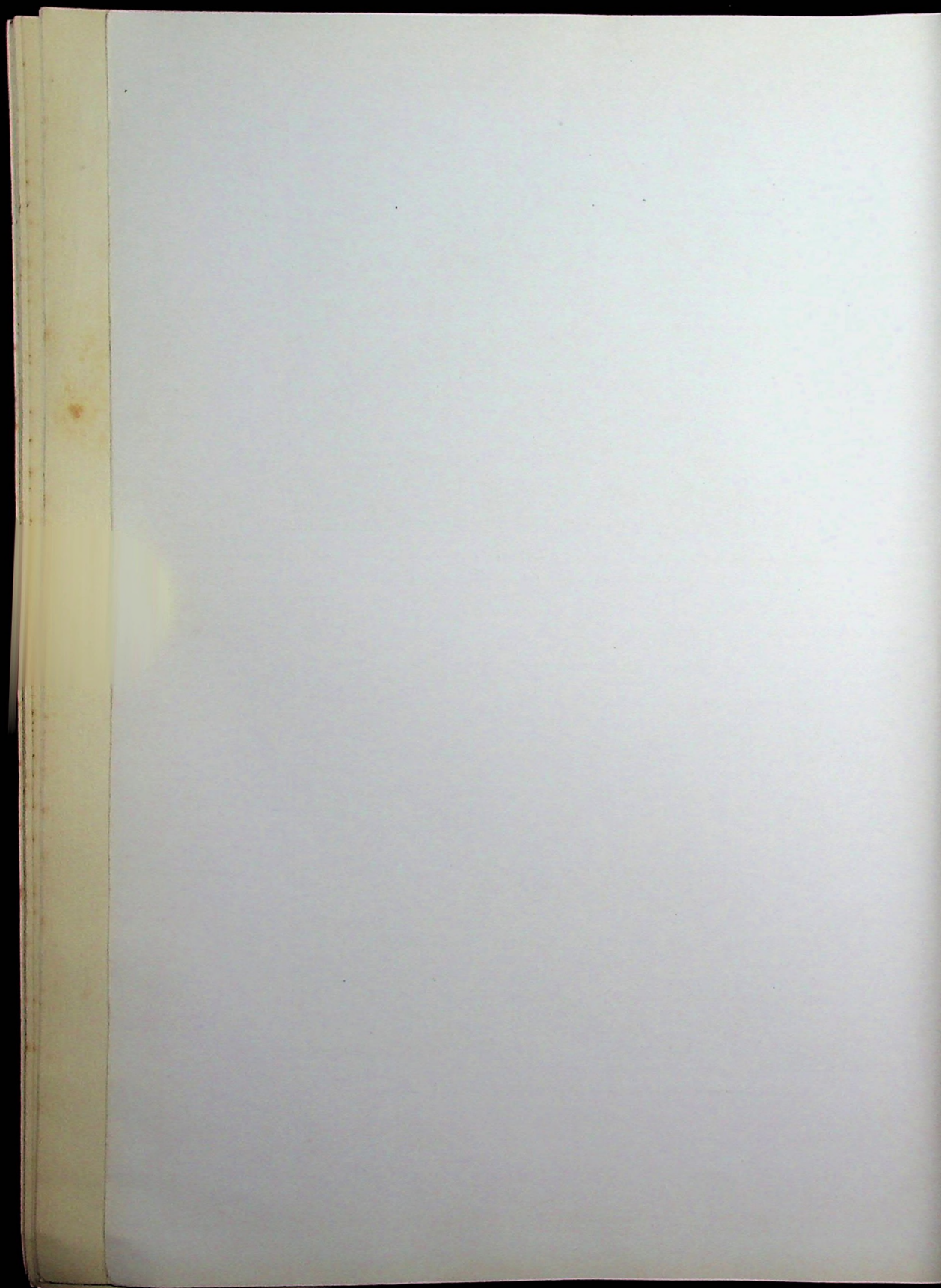
I have many a time tried to get from well owners the method employed by them to "locate" a well. So far it has been of no avail. The

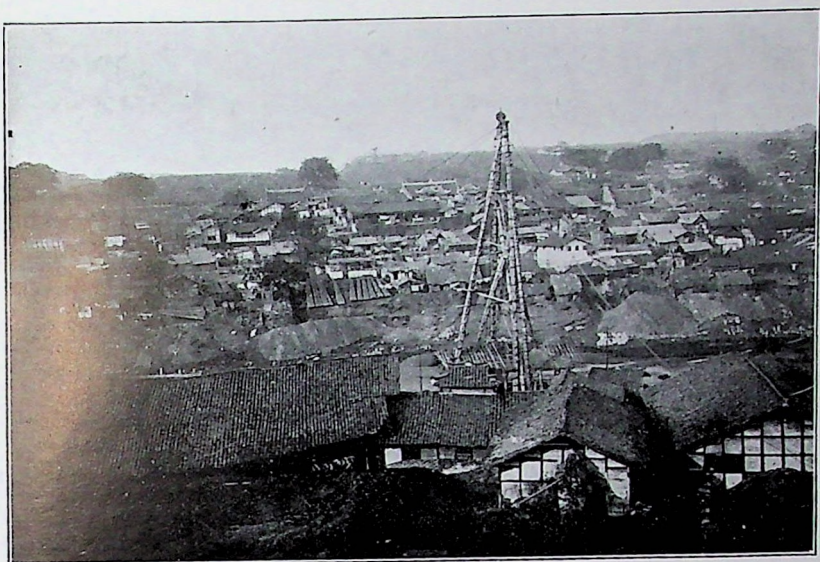


Boats ready to go down Stream with their Loads. Above, on the Hillside, the Temporary Residence of the Salt Inspector.

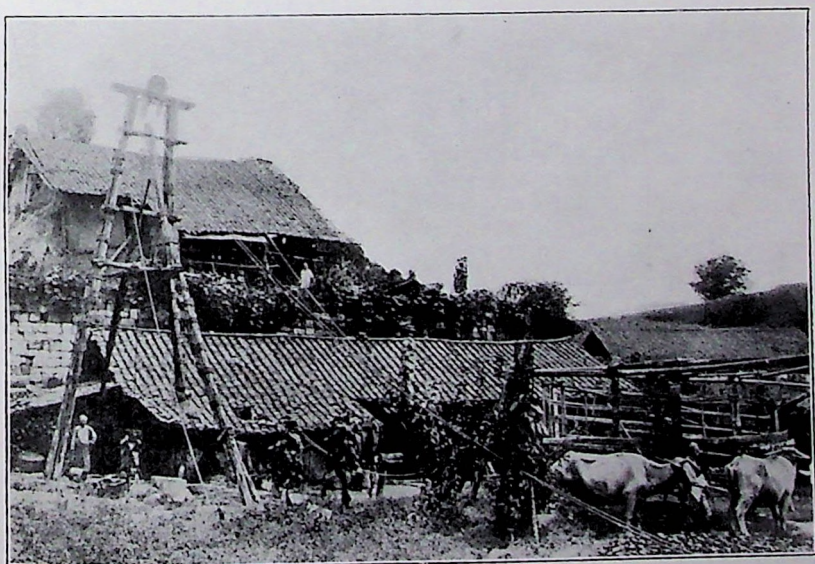


Boats crowded on the Foreshore just below the Salt Offices.

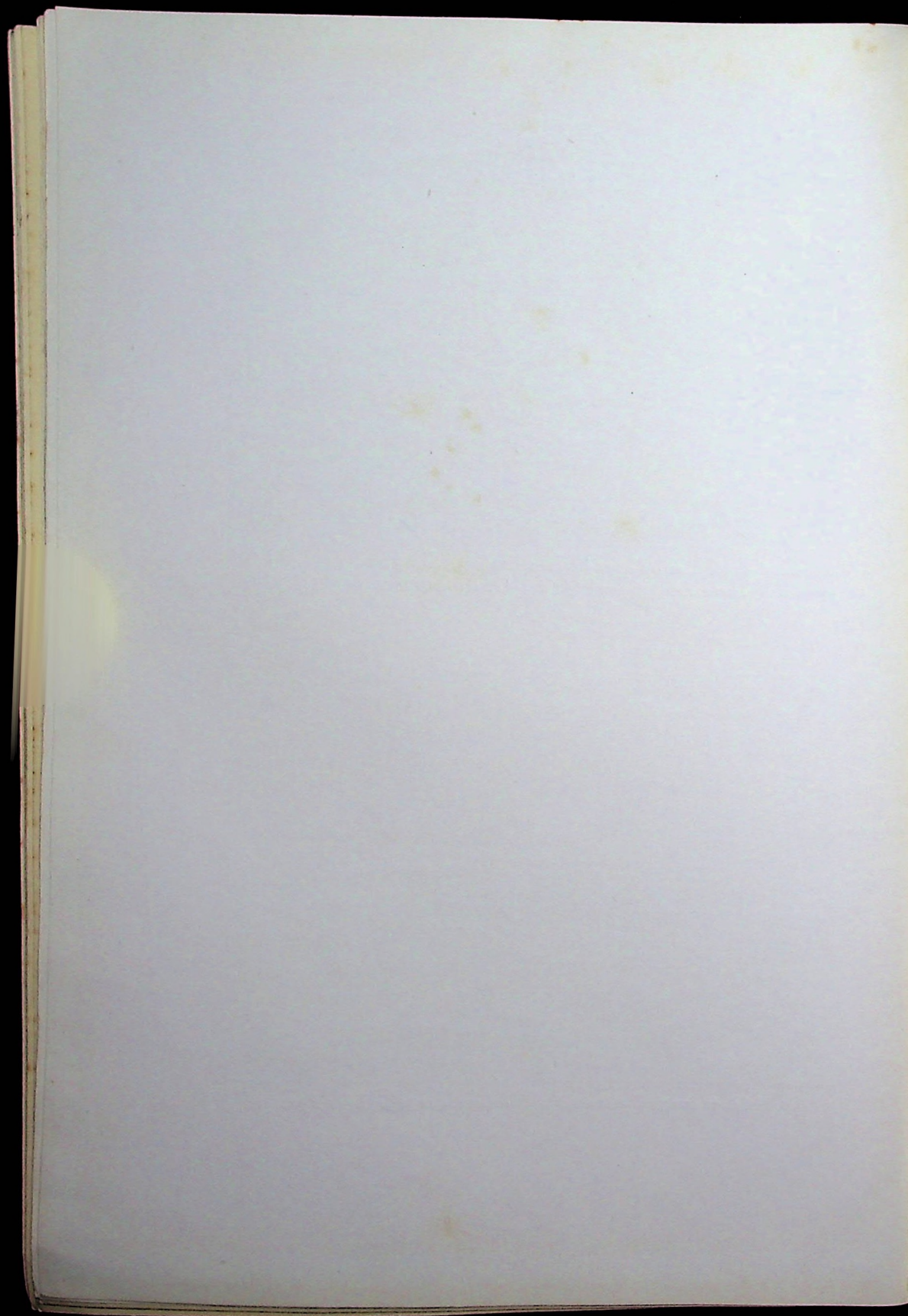




Often a single Derrick may be seen standing alone, marking the Site of a Well. There seems to be no Method of ascertaining where Brine might run.



Buffaloes being driven round the Windlass to raise the Brine Pipe.



THE SALT INDUSTRY OF TZELIUTSING

geomancers are consulted, to see if lucky places are struck. Someone has found brine on a certain location and because that particular line upon which he has located runs right through a certain other line decided upon by a geomancer, therefore, that location is surely lucky. In talking with a merchant one day I asked him the question and his reply only exemplified what has been said above. "You take a stone and throw it over the left shoulder, and wherever it alights, there dig your well."

On the top of the highest hill, or in the deepest valley, no matter: if the "*feng hsui*" says that is the place to drill, the prospective well owner will begin. One well here is on the top of a hill, the well being known as "Tall Mountain Well." The majority of the wells here, and there are over three thousand, are on uplands, and not on the lowest levels, as one would expect. I have never heard any explanation for this, more than that it was a lucky place to dig: and whether the soil is soft or rocky, it makes no difference to the prospective well, it is all undertaken with the same vigour and expectation.

The site of the well being decided, a beginning is made with the killing of a rooster and the roar of firecrackers. Nothing would be staged properly without a feast; and when all is merry and the crowd happy, the digging is begun.

At first a hole about five feet in diameter is dug into the earth, the depth depending upon the distance at which solid rock is struck. This diameter is maintained for about eighty feet, sometimes for one hundred. I am not aware of the reason of this, unless it be the fond hope that some day, if brine is not struck, gas will be found: and then this space will be utilized to arrange the direction to be taken by the gas pipes to the fires. From this depth, the well is dug much smaller, the first installment being made about a foot in diameter, into which are forced cored timbers, which, when placed face to face, make a well some ten inches or a foot in diameter. Into this the drill is dropped and the true and tedious digging of the well is begun.

To commence these operations it becomes necessary for the well digger to erect the derrick over the well-hole. This structure may not be the permanent one, but it is so erected that it can be used in the permanent derrick.

The principle of the derrick is the same whether it be a temporary structure or the permanent erection. Skinned pine trees are used, and to get the necessary height are spliced together, end on end, with bamboo cable wedged by crude wedges. The trees are thus lashed together until the desired height is acquired, when the tripod is brought together in mid air, and a huge cross beam is lashed to the top of the derrick. A fourth upright is lashed to the tripod a little lower down, thus giving it stability and security. The top of the derrick is now guyed by bamboo cables to stones buried in the ground some distance from the base of the derrick. Often as many as ten of these guy ropes or cables are attached to one derrick, and it is seldom that the derricks are blown down by the wind. If a guy rope is too slack it is tightened by a second rope to which is fastened a great stone, this stone being suspended in the air, thus tightening the loose guy rope.

On the top of the derrick, and immediately over the centre of the well, is placed a wheel. The wheel is about two and a half feet in diameter, deeply grooved, and with an axle about an inch and a half thick. The axle rests on heavy timbers mortised into the huge cross beam. Over this wheel runs the rope or cable which carries the brine pipe into the bowels of the earth.

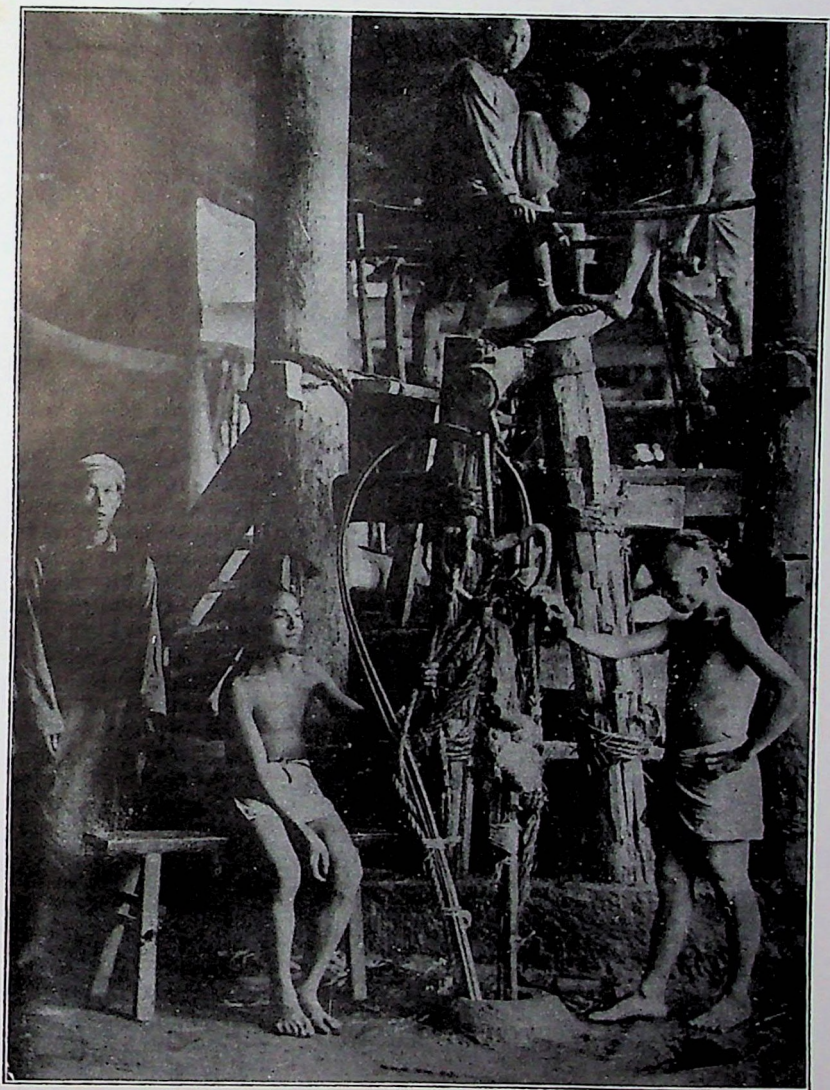
About twenty feet behind the base of the derrick is located another wheel, larger than the derrick wheel, but otherwise the same. The brine cable passes under this wheel, which is weighted heavily with stone, back to the drum or windlass upon which the cable is drawn as it comes out of the well.

At the base and in the centre of the derrick, is located the mechanism for drilling the well. Immediately behind the well hole, and about twelve feet from the earth, is erected a drum on a wooden axle. Over this passes the bamboo tape which is used for the drilling tools, as it is too far to the top of the derrick and the bamboo tape would not travel in the wheel groove, being often as wide as three inches. The tape passes directly back to the windlass used to draw the cable out of the well.

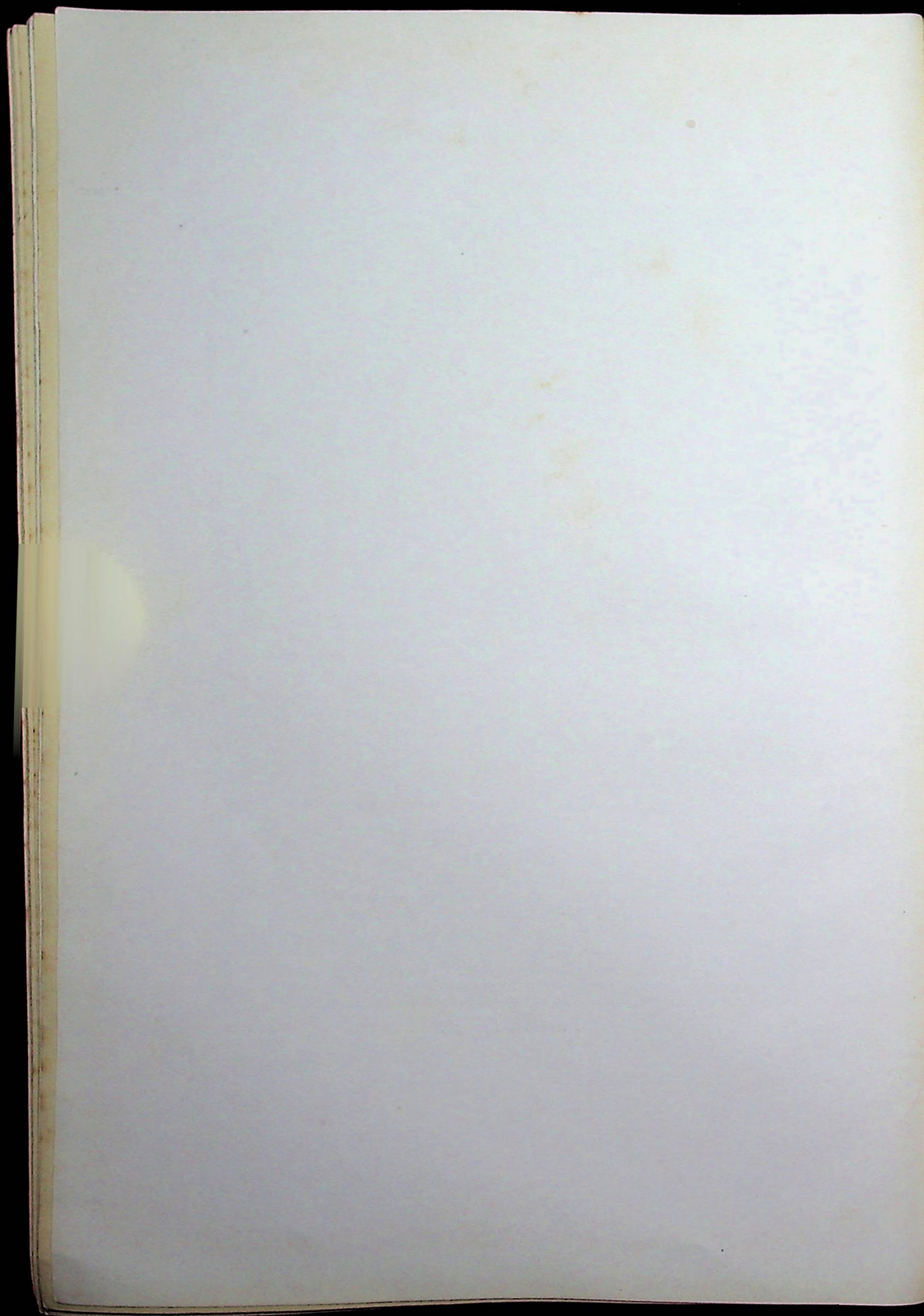
Immediately under the drum is erected a cross beam upon which rests a long "drill beam." This drill beam, which is a crude log, perhaps five inches thick and twelve feet long, is placed over an axis with the shorter end projecting so that the end is immediately over the well hole, the longer end running back into the derrick frame. Thus it will be seen that the heavier and longer end of the drill beam is away from the well, and will fly up away from the well hole.

To the shorter end projecting out over the well the drill is attached by the aid of the bamboo tape mentioned above, and, as this drill is lashed to the drill beam, it naturally drops down, and the back longer end flies into the air, stopped by a cross beam at the back end. Upon this longer end, the men step, thus forcing it down, and raising the drill in the well hole. By springing off simultaneously, the drill drops into the well and the drill beam flies up into the frame. The men again jump on the drill beam and the drill is raised to be dropped once more by the men springing off. This they keep up day and night in shifts timed by incense sticks which burn in front of the well god. The men spring smartly on and off the drill beam for a period of about ten minutes, when the end man is changed and a new one comes on at the opposite end of the beam, each taking his place at the drill-tape, and at each plunge of the drill giving the tape one quarter turn. In this way the drill in the well is gradually turned around.

It will be seen that well-digging is somewhat of a gamble; and unless one has money to begin with, he will find it more than difficult to complete his well. Often one owner will dig until his funds are exhausted and then sell the prospect to another man who will risk his fortune in trying to "strike oil," only to be ruined in turn by not finding brine or gas. Possibly the well is then abandoned or the second unfortunate finds a third prospector who is willing to risk further. The average well will cost about thirty thousand taels to drill and commence operations. The fastest are drilled in three months, while others take years to complete.



The Well Diggers.



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The methods of cleaning the well of the debris cut by the drill are crude. If the drill is going through soft material the hole may have water poured into it and a bamboo tube with a suction valve at the bottom run down to withdraw the debris. Sometimes barbed iron hooks are let down and dragged out of the hole with the hope that the debris will be clogged on the barbs. It will thus be seen that, if the drilling is crude, the method of extracting the debris is much cruder, and this part of the work takes more time than the actual drilling.

Sometimes a big cavern is encountered and then the going is easier. Rock is "slow going," as the debris is hard to get out, and the drill, which is rarely of prepared steel, soon becomes dull. The changing of tools takes up a lot of time and gets the men out of sorts.

Gas is deeper than brine, according to the experts who know, and often a well becomes dry; it is then dug deeper in the hope that gas may be struck. It is not uncommon to have gas and brine from the same well, the owner having been lucky enough to strike both commodities at once. He has then the brine and the gas to boil it, and is saved a great deal of work and his money comes much easier. If the output is steady his fortune is assured.

In one place hereabouts it would seem that a great bed of rock salt had been struck. Indeed there are those who claim that it is all a great bed of rock salt. However, in one place there are several wells in a valley on the hill tops, where water is run into the wells on certain days and then allowed to stand on the rock salt and the resultant solution drawn to the surface and boiled. The handling of the water for these wells is done by a special firm and they have an ingenious way of seeing that no other wells are using their supply of water. They run rice hulls into the well, and wherever brine is raised with rice hulls in it, they promptly demand payment for their supply of water.

The depth of the wells hereabouts varies. In other parts of Szechwan, the brine may be procured at a depth of from thirty to forty feet. Hereabouts wells run from eighteen hundred to three thousand feet in depth, and on an average of possibly two thousand five hundred feet. It is of interest to note that the rule used in measuring these wells is about the same as the English rule in length. This will give one a more exact idea of the depths of the well.

The height of the derrick erected over the well varies. Some are as high as one hundred and twenty feet, and a possible average is eighty feet. The height of the derrick is governed to a great extent by the aspirations of the well owner, who may have ideas as to how long a brine pipe he may want to use, and how many buffaloes he can afford for hauling the brine pipe out of the well.

Now that we have studied the making and preparation of the well, we are ready to look into the raising of the brine.

(To be continued)

TRAVEL AND EXPLORATION NOTES

THE FUKIEN SCIENTIFIC EXPEDITION: The latest news received about this expedition, which is being carried out by Mr. F. T. Smith under the auspices of The China Society of Science and Arts, is to the effect that Yen-ping Fu, on the Upper Min River, has been reached. Here Mr. Smith was taken ill for a time, but news has come of his recovery and early departure from that city, probably in a westerly direction. In the mean time a considerable footage of motion picture film has been received in Shanghai, where it has been developed. The resulting pictures are extremely good, and, amongst other things show a live pangolin, or scaly anteater, in its native haunts, as well as a live otter and a bamboo rat. There are also some very good pictures of native life and industry, all taken in the Futsing district to the south of Foochow. The accompanying illustrations are from still pictures taken by Mr. Smith. The cinematograph camera has been worked by Mr. G. Krainukov, whose services have been lent to the expedition by the British American Tobacco Company's Motion Picture Department. Before long the expedition should be on its way back, when we will be able to give full particulars of the work accomplished.

OTHER SCIENTIFIC EXPLORATION IN FUKIEN: Mr. Clifford Pope of the Third Asiatic Expedition of the American Museum of Natural History recently paid a short visit to Shanghai in order to secure necessary supplies for his further work in Fukien Province. Mr. Pope went to Fukien about a year ago, proceeding up the Min River to Yen-ping Fu, where he spent April and May. Thence he continued north-west to the famous collecting locality known as Kuatun, visiting the well known Bohea Hills on the way. The latter he found to be in poor collecting country, but Kuatun was a naturalist's paradise. He spent from the middle of July to the end of August in this wonderful country, returning to Foochow in September.

Thence he went south and has spent the past winter in the Futsing and Yungfu districts, making good collections. Trying hard for a shot at a tiger, he has as yet been unsuccessful, though on one hunt one of these animals was driven from its lair. Mr. Pope informed our representative that he considers his year's work very successful, securing, as he has, large numbers of specimens of about forty-eight species of snake, numerous lizards, about 25 forms of toad and frog, many specimens of the rare salamander, *Pachytriton brevipes*, numerous very interesting forms of fish and about 45 different forms of mammals. The last comprise many species of bats and rodents, as well as civets, wild cats, badgers, foxes, mongooses, deer and monkeys. Of the latter he secured a skull of a specimen said by the natives to have weighed some 40 catties, or between 50 lbs. and 60 lbs. The size of the skull indicates that the specimen was a very large animal. In the Kuatun district Mr. Pope found the giant viper, *Agkistrodon acutus*, extremely common, its habits reminding him very much of those of the rattlesnake of America. This large reptile, measuring up to 5-ft. in length and of considerable thickness, is, next to the cobra, China's most formidable serpent, though possibly not as deadly as the krait, of which a species is common in Fukien.

On his return to Fukien, Mr. Pope proposes to ascend the Min River once more, and, making Kuatun his base camp, explore the surrounding country, especially neighbouring Kiangsi and Southern Anhui.

FUKIEN: A STUDY OF A PROVINCE IN CHINA, issued by the Anti-cobweb Club, Foochow: Presbyterian Mission Press, Shanghai.

We have received from the publishers this extremely interesting book, which may be taken as a handbook and guide to the province of Fukien. Consisting of twenty-five chapters, prepared by different members of the Foochow foreign community, it covers a wide range of subjects and provides a fund of information, which it is certain would not have been available to the general public but for this timely little volume. Geography, natural history, ethnography, trade, forestry, mining, social and religious life, fisheries, transportation and public works are amongst the subjects ably dealt with by writers who have made it their business to get their information at first hand. Foreign residents in Fukien have set an excellent example in getting out this book, and it is to be hoped that others in other parts of China will follow their lead.

A de C. S.

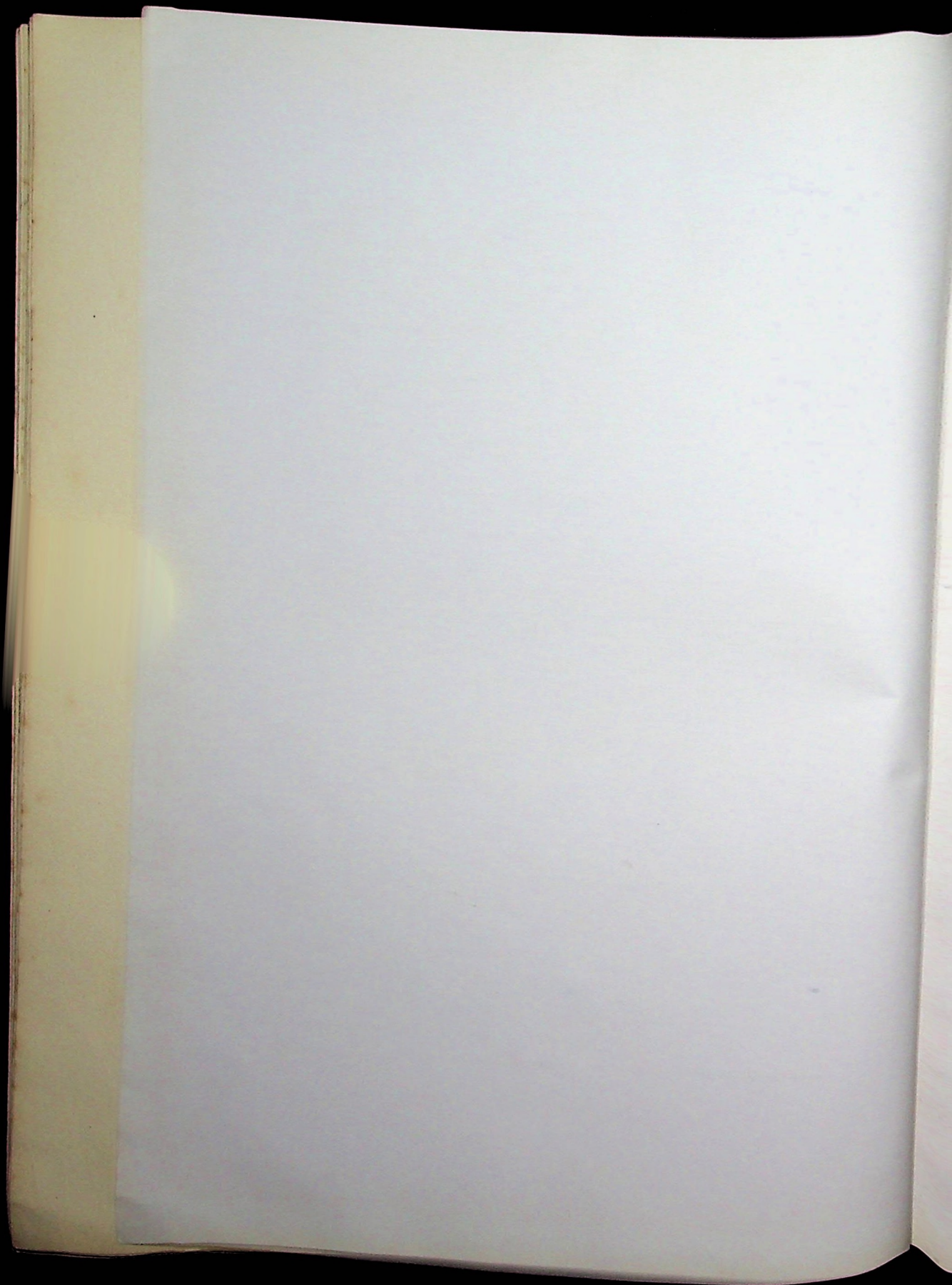


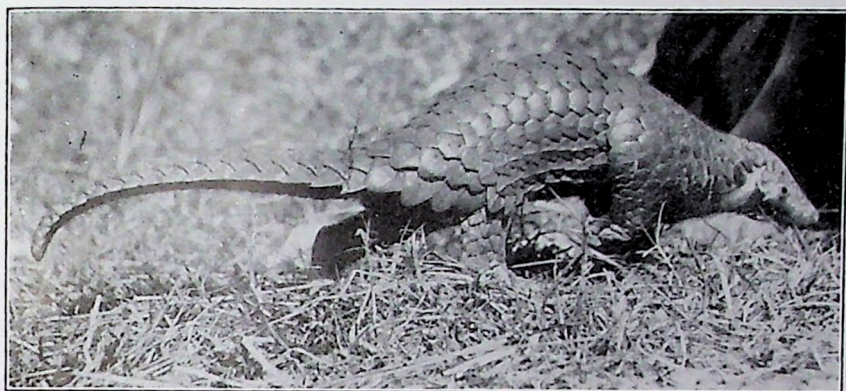
The Cormorant Fisherman taking a large Fish from one of his Birds.



Photos by F. T. Smith, Fukien Scientific Expedition.

Tame Cormorants on a Bamboo Canoe on the way to the Fishing Grounds.



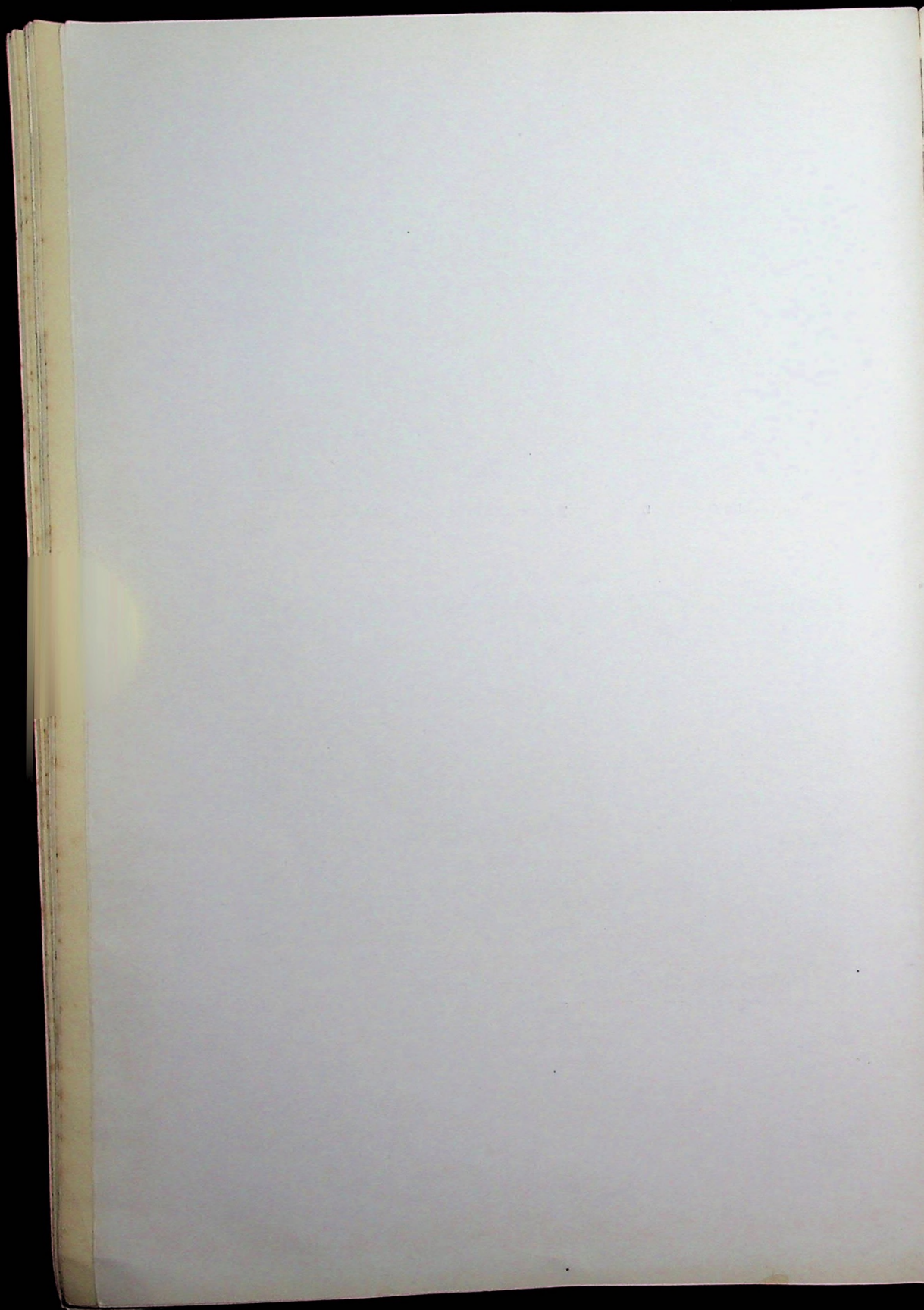


The Chinese Pangolin, or Scaley Ant-eater Photographed at Close Range.



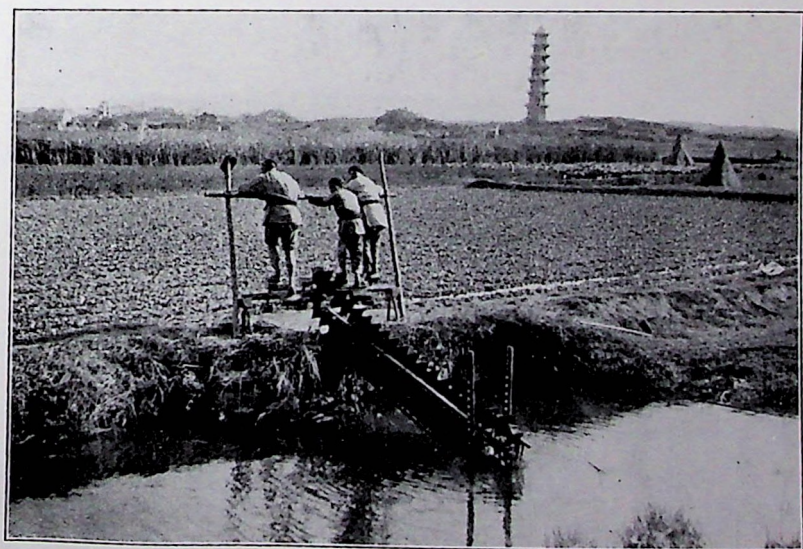
Photos by F. T. Smith, Fukien Scientific Expedition.

The Pangolin hunting round for Food.



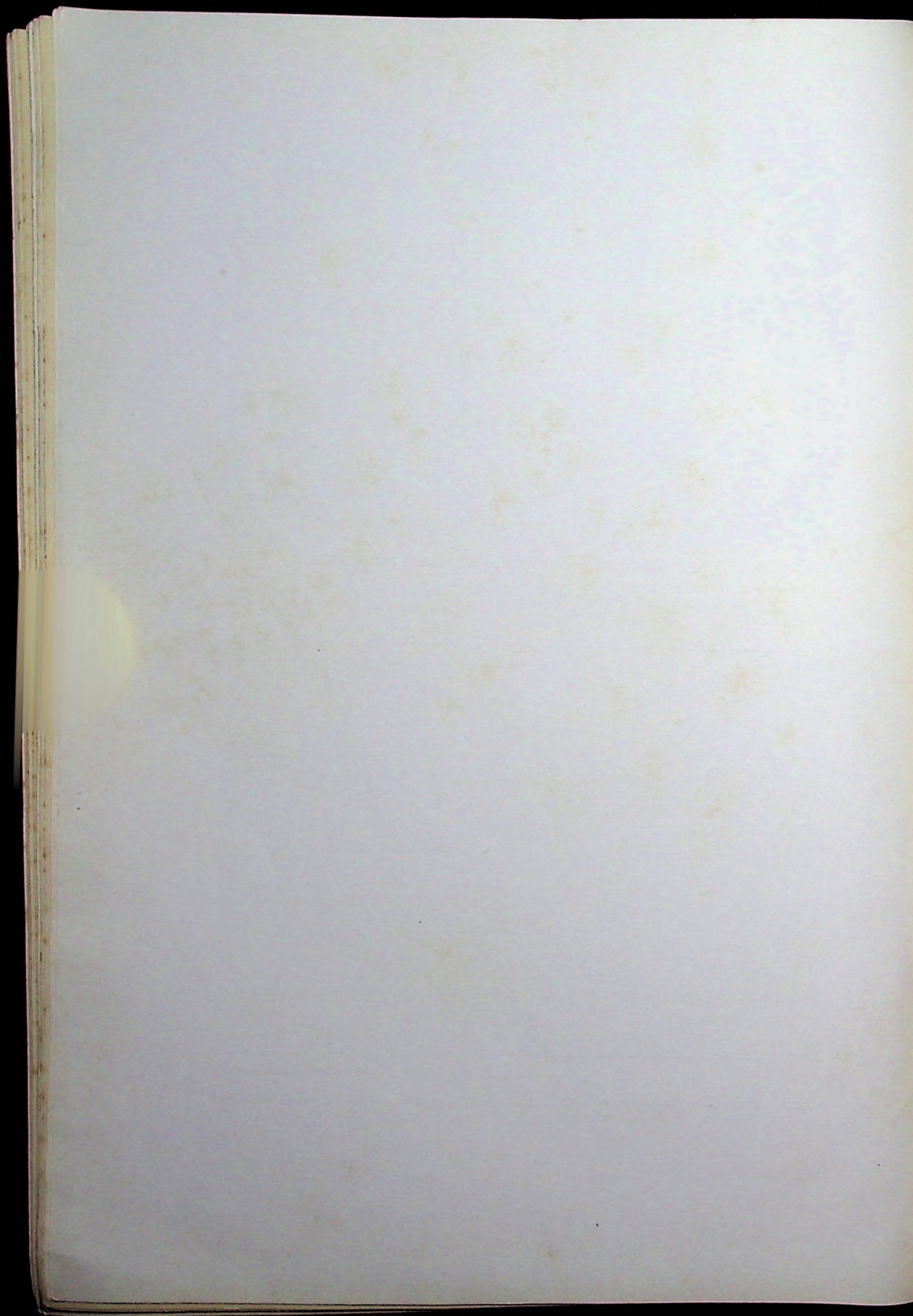


A Pagoda in the Country to the South of Foochow.



Photos by F. T. Smith, Fukien Scientific Expedition.

Farmers working the Water-wheels, by which means they irrigate the Rice Fields.

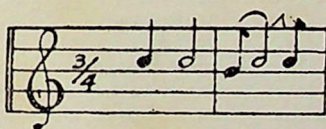




FURTHER NOTES ON THE NORTH CHINA TURTLE DOVES *

BY
G. D. WILDER

Since the January issue of *The China Journal of Science and Arts* appeared, Mr. Hubbard has called my attention to a mistake in the musical notation of the cooing of the Indian ring-neck dove (*Streptopelia decaocto*) as given on page 39, in the article "Summer Notes on the North China Turtle Doves." He had not originally intended to indicate time in the notation as given me, and I misinterpreted it. It should be indicated as follows:—



coo coo coo-roo etc.

The pitch was not determined by tuning fork, exactly, in any of these cases.

My article neglected to call attention to the notes of the Eastern rock dove, *Columba rupestris rupestris* Pallas. The Chinese call this dove the *lu⁴ lu²*, because its cooing resembles the sound made by the whirring of the wooden windlass and rope, called a *lu⁴ lu²*, when the bucket is allowed to drop back into the well. In order to appreciate the resemblance, however, one should recall that sound as he has heard it from some distance, when a number of men were drawing water to irrigate their fields. My recollection of the phrasing is so indistinct that I dare not try musical notation for it until I hear it again. Recent

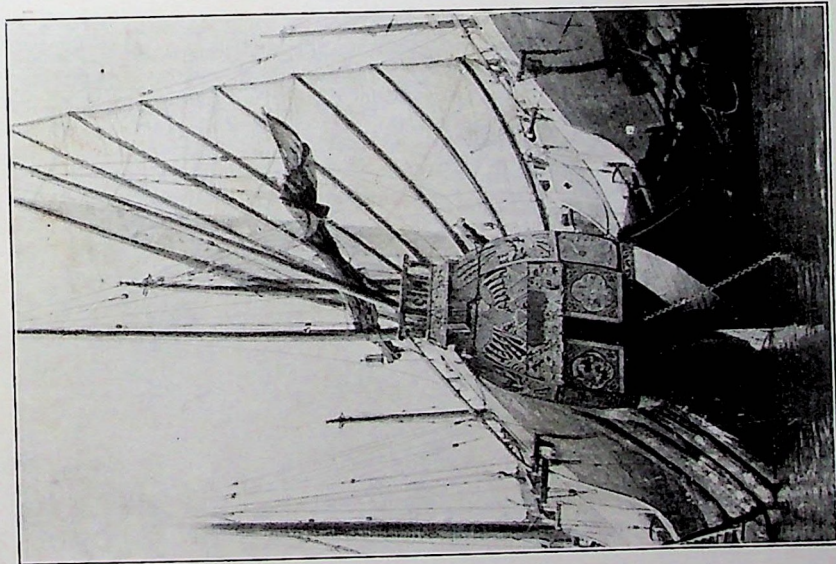
* Peking, February 22, 1926.

visits to the rocky haunts of the bird found them silent still, though some species of birds seemed to have already begun to utter their spring call-notes.

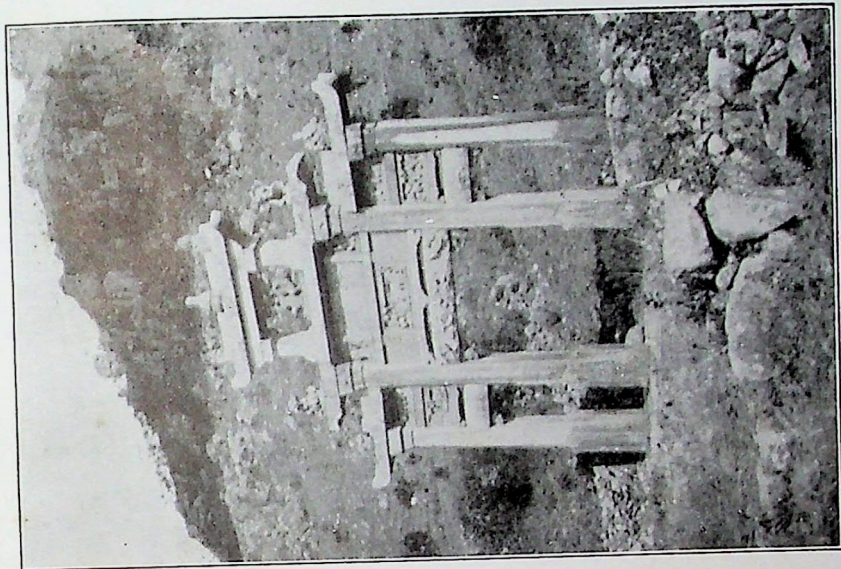
More specimens of the Eastern turtle dove and of the spotted-neck having come into my hands serve to throw light on the development of neck ornaments in these species. The adult Eastern turtle dove usually displays three or four rows of black feathers with blue tips on each side of the neck. I think I have seen one description stating it definitely to be four rows in the adult. On January 6, I shot a very large adult male with six rows of such feathers on each side—the finest bird I have ever seen. About the same time I shot a specimen of the spotted-neck, in which the cape was pretty well developed to its full outlines. On the sides of the neck it is deep black with pure white spots, but approaching the back of the neck the spotting changes gradually to buff, to yellowish brown, and, finally, at the lower edge of the cape on the back, the spots are scarcely distinguishable from the brown of the back. The black background for the spots also becomes less and less intense, and more brown like the back along with the obscuring of the spots. This bird is probably three years old. A young Chinese merchant, who said he had often trapped the birds, is evidently a keen observer, for he had noticed that feathers on this decorated part of the neck are all forked at the tip, a white spot occurring on each of the two tips of the feather, thus (Actual size). Probably not one person in ten who sees the bird, notices this feature of the split tip, which is a characteristic of the species. This Chinese corroborated my guess that this specimen is a three year old, and said he thought the markings continue to develop for seven or eight years, by which time, supposedly, the whole cape becomes deep black with pure white spots. I have never yet seen such a specimen, however. It seems that the first change in the young birds feathering after the first month, is for a few feathers in a small spot on each side of the neck to begin to show the fork; the two tips change to a lighter yellowish brown and the basal part of the rosy brown feather darkens. By early spring some specimens, probably less than a year old, will show two or four blackish feathers with yellowish white double tips. Those approaching two years old, supposedly, will show quite a patch of black and white feathers on each side, with some obscure spotting on the back of the neck. In the third year the spotting on the nape is yellowish white fading to brown toward the lower edge of the cape on the upper back, as described above. Doubtless an expert like some of our Chinese bird fanciers would be able to tell exactly how many months a given bird has passed through until the development has ceased. Sellers of song birds in the Peking market claim to tell the number of moults required to develop a full black edging to the scarlet throat of the Kamchatka ruby throated warbler, *Calliope camtschatkensis*.



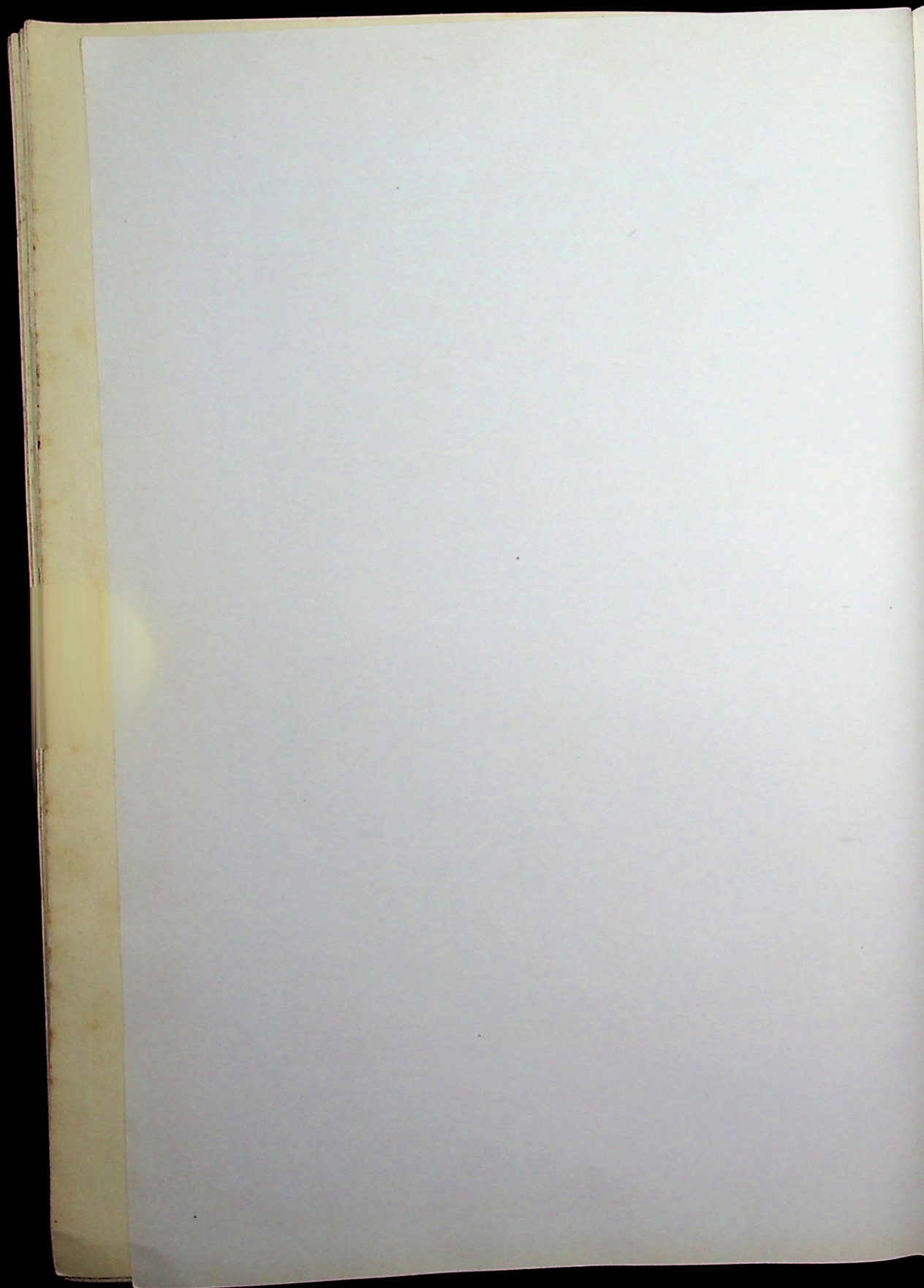
Young specimens of the Indian ring-necked dove show the half colour beginning to show on the sides and gradually extending until they meet on the nape.



The wonderfully decorated, high Stern of a Foochow
Junk, Min River, Foochow.



Photos by F. T. Smith, Fukien Scientific Expedition.
A *Pai Lou*, or Memorial Arch, near the Ku Shan
Monastery Foochow.



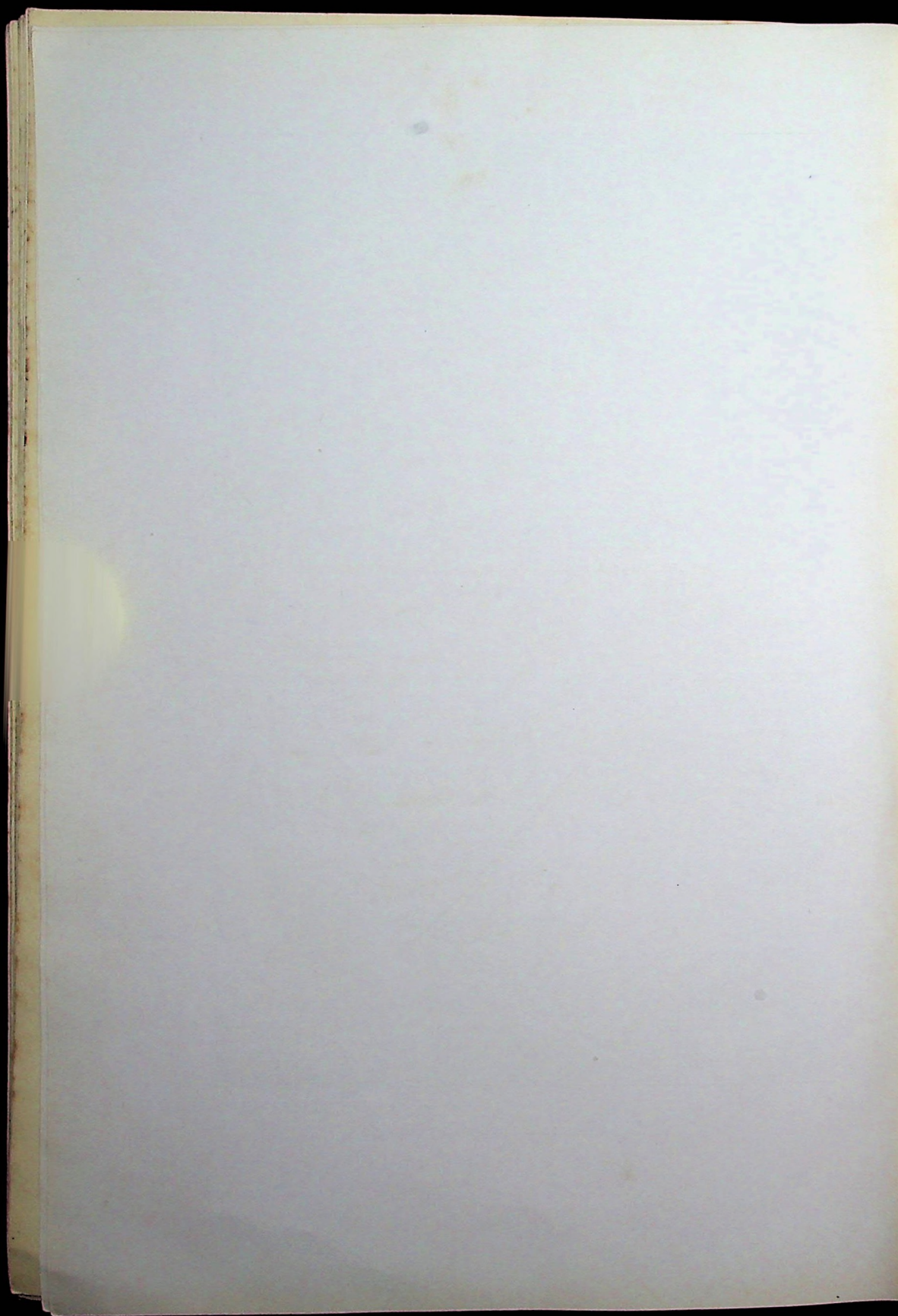


Scene looking down upon Foochow and the Min River from the Foreign Residential Area.



Photos by F. T. Smith, Fukien Scientific Expedition.

A Young Woman of the Futsing District.



WOOL BALLS IN KID-GOATS

BY

CHARLES S. GIBBS, Ph. D.

Since milch cows are kept in China only at considerable risk because of rinderpest and other infectious diseases, milk producing goats have been introduced to take their place. While goats that are hardy, thrifty and well bred give almost as much milk as good cows they are not entirely immune to disease. One of the most serious diseases of young kids is caused by wool balls. This disease occurs most frequently in kids in regions where the pasturage is poor or lacking, such as the dry sections of Kansu, Shansi and Honan. Other cases have also been found in neglected flocks of goats in Shantung, Kiangsu and Anhwei. Evidently this disease is quite common in China. Angora goats seem to be more susceptible than other breeds. This condition in young kids is generally accounted for as follows.

Normally, in regions where the pasturage is good, young kids are allowed to accompany their mothers to pasture from their birth. Thus they are free to eat the common vegetation whenever they so desire. Usually the grass eating habit is coincident with commencement of rumination. Should a kid, therefore, swallow a certain amount of wool or dirt, these substances get mixed with the rough food in the rumen, and with it are subjected to remastication, after which the mass is swallowed into the reticulum, or second stomach, and passes on through the digestive canal, along with the other indigestible portion of the food.

The treatment which kids receive in localities where the pasturage is poor is often quite different. They are usually confined in dirty pens or ill-kept yards for a considerable time after birth and are not allowed to graze. If the mothers have an abundance of milk, the kids take too much of it and do not get enough roughage to start rumination or keep the bowels open. As a result of these systemic disorders the kids are liable to suffer further from indigestion and acidity of the stomach and to seek relief in picking up wool and dirt from the places of confinement. These foreign substances enter the rumen, which is otherwise empty, and get rolled around by the contractile movements of the stomach, the mucous secretion binding them together firmly into a ball. Acute indigestion intervenes, and a disease of the kidneys, similar to what is known as amyloid degeneration, often sets in.

Kids affected with this disease refuse to suck, and stand with the head depressed and ears drooping. The breathing is slightly laboured. There are also indications of acute abdominal pain. Micturition is frequent and small in quantity.

The wool balls shown in the accompanying pictures were removed from kids dead of this disease. They are $1\frac{1}{4}$ in. wide by $1\frac{1}{2}$ inches long. The outside is smooth, hard and glossy in appearance. They range from black to dark gray in colour. One of them was cut open with difficulty.

Inside short wool fibers were found embedded in a thick tarry mass of mucous, dirt, small pieces of hay, sticks, etc. At Kaifeng, Honan, sixteen of these wool balls of various sizes were found packed in the rumen of a kid goat dead of this disease. In a case near Pochow, Anhwei, the walls of the paunch of a little goat were found plastered over with a dry mass resembling wool balls in consistency. Although this kid was turned out to graze, the muscles of the rumen were not able to contract on such a mass and start rumination. The goat finally died of weakness due to the lack of proper nourishment.

The treatment in this disease should be mainly preventive. The kids should either be allowed to run with their mothers as soon as they are old enough to feed, or be turned into a separate pen where there is green grass or some other green feed which they can eat, as they require it to start rumination naturally and to keep it going normally until they are large enough and strong enough to run with the goats.

These cases cannot always be cured. Sometimes when the hair balls are not very large and the injury to the rumen is not very great, the following treatment will work. Give each kid a dose (about an ounce) of Epsom salts to clean out the stomachs, followed by a tablespoonful of lime water, twice daily. The ewe's milk should be drawn off, and only the strippings left for the kid until it improves, when its allowance may be gradually increased. Of course the kids should be permitted to eat green grass, if they desire it. Also they should be given plenty of room to exercise in as soon as their strength returns. In the summer, they should be protected from the hot sun; and in the winter they should be sheltered from snow, rain and cold winds. Their pens should be ventilated, well lighted and kept clean at all times.

FRESH WATER SPONGES

BY

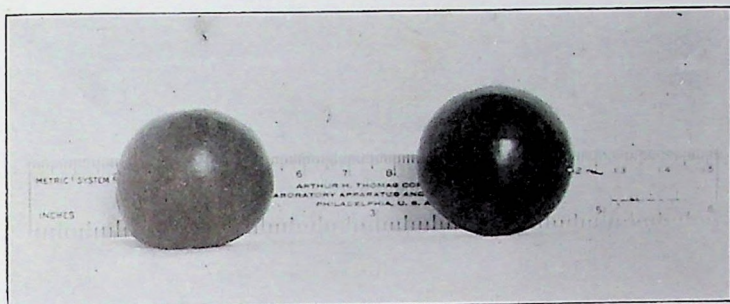
N. GIST GEE,

(China Medical Board, Peking.)

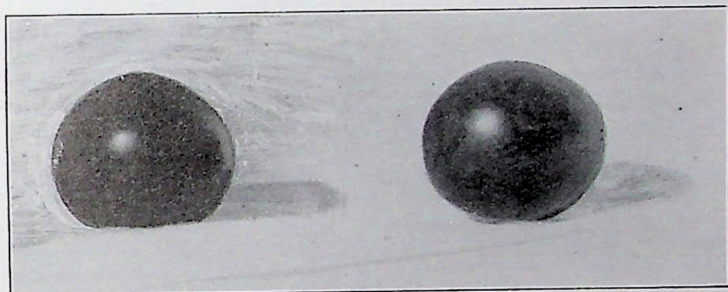
GENUS TROCHOSPONGILLA

This genus contains seven well established species with one or two doubtful ones. For the present we shall not consider the doubtful species as the data upon which they are based is uncertain and no types are preserved.

The determining characteristics of this genus of sponges is that the gemmule spicules are spool-like, or birotulate, and that the margins of the rotules (or transverse disks at each end of the spicule) are entire or



Jet Black Wool Balls from the Rumen of a Kid-goat.



Mottled Grey Wool Balls from another Kid-goat.



A Wool Ball Cut open, showing Wool Fibres, small pieces of Hay and Sticks within.

FRESH WATER SPONGES

without incisions in them. The comparative size of the two rotules in each spicule varies somewhat in the different species; in some they are of equal, or nearly equal, size and in one species one rotule is very much smaller than the other, being reduced to just a mere knob. There are all degrees of variations between these two extremes.

The skeleton spicules are of two general types, the smooth ones and those that bear spines. We shall base our following brief discussion of the species on the general characteristics of the gemmule spicules and the skeleton spicules. We do this because there is not a sufficient amount of material available in our collection upon which to base a close study of the arrangement of the skeleton spicules in the different species.

I.—*Trochospongillae* with smooth spicules.

Our photographs of the three sponges in this group show quite clearly their differences.

1.—*T. leidyi* Bowerbank (Fig. 1)

Figure No. 1 shows in the main the short, rather thick, but smooth, skeleton spicules. They are only about 115 to 120 microns in length and are obtusely pointed. The gemmule spicules are also very much smaller than those of the two following species, so there is no danger of confusing these two species with *T. leidyi*.

This species has not been found in China and as yet is known only from America.

2.—*T. latouchiana*, Annandale (Fig. 2)

3.—*T. latouchiana* var. *sinensis*, Annandale (Fig. 3)

Figures 2 and 3 will make clear the differences between these two forms. The skeleton spicules are about the same in both forms, and, to a casual observer, the gemmule spicules seem about the same when observed separately. When these two illustrations are placed together then it becomes apparent at once that the shaft connecting the disks in the latter form is longer in almost every case and also that the upper rotule is invariably smaller in the latter than in the former form.

The first of these has been found in India and Burma and we have specimens from Kashing, Nanking, and Soochow. The latter form is known only from China, and, while originally described from Soochow, has since been found in Nanking and Kashing.

II.—*Trochospongillae* with spiny skeleton spicules.

In this group there are four described species and we are adding additional new ones.

4.—*T. phillottiana*, Annandale, (Fig 4)

This figure gives a good idea of the characteristics of this very unique species. The skeleton spicules and the gemmule spicules are both the smallest of the entire genus. The skeleton spicules are rounded at both ends and are covered with minute spines. The

upper rotule of the gemmule spicule is slightly smaller than the lower one.

This has been found only in the Gangetic Plain in India and in Burma.

5.—*T. tunghuensis* n. sp. (Fig. 5)

This new species is most closely related to *T. phillottiana*. It has minutely spined skeleton spicules which are slightly curved and which are considerably larger than those of the species just named above as may be readily seen by a comparison of the illustrations of the two species. The small spines are evenly distributed throughout the entire length of the spicules. The spicules have rounded ends in the majority of cases, though among these there are found large numbers of others which have pointed ends which are abruptly sharpened; between these two extremes all the intermediate stages are found.

This material was collected dry and my specimen is a very thin crust entirely covered and interwoven with algal growths so that no distinct skeletal structure is discernible. It is also in an advanced stage of disintegration from drought and weathering.

The gemmule spicules are not abundant. The upper rotule is slightly smaller than the lower one as is shown in the photograph. It also differs somewhat in shape from those of the preceding species.

This species is described from a small piece of material sent to us by Mr. Y. T. Chu from a place near Ningpo. We have also found a few scattered spicules of the same sponge mixed in with one or two of our slides made from Soochow specimens so this species also occurs in Soochow. The sponge is evidently a very small one when growing under normal conditions.

6.—*T. horrida* Weltner (Fig. 6)

This is another sponge with spiny skeleton spicules, but in this case they are sharp pointed and the spines are very thick and large as compared with the other species which also have sharp pointed skeleton spicules in this group. The heavy spines in this case account for the name *horrida*. The gemmule spicules of this species are small with the rotules turned up at their edges a bit and with thick shafts.

This species has been found in Europe and also in two localities in U.S.A. Dr. Frank Smith found it in Illinois River, and the writer found it in lower South Carolina. The type form has not been found in this part of the world.

7.—*T. horrida* var. *ningpoensis* n. var. (Fig. 7)

This is another spiny, pointed skeleton spiculed species. It differs from anything which we have found recorded from elsewhere but bears a resemblance to the foregoing species. The skeleton spicules are somewhat shorter, are thinner and the spines are very much smaller than those of *T. horrida*.

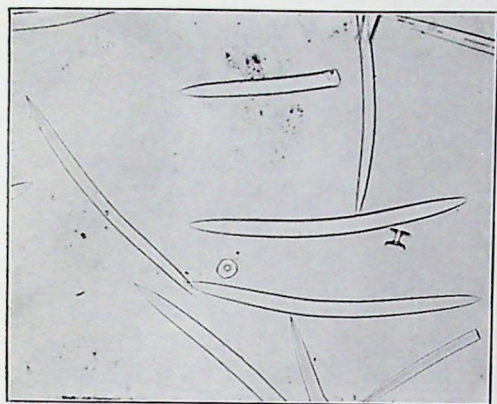


Fig. 1. *Trochospongilla leidyi* (Bk.)

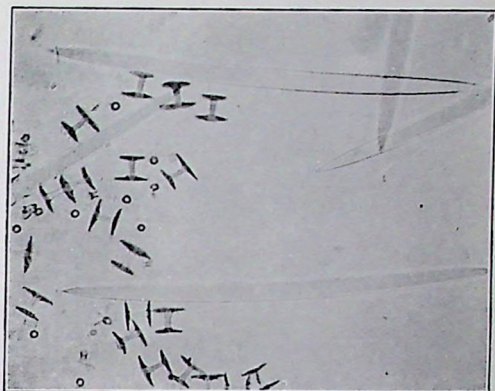


Fig. 2. *Trochospongilla latouchiana*,
Annandale.



Fig. 3. *Trochospongilla latouchiana* var.
sinensis, Annandale.

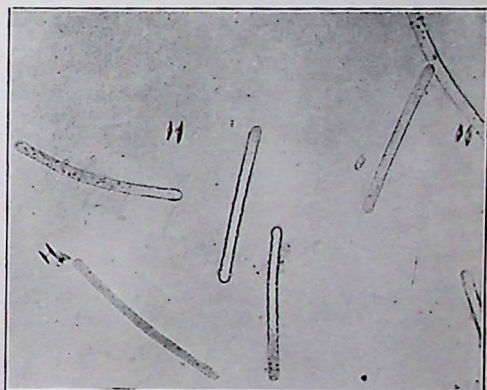


Fig. 4. *Trochospongilla phillottiana*,
Annandale.

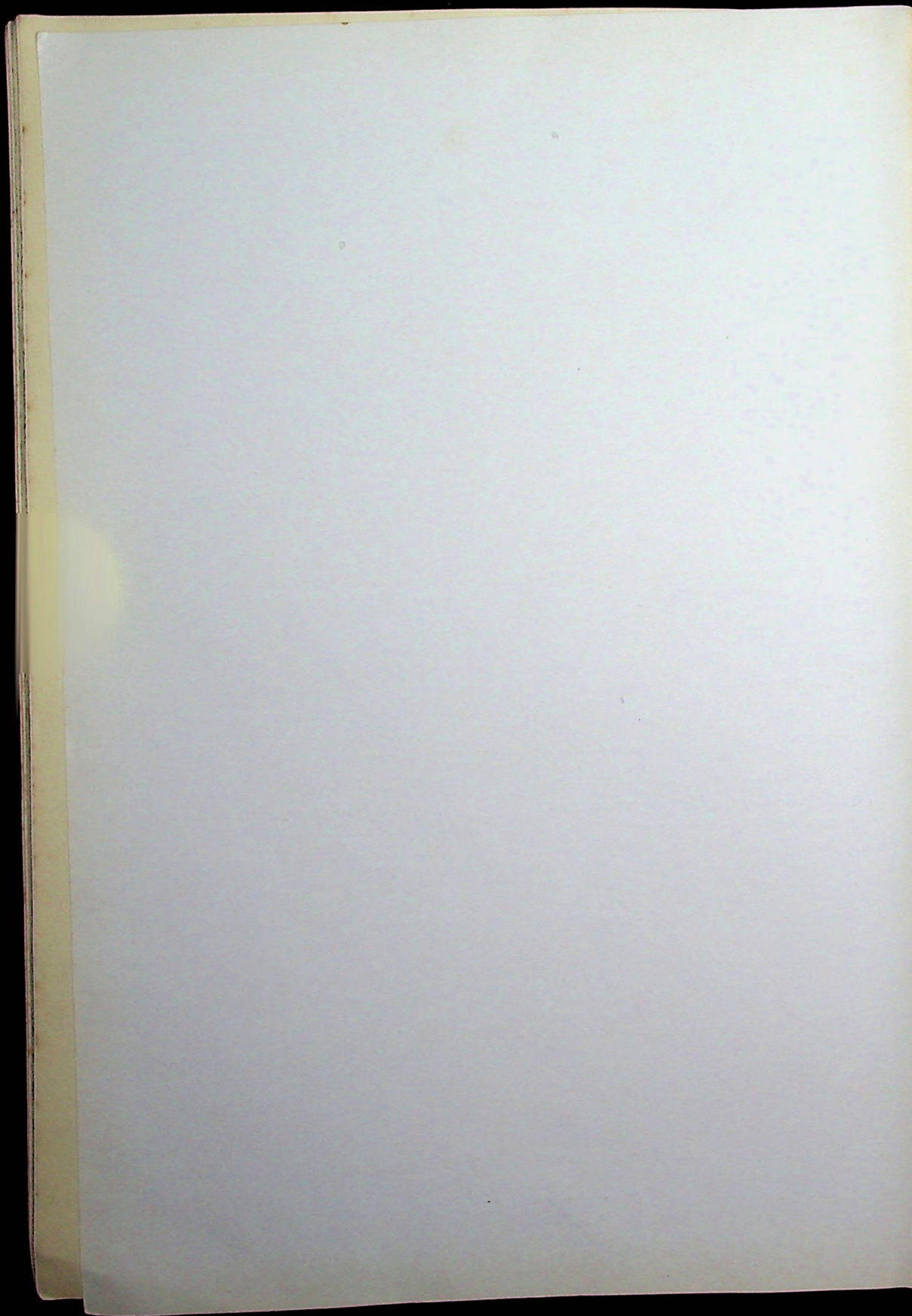


Fig. 5. *Trochospongilla tunghuensis*, n. sp.



Fig. 6. *Trochospongilla horrida* (Weltner).

(All enlarged 250 times.)



FRESH WATER SPONGES

The gemmule spicules of the two species are more nearly the same size and while there are slight differences yet their resemblances are much greater than the skeleton spicules of the two forms.

We feel that the differences are great enough to merit the creation of a new variety and we are calling this *ningpoensis* after the place near which it was found. We are indebted to Mr. Chu again for this specimen.

The same remarks made above concerning *T. tunghuensis* are true concerning this specimen. It grew under similar conditions and was in a similar condition when collected. So far this form has been located only in this one place, a lake near Ningpo.

8.—*T. sol*, Annandale (Fig. 8)

We are sorry not to be able to show a photograph of the spicules of this species as the only preserved specimen in existence is the type in the Indian Museum. We produce here a copy of the drawing made in connection with the original description of this species and this will show the nature of the gemmule spicules. We have not yet seen this species. It has spiny skeleton spicules with sharp points. The distinguishing characteristics in this species, however, is in the rayed markings on the rotule of the gemmule spicules. Otherwise it seems to resemble somewhat the form just described and illustrated as Fig. 7.

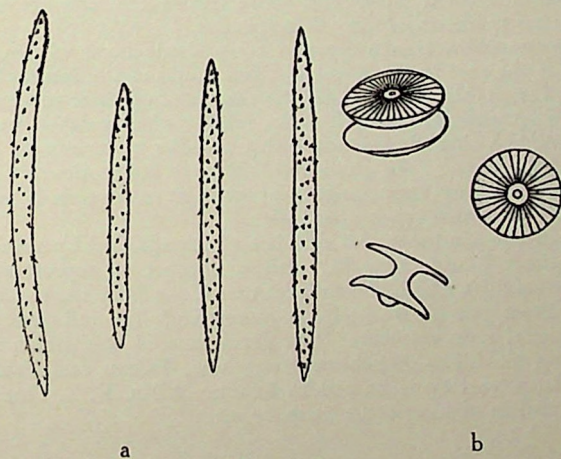


Fig. 8. *Trochospongilla sol* (Annandale)

- a. Skeleton spicules $\times 250$ b. Gemmule spicules $\times 780$

(After Annandale)

Dr. Annandale described the species from a specimen taken in Tai Hu near Soochow.

9.—*T. pennsylvanica*, Potts (Fig. 9)

This is another species with skeleton spicules of about the same size as *T. horrida* but with the spines slightly smaller. The distinguishing characteristic in this case, however, is that the gemmule spicules have rotules of very different size. This species has a gemmule spicule that looks for all the world like a small collar button with the upper rotule reduced to simply a small knob.

This seems to be the most cosmopolitan species in the genus and it has been found in America, in Europe, and in India. It has not as yet been reported from China.

A New Variety of *Ephydatia fluviatilis*.

Ephydatia fluviatilis var *chui*, nov. var. (Fig. 10)

Among the other sponges sent to us from time to time by Mr. Y. T. Chu is an interesting and striking variation of the very common *Ephydatia* mentioned above. The sponge comes from Chi Jao, is a light straw yellow in colour, and bears numerous gemmules scattered throughout the entire structure of the sponge.

The vertical rays of the skeleton are comparatively heavy and are easily observed with a hand lens. The transverse rays are small and delicate, being made up of very few spicules.

The gemmules are each covered by a single layer of the gemmule spicules as is the case in this species. The shafts of the gemmule spicules are almost invariably longer than the diameter of their rotules. These spicules are very slender and they are readily distinguished from others by this fact, the shaft being noticeably smaller than any of the other forms we have seen. We shall publish later fuller descriptions with more illustrations of this sponge, at present we present herewith a photograph of the two types of spicules.

Through the kindness of a number of friends and by means of my own collections I have now in hand a number of representatives of *Ephydatia fluviatilis* which show slight variations from the common type and when these can be worked out more carefully doubtless they will show additional new varieties. Our specimens of this genus represent the following localities—Soochow, Hangchow, Tsinan and Peking.

The above variety is named in honour of Mr. Y. T. Chu who has been so helpful in making collections for me.

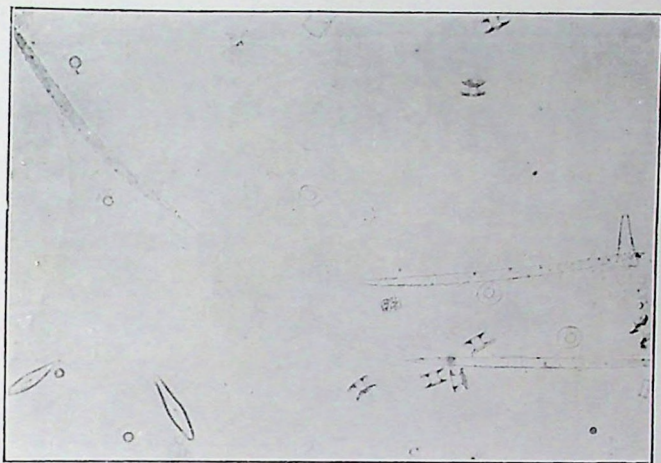


Fig. 7. *Trochospongilla horrida* var. *mingpoensis*, n. var.

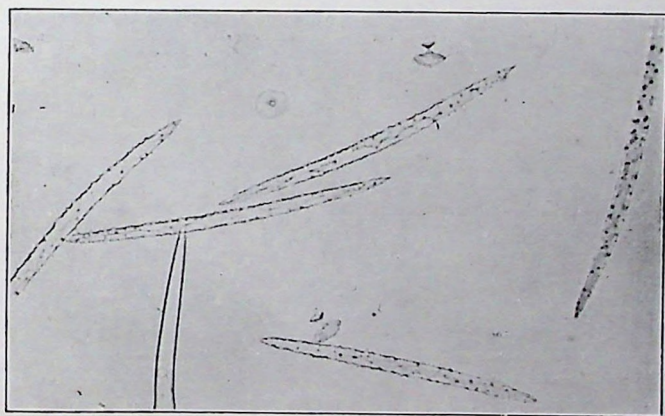


Fig. 9. *Trochospongilla pennsylvanica*, Potts.

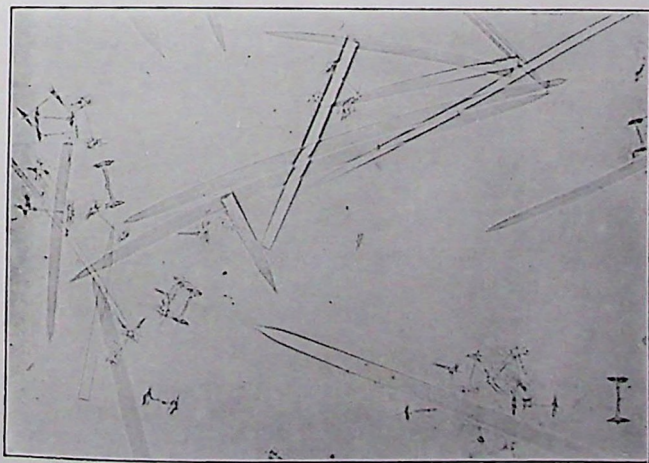
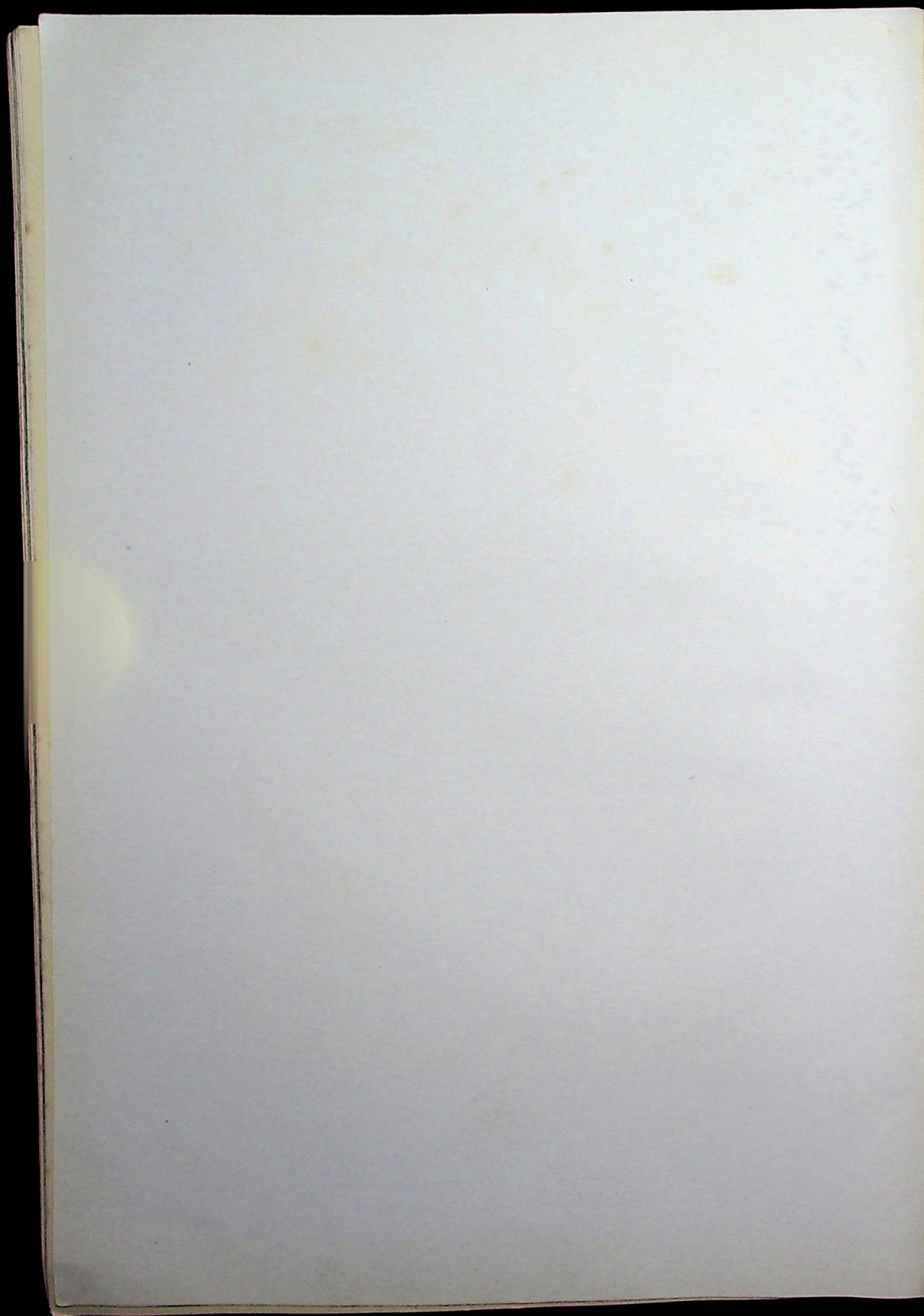


Fig. 10. *Ephedatia fluviatilis* var. *chui*, n. var.

(All enlarged 250 times)



ADDITIONAL NOTES REGARDING SHANSI WATERS

BY

E. T. NYSTRÖM

(Contribution No. 10 from the Nyström Institute, Taiyuanfu.)

This article, as well as the previous one, is intended to afford a purely general and preliminary survey of the waters discussed.

In a previous publication called "Some Shansi Waters Chemically Examined" (Contribution No. 7 from the Nyström Institute for Scientific Research, Reprinted from "The China Journal of Science and Arts" Vol. II, No. 2, March, No. 3, May and No. 4, July, 1924) the author endeavoured to describe by analyses the composition of several important sources of water-supply in Shansi.

It was stated that "for people living in a country of small and unevenly distributed rainfall (like Shansi) the question of water supply assumes an importance difficult to imagine for inhabitants of well-watered lands." It was shown by meteorological tables that the average rainfall of Shansi is only one half of the world's average, and, what is worse, is most unevenly distributed. The average rainfall for three "normal" years was only 384.7 mm, or 15.16 inches per year. The efforts of the "Model Governor" to improve the water supply were then briefly described.

Some pages were given to a brief dissertation on the properties of natural waters and the methods of water analysis. To be able to pass judgement on the waters described in this additional report, we requote the following table from the "Chemiker Kalender" which enables us to place the Shansi waters in the various categories of "pure," "drinkable," "suspicious" and "bad."

	Pure	Drinkable	Suspicious	Bad
Total Hardness (recalculated by the writer to mgr. per litre) ..	45-135	135-270	>270	>1000
Hardness after boiling (permanent hardness)	18-45	45-116	116-180	>180
Sodium Chloride (salt) mgr. per l. ..	<27	<66	<165	>165
Chlorine, mgr. per litre	<15	<40	<100	>100
SO ₃ , mgr. per litre	2-5	5-30	>30	>50
CaSO ₄ Calcium Sulphate mgr./l ..	3-8	8-51	>51	>85
Organics (mgr. Oxygen absorbed per l.)	<1	>2	3-4	>4

It is urged to compare the figures one by one with those of the Shansi waters.

As for the item "Total Solids" (obtained by evaporation and drying at 105°C.) the River Pollution Commission of Great Britain gives an average of 589 samples (in mgr. per litre).

Rain Water	..	..	..	..	..	29.5
Upland Surface	..	..	..	..	..	96.7
Deep Well	..	..	..	..	..	432.8
Spring	..	..	..	..	..	282.0

It is again requested that the Shansi figures be compared with these results.

The Shansi Waters may be classified as Deep-Well (Artesian), Surface-Well, Spring and River Waters.

The Artesian waters (from wells in or at Taiyuanfu) were found to have Total Solids from 317.5 to 549 (*see* British waters above) Chlorine from 23.5 to 37.6, Total Hardness from 188 to 233, therefore, they are to be put in the "Drinkable" category of the above table. They are, though somewhat hard, eminently suited to human consumption (after sterilizing).

The Surface Waters show a different picture. Total Solids from 295.5 to 3299.8 mgr./l, Chlorine 14.3 to 348.3, Hardness above 348. They must therefore generally be considered "bad."

The springs are seen to be of very different composition: Total Solids from 181.5 to 716 (the latter the famous Chin Szu spring) Chlorine from 9.1 to 44 mgr./l and Hardness 173 to 315.

The Chin Szu springs, though limpid and good to look at, are in a class by themselves, the water being so charged with dissolved matter (Calcium Sulphate and Carbonate, etc.) as to be scarcely drinkable. The other springs, though hard, may be put in the "drinkable" class.

After this résumé the additional results of water analysis conducted in 1925 will now be quoted.

Following the same order of classification as mentioned above, we propose to begin with the Artesian waters (deep well).

The Artesian waters in or near Taiyuanfu being well known by numerous analyses (*see* above) attention was directed to similar wells in other districts and a sample was obtained from a deep well in the south-west corner of Shansi, in Yün Ch'eng, close to the great Salt Lake. It was found that the salinity of the ground entered even at such deep levels (or the pipe may be faulty).

Analysis No. 21.

Artesian Well at N. Street, Yün Ch'eng, S. Shansi.

Appearance: Organic impurities, dark flakes floating in the water.

Total Solids	..	..	..	..	1018 mgr. per litre
Chlorine	..	..	..	..	239 " " "
Total Hardness	..	..	..	..	262 " " "
Temporary	..	..	..	..	54 " " "
Permanent	..	..	..	..	208 " " "

Barium Chloride gave a strong precipitate indicating presence of the SO_4 -ion. Probably the local difficulty of obtaining salt-free water is responsible for sinking this well but the result is disappointing. Total solids, Chlorine and hardness put it into the "bad" class. The sample was taken in the spring of 1924.

ADDITIONAL NOTES REGARDING SHANSI WATERS

Surface Waters.

Analysis No. 22.

"K'u Shui" (Bitter Water) from a well in the kitchen yard of the C.I.M. Hospital in Lin Fen Hsien (P'ing Yang Fu), S. Shansi. Sample taken February 22, 1925. Water level 54 feet below surface.

Appearance: Not quite limpid. Minute filaments floating about, which look like organic impurities.

Barium Chloride test. Very large and immediate precipitate indicating presence of dissolved sulphates.

Total Solids	4619 mgr. per litre
Chlorine	588.4 " " "
Hardness: Too hard to estimate with Clark's test.	Very hard
Sulphuric Acid as SO_3	858.7 mgr. per litre
Calcium as CaO	235 " " "

Magnesium is also present.

This water owes its poor quality to dissolved sulphates and chlorides of Sodium, Calcium and Magnesium. It is a kind of dilute brine similar in composition to the Yün Ch'eng brine (*see below*). It is worse than any of the surface waters previously analyzed and will be difficult to improve by ordinary anti-hardness chemicals.

Analysis No. 23.

A well in the home of S. R. Li, Principal of the Industrial College. Sample collected by my assistant, Mr. H. S. Pien, Taiyuanfu. Locality: S. Hsien, N. Shansi.

Appearance: Limpid, but some dark flakes floating about.

Barium Chloride test: Slight precipitate. Little SO_4 contents.

Total Solids	824 mgr. per litre
Chlorine	92 " " "
Total Hardness	425 " " "
Temporary "	92 " " "
Permanent "	333 " " "

This is a rather poor quality of well water, the hardness being excessive.

Spring Waters.

Analysis No. 24.

A spring originating in sandstone at Pei K'ou Tsun, near Salt lake, S. Shansi.

Appearance: Limpid

Barium Chloride: No precipitate

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Total Solids	308 mgr. per litre
Chlorine	5 " " "
Total Hardness	202 " " "
Temporary ,,	55 " " "
Permanent ,,	147 " " "

A good drinkable water. The low content of Chlorine is notable.

Analysis No. 25.

Spring at Ping K'ou Wa on Lu Yah Shan, a mountain nearly 3,000 m. high in N.W. Shansi at junction between Ning Wu, K'o Lan and Wu Chai districts, about 300 li (150 km. N.N.W. of Taiyuanfu.)

Appearance : Perfectly limpid.

Barium Chloride : Absolutely no precipitate of BaSO_4 even after warming and waiting. This is most unusual.

Total Solids	94.5 mgr. per litre
Chlorine	9.7 " " "
Total Hardness	88.8 " " "
Temporary ,,	78.4 " " "
Permanent ,,	10.4 " " "

Radioactivity : Very small (sample was old).

This water is of remote origin and of no interest except in being the purest water analysed in Shansi. It must spring from old crystalline rocks.

River Waters.

The Fen Ho.

This is the principal river of Shansi coming from the N.W. part of the province, passing Taiyuanfu, running South and then West, and finally draining into the Yellow River in the S.W. corner of the province.

The singular dual quality of this river has already been described. In most seasons it emerges on the Taiyuan plain only to be absorbed into numerous irrigation channels. The debouchement of the river where its course leaves the Taiyuan plain in its S.W. corner is often completely dry. Further south there are large springs which give the river a new start, so to say. No wonder the composition of the water is different at Taiyuan and in the south. To repeat the previous analysis No. 11 of water taken from Fen Ho at Taiyuan we find :

Fen Ho (Filtered water) :

Total Solids	248 mgr./l
Chlorine	17.6 " "
Total Hardness	157 mgr. CaCO_3 per l.
Temporary ,,	57
Permanent ,,	100

An estimate of the silt carried at low water, June 7, 1925, gave as result : 679.3 mgr. per litre.

ADDITIONAL NOTES REGARDING SHANSI WATERS

Compare with these figures.

Analysis No. 26.

Water from Fen Ho, 3 li West of Lin Fen Hsien (P'ing Yang Fu), S. Shansi. Sample taken at low water on February 22, 1925.

Appearance : Muddy. Silt Quantity : 848.8 mgr. per litre.

Total Solids	..	..	..	537	mgr. per litre
Chlorine	..	..	..	31.2	" " "
Total Hardness	..	..	..	324	mgr. CaCO_3 per litre
Temporary "	..	..	..	144	" " "
Permanent "	..	..	..	180	" " "

Barium Chloride gave a rather considerable precipitate indicating presence of dissolved sulphate. This water is not so good as the Fen Ho water at Taiyuanfu.

Analysis No. 27.

Water from Yellow River obtained at Ch'i K'ou due west of Taiyuanfu, by courtesy of N. Elsworth, Esq. of the Salt Administration. Sample taken in beginning of May, 1925, at fairly low water.

Appearance : Muddy.

Silt : Light fawn-coloured when dry, partly so fine as to pass ordinary filter paper. Amount of silt : 1570 mgr. per litre.

Filtered water :

Barium Chloride test : Not much precipitate, not much sulphate.

Total Solids	..	..	..	405	mgr. per litre
Chlorine	..	..	..	41.7	" " "
Total Hardness	..	..	..	237	mgr. CaCO_3 per litre
Temporary "	..	..	..	91	" " "
Permanent "	..	..	..	146	" " "

Its quality is like the Artesian waters of Taiyuanfu, *i.e.* a somewhat hard water but fit for human consumption after boiling and filtering. It is not so good as the Fen Ho water at Taiyuanfu. The composition of the water of the Yellow River probably undergoes many changes at various points of its course and also probably according to seasons.

Analysis No. 28.

Water of the Hu T'o River.

This river rises in N.E. Shansi, curves round the Wu T'ai Mountains, leaves the province flowing E.S.E. and passes the Kin Han railway at Cheng Ting Fu. Sample taken by Mr. H. S. Pien during flood season 1924 (August).

Appearance : Muddy.

Silt : Fine grained, fawn colour when dry. 12710 mgr. per litre (note large quantity).

Filtered water : Somewhat opalescent.

Total Solids		275	mgr. per litre
Chlorine		14.5	" " "
Total Hardness		187	" " "
Temporary "		99	" " "
Permanent "		88	" " "

When filtered this is a good water similar to the Fen Ho at Taiyuan-fu (*see above*).

Analysis No. 29.

Water from Sang Kan Ho (Hui Ho), N. Shansi. Sample taken by Mr. H. S. Pien, August, 1925.

The Sang Kan Ho rises at Ning Wu in N.W. Shansi, flows towards N.E., leaves the province, flows past Peking at some 20 miles distance and ultimately joins the Pei Ho near Tientsin. This sample was taken from its course on the Ta T'ung plain.

Appearance : Muddy.

Silt : Light fawn-coloured, when dry. 455 mgr. per litre. (rather small quantity).

Total Solids (filtered water)		492	mgr. per litre
Chlorine		25	" " "

Total Hardness cannot be estimated by Clark's test. Very hard.

Barium Chloride : Heavy precipitate indicating much sulphate and high permanent hardness. The water has evidently been contaminated by flowing over the salty ground of the Ta T'ung plain.

Analysis No. 30.

Brine from wells dug at the great Salt Lake at Yün Ch'eng in S.W. corner of Shansi. This well-known salt lake, which lacks visible drainage, was first described by F. von Richthofen in the seventies. It is long and narrow in shape, flanked toward the S.E. by the Feng T'ao Shan (Chung T'iao Shan). In the dry seasons the lake is largely covered by an ice-like, white crust. Brine is obtained from wells dug on the shore and the brine is evaporated in the sun in shallow pans. This is an important source of salt for Shansi and Honan, and Yün Ch'eng is the seat of an Inspectorate of the Salt Gabelle.

Regarding salt water pools in general and the salt lake in particular, Dr. Harry Smith, botanist from Upsala University who worked for the Nyström-Institute in 1924, makes the following statement (*see Contr. Nystr. Inst. No. 9*) :

"Special attention must be paid to the alkaline grounds and salt water pools. They are quite common on the Taiyuan plain (*see analysis No. 6 in Contr. Nystr. Inst. No. 7*) but the largest extension of them is to be found S. of Yün Ch'eng, in the S.W. corner of Shansi, where the so-called Salt Lake (although it is not exactly a lake) covers an area of about 35 km. in length and 2 to 4 km. in width. When I saw it in the first days

ADDITIONAL NOTES REGARDING SHANSI WATERS

of July, before the rainy season had begun, it was almost completely dry, and hardened, but not very thick surface of the briny clay, covered with crystals of salts and gypsum, made it look most beautiful in the distance, just like a frozen lake in glittering splendour. The Chinese take out huge amounts of salt from this place. They have only to let the brine that is coming up from several wells run out on to small fields where it quickly evaporates. The Government tax on salt made from this place amounts yearly to not less than Mex. \$3,000,000."

Specific Gravity of Brine obtained from the brine-wells at Yün Ch'eng : This brine is evaporated to make Salt. Sp. Gr.—1.26.

This is heavier than a highly concentrated Sodium Chloride solution. Appearance : A little yellowish colour with floating flakes.

Barium Chloride : Very heavy precipitate of sulphates.

Total Solids : (does not solidify at 105°C) at 200° slowly becoming solid.

Chlorine : 179000 mgr. per litre.

Hardness : too large to be estimated by Clark's test. It is over 400.

Magnesium estimated as Magnesium Chloride 115500 mgr. per litre.

Sulphate estimated as Sodium Sulphate : Na_2SO_4 , 95000 mgr. per litre.

Estimate of Na Cl 153000 mgr. per litre.

Mr. Baldwin, late Salt Inspector of Ho Tung (Yün Ch'eng), has kindly put at the writer's disposal some notes regarding the quality of salt produced here. He gives analyses of two kinds of salt "Rock Salt" and "Commercial Salt." In regard to the origin of the former see below.

Analysis made by Sulman (London) Rock Salt Commercial White Salt.

Loss at dull red heat	..	..	0.90	3.20
Sodium Sulphate	..	..	2.21	13.38
Magnesium Chloride	..	..	.45	4.01
Calcium Sulphate	..	..	1.40	—
Insoluble Matter	..	..	1.30	0.12
Sodium and Potassium Chlorides	..	..	93.74	79.29

(KCl, 1.2%)..	..	..	100.00	100.00
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Note the increase of Sodium Sulphate and Magnesium Chloride in the Commercial Salt. There being no outlet to the lake, it is natural that the brine (origin of the commercial salt) should get enriched year by year with salts generally present in the ground of South Shansi.

The question about the origin of the so-called Rock Salt has been elucidated by the kind assistance of Mr. N. Elsworth of the Chinese Salt Administration. He writes (December 10, 1925): "Re the question of Rock Salt at Ho-Tung, I have got the following information from one of our staff who has been down there. It is apparently similar to the home product, it is found at one end of the lake usually about 3 to 4 feet down, but in small lumps about the size of cobble stones, dark in colour. It is called by the natives 'Yen Ken' (salt root). I am told the natives there use it as a medicine for curing diseases of the eye. In England we usually

give it to animals as a 'salt lick'—it is no doubt the source of the brine supply in the lake."

The Water in the lake (not in the brine wells) was tested in the Tongshan College Laboratory and was found to contain in 1 litre

29.26 grammes Na Cl

78.57 ,, Na₂SO₄

This is *not* the water used for salt-evaporation but the mother liquor of the lake (statement by Mr. Baldwin).

The presence of so much sulphate both in the lake, in the brine wells and in the commercial product is remarkable. It should have the strong physiological effect of Glauber's Salt when taken internally. It might be used for glass manufacture.

The writer suspected the presence of Bromine (combined) in the brine. Chlorine was led into the brine, which then assumed a yellow colour. It was then shaken with paraffin oil which extracted the Bromine liberated by the Chlorine. The paraffin solution (of brown colour) was shaken with caustic soda, which extracts the Bromine as bromide and bromate. After heating, to decompose the bromate, the Bromine was estimated as bromide. Although the presence of Bromine is indisputable, the quantity is small: 0.1% and since the "finals" of the Stassfurt brines in Germany (the chief source of Bromine) has several times as much and Bromine is priced very low, this discovery, though of theoretical interest (the first time Bromine has been found in Shansi), does not hold out any promise of profitable technical exploitation.

SCIENTIFIC NOTES AND REVIEWS

BIOLOGY

NEW BEETLES FROM CHINA: In *The Annals and Magazine of Natural History*, (Ser. 9, Vol. 16, No. 96, December, 1925) G. C. Champion describes a number of new species of Asiatic and Tropical American forms of beetles belonging to the family *Phalacridæ*. The following are from China or closely adjacent regions:

Phalacrus punctatus. Op. cit. p. 605 Habitat: China, mainland opposite Tygosan I. (Type) Haining, Hongkong, Chusan I, Japan, Fukushima.

Phalacrus tenuicornis. Op. cit. p. 607 Habitat: Philippines, Java and China (Ta-Maon I. and Chusan, Archipelago) Type from Bohol in the Philippines.

SCIENTIFIC NOTES AND REVIEWS

TWO NEW MOTHS FROM CHINA: In the same issue of the above mentioned publication J. J. Joicey and G. Talbot describe some new Lepidoptera from various parts of the world, of which the following two of the family *Zygænidæ* are from China:

Campylotes desgodinsi. Ob., *yunnanensis*. Op. cit. p. 653. Habitat: Pe Yen Tsing, Yunnan, S. W. China.

Pidorus albifascia Moore, *amplifascia*. Op. cit. p. 653. Habitat: Teng Yueh Ting, Yunnan, S. W. China.

A. de C. S.

THE PEKING LABORATORY OF NATURAL HISTORY

The following account of the above institution has been received, and we make no apologies for publishing it *in toto*.

ORGANIZATION

The Peking Laboratory of Natural History was founded in 1925 with headquarters at 11 Kaka Hutung, Peking. It is a voluntary association of scientific men engaged in the study of the fauna and flora of China, and has for its purpose the systematic survey, and monographic publication of the animals and plants of China. In this work the Laboratory stands ready to cooperate with, and if it seems advisable, divide the field with other organizations. Thus it is already affiliated with the Chinese Geological Survey, and supplements the work of the Palaeontological division of that Survey, by taking over the study of the Pleistocene Mollusca—to be published, however, in the *Palaeontologia Sinica*, and by continuing the work in the modern fauna and flora.

The work of the staff of the laboratory is entirely voluntary, no salaries or remuneration of any kind being paid. The buildings and equipment of the central laboratory on Kaka Hutung were provided entirely by Mr. Sohtsu G. King, who is at the same time the Custodian of the Laboratory. Branch laboratories may be established, if it is deemed desirable, at other places and centers, the central laboratory acting as a clearing house for correlation of the work of all the branches. The laboratory aims to associate with itself active workers in the systematic zoology and botany of China, in any part of the country, whose work is in the line of that aimed at by the laboratory. This work is the systematic description and illustration of the plants and animals of China and their publication in a uniform series of monographs, according to a broad general plan. At present partial lists of species, and descriptions of some of the Chinese animals and plants are found scattered in scientific periodicals all over the world. These are for the most part unavailable to the average student in China, not only because they are so widely scattered, but also because they are in a multitude of foreign tongues. English is the language to be employed in the monographs of the laboratory and with it for each volume, as comprehensive a summary in Chinese as appears desirable. The aim is to present in series of uniform character the complete fauna and flora of China. This is of course an undertaking of many years, even decades, and the plan of publication has sufficient elasticity to enable the publication of any complete unit whenever it is available. Though each field is under the direction of a specialist connected with the laboratory staff, who at the same time is the editor of the particular series of monographs pertinent to his field, contributions from others are accepted provided they are complete systematic descriptions of a unit group, whether that unit represents a genus, a family, an order or some other unit, biologic, geographic, etc.

STAFF:

The Scientific Staff of the laboratory at present is as follows:

Administrative Officers

A. W. Grabau, S. D., Dean.

Sohtsu G. King, Custodian and Honorary Secretary.

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Heads of Department

Sohtsu G. King, Mollusca.
F. N. Kolarova, Cand, Ph. D., Assistant in Pelecypoda.
N. Gist Gee, M. A., Fresh-water and terrestrial invertebrata.
C. Ping, Ph. D., Fish, Amphibians and Reptiles.
G. D. Wilder, D. D., Birds.
Bernard E. Read, Ph. C., Ph. D., Plants.
Kungpah T. King, Illustrations.

WORK UNDER WAY—MOLLUSCA

The work so far begun by the staff includes extensive collection of the marine Mollusca from Pechili Bay by Prof. Grabau, Mr. Sohtsu King and Miss Kolarova, and other marine invertebrates by Mr. R. J. Dobson. A marine biological laboratory was established at Peitaiho, and several months devoted to the collection of the marine fauna with almost daily dredging expeditions during part of the time under the direction and personal charge of Mr. Dobson. As a result a very large amount of material has been brought together, including well over a hundred species of Mollusca represented by thousands of specimens. In addition, Curator King of the department of Mollusca, has arranged with local collectors all along the Chinese coast, to supply him with Mollusca, the shells as well as the animals, and much material has already been obtained in this way. Arrangements have also been made with a number of individuals to supply fresh-water and land Mollusca from different parts of China. A very respectable beginning has been made to bring together the literature on Mollusca, and the curator is now in correspondence with librarians and booksellers all over the world in an endeavour to bring together in time a complete library on this subject.

The first fascicle of Volume I, Series A, of the Fauna Sinensis devoted to the *Rapanae* of the Chinese waters is now in preparation and will be published during the winter.

OTHER MARINE INVERTEBRATES

At present there is no one on the Laboratory staff in charge of the other marine invertebrates, but extensive collecting has been begun and will be carried on in subsequent years.

LAND AND FRESH WATER INVERTEBRATES OF CHINA

(Exclusive of Mollusca and Insecta)

The land and fresh water invertebrates, exclusive of the Mollusca and Insecta, are in charge of Curator N. Gist Gee who has for some time been collecting specimens representing several of these groups, notably the Rotifers, the Fresh Water Sponges, and the Leeches of China. Curator Gee has also brought together lists of many of the animals and plants which occur in the vicinity of Soochow where he formerly taught. Some of these lists, especially the ones of Ants, Leeches, Rotifers, and Fresh Water Sponges, represent a wider range than Soochow. These lists have been arranged from intensive search into the scattered literature and from extensive correspondence with specialists in various parts of the world and from sending large quantities of material abroad for study and identification by specialists. Some of these lists have been published in various periodicals but they will be made available by their publication in the series of Bulletins of the Peking Society of Natural History, a larger organization devoted to all aspects of Natural History and to the spread of interest in it, but one with which the Peking Laboratory of Natural History works in close harmony.

A monograph on the Fresh Water Sponges of China is being prepared by Curator Gee and collections of sponges from the various parts of China are being made. This work covers a virgin field and will be a definite contribution to the knowledge of this group.

Preliminary lists of a number of the groups will be issued in order to furnish a basis for those who wish to work in these groups.

SCIENTIFIC NOTES AND REVIEWS

INSECTA

At present there is no one on the staff of the Laboratory in charge of Insecta and related groups, but it is hoped in the near future to establish, probably in connection with other Peking institutions, an Institute for Entomological research.

LOWER VERTEBRATA

The lower vertebrates are in charge of Dr. C. Ping at present resident in Nanking. Dr. Ping has already under way extensive researches on the fishes of China, and some of his associates are engaged in the study of amphibians and reptiles as well as insects. It is hoped that in the near future this department may develop into a larger institute because of its great importance in connection with the question of food supply in China.

BIRDS

Curator G. D. Wilder has for many years studied the birds of North China and in co-operation with Curator Gee, Lacy I. Moffett, and other ornithologists in this and foreign countries has brought together an extensive list of Chinese birds which will be published shortly in the Bulletin of the Peking Society of Natural History.

A monograph of the Chinese *Corvidae* is now being prepared by him, the coloured illustrations for which are being made by Mr. Kungpah T. King. This will be published as the first fascicle of Series I, of the Fauna Sinensis.

Material for other monographs has been brought together and these will be issued as soon as completed.

BOTANY

Curator Read of the Department of Botany has for many years collected and studied the plants of medicinal value in China. This work is carried on partly under the auspices of the Peking Union Medical College with which Dr. Read is connected, but will be brought out by the Laboratory. A complete list of medicinal plants of China, with their original and romanized Chinese names, the parts in use, their constituents, habitat and references to botanical and pharmacopoeial literature, Chinese as well as foreign, arranged in botanical classification, has been compiled by Curator Read and his assistant, Dr. J. C. Liu, and will be published as Volume I, Series A of the Flora Sinensis.

Other phases of botanical work will be arranged for as soon as specialists in these branches are ready to undertake the work. Two volumes of Series B, containing the systematic description of species are nearing completion. These will comprise about 40 plates of colored illustrations and from 600-800 pages of text for the 2 volumes.

ILLUSTRATIONS

Mr. Kungpah T. King, the well-known Peking artist, has undertaken the charge of the illustrations. He will prepare the paintings for the Chinese birds himself, this being purely a labor of love on his part. Furthermore, he has undertaken to defray the cost of publication on the monographs of the Chinese birds, as his brother Sohtsu G. King, has undertaken to defray the cost of publication of the monographs on the Mollusca. This truly patriotic attitude towards the development of Science within their own country, cannot receive high enough commendation, and, it is hoped, may lead others to come forward to the support of this and similar scientific undertakings.

Finally, Mr. Kungpah King is giving gratuitous training to a number of the younger Chinese artists, to enable them to become experts in the accurate and scientific delineation of the animals and plants of China, and these men will be employed in the production of the illustrations for the monographs on the Fauna and Flora Sinensis.

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PUBLICATIONS

The publications of the Laboratory will be confined to the monographs on the fauna and flora of China. All smaller papers, such as lists of species, preliminary descriptions of new forms, natural history notes on Chinese animals and plants, etc., will be referred to the Bulletin of the Peking Society of Natural History. The monographs to be issued by the Laboratory will be of quarto form, identical in size and general character of text and plates with the volumes of the *Palaeontologia Sinica*, issued by the Parent Institution, the Geological Survey of China. Whenever possible, however, the plates will be colored. The monographs will be in two groups: I *Fauna Sinensis* and II *Flora Sinensis*. Under each group there will be a number of series, each of which is devoted to a special field, this division being in some cases biologic, in others geographic and in still others determined by other reasons. Each series will be in charge of the Curator of the respective department, who is at the same time the Editor of the series.

Under each series there will be a greater or less number of volumes. Each volume will comprise from 300 to 400 pages of text and about 30 plates. The volumes will be issued in fascicles, each fascicle a complete treatise of a related group (genus, family, etc), but the larger fascicles may be issued in parts. As each fascicle is paged separately (as in the *Palaeontologia Sinica*) there need be no rigid sequence in the issuance of the fascicles, any fascicle of any volume appearing whenever the text and plates have been completed.

The treatment is to be systematic in the first place—there being a complete description of the species, according to modern systematic methods, with the aid of full illustrations. A complete synonymy and bibliographic reference will be given whenever it seems desirable. The description is to be complete—whether the species has been described before or not, though part of the description may be a quotation of the original description, the object being the presentation of a complete monograph without requiring the student to refer to the original scattered literature, except for purposes of more extended research. The description and illustration shall be so complete that any one using them can readily identify his material.

Following the systematic description there will be an account of the habits and habitat, conditions, and all other purposes, and all other natural history notes of interest together with reference to Chinese folk-lore and literature and such other facts as will be of interest to the general reader desirous of acquiring knowledge of Chinese animals and plants.

It is proposed to distribute a limited number of monographs to museums and institutions of learning in all parts of the world, including the Universities of China. Also to specialists in the respective branches, though this generally is taken care of by the author, who receives a liberal supply of copies of his monographs. The remainder are to be put on sale, the receipts to be added to the publication fund. A preliminary analysis of the several series of the *Fauna Sinensis* and the *Flora Sinensis* has been prepared, this being, of course subject to modification as the subjects are developed.

A. W. GRABAU,

Dean.

Peking, November 1925.

PHYSICS AND CHEMISTRY

SCIENTIFIC PERIODICALS AVAILABLE IN SHANGHAI: Students of physics will be interested to know that current issues of the following periodicals can be seen in the reading room of the North-China Branch of the Royal Asiatic Society, 5 Museum Road:

Nature; *Science*; *The Journal of the National Academy of Sciences*.

Nature, *The Scientific American* and *Discovery* are available to members in the Shanghai Club reading room.

SCIENTIFIC NOTES AND REVIEWS

Science Abstracts (A) and *The Proceedings of the Physical Society of London* can be seen by special arrangement with the undersigned.

The American Journal of Science; *The New Zealand Journal of Science and Technology*; *Discovery and Science* (Chinese) may be seen by arrangement with the Editor of *The China Journal of Science and Arts*.

THE PHYSICAL PROPERTIES OF CLAY: A very remarkable research on the physical properties of clay has been carried out by Dr. Karl Terzaghi at the American Robert College, Constantinople. The results have been published in a book "Erd-mechanik" issued by Deuticke in Leipzig in 1925, and also in a series of eight articles in the *Engineering News Record* (New York) in November and December, 1925. He has thrown great light on the problems of capillarity, moisture and pore content, settlement, elasticity, permeability and lateral pressure of this important material.

H. CHATLEY.

MEDICINE

DENGUE: *The Philippine Journal of Science*, Vol. 29, Nos. 1-2, January-February, 1926, consists of some three hundred pages devoted exclusively to an exhaustive inquiry into the history, epidemiology, mechanism of transmission, etiology, manifestations, immunity to and prevention of this malady, by Drs. J. F. Siler, Milton W. Hall, and A. Parker Hitchens who are respectively President and members of the United States Army Medical Department Research Board.

The authors, following in many respects the lines laid down by others, have amplified a number of conclusions hitherto reached. Their research comprises the following principal considerations:

- The exclusion of *Culex* mosquitoes as vectors of dengue.
- The working out of the details of the mechanism of transmission of *Aedes* *Mengen*.
- The demonstration of the very complete parallelism in the mechanism of transmission of dengue and of yellow fever.
- The experimental and statistical demonstration of the transient character of immunity to dengue, the outstanding difference, epidemiologically, between dengue and yellow fever.
- The demonstration of the probability of the occurrence of short-lived abortive cases of dengue, even without fever.
- The demonstration of the variability of clinical type in dengue cases produced by the same strain of virus, an observation that has its bearing on the question of the identity or the diversity of the various short-lived fevers prevalent in tropical and subtropical countries.
- The application of statistical methods to the clinical study of the disease and especially of the leucocytes, the study of the latter leading to certain suggested generalizations with regard to the relationship between total leucocyte counts and differential counts that may prove valuable in the interpretation of such counts in other diseases.
- The working out of technical details in the artificial breeding of mosquitoes, especially of *Aedes* and *Culex*, which may prove of value to other workers along similar lines.

This treatise is of unusual interest to medical practitioners in general and to those in China, in particular, especially in connexion with certain febrile conditions which are but vaguely understood and are commonly diagnosed according to locality,

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as "Shanghai Fever," "Tientsin Fever" etc., and which frequently exhibit symptoms akin to dengue. The authors have produced a masterly treatise and a valuable contribution to the sum of medical knowledge.

VITAMINES AGAIN: The condition known as Nyctalopia, or Night Blindness, prevalent in the tropics and formerly to be observed largely among crews of sailing vessels becalmed in tropical waters, was long ascribed to the effects of excessive sunlight. The observance of the same condition among children in districts where famine conditions are common, necessitates a reversal of judgement and the exoneration of the sun as the causative factor. The phenomenon, according to latest authority, is to be traced to vitamin deficiency. Like Xerophthalmia, it is a symptom of Avitaminosis and is, etiologically, the result of deficiency in the vitamin known as fat-soluble A.

From earliest times, it has been the custom in China to treat the condition with extracts of liver. Surgeon-General E. R. Stitt (*Diagnostics and Treatment of Tropical Diseases*, 4th, Edition, p. 567) stresses that while liver and kidneys are glandular organs rich in the fat-soluble vitamin A, their content of this is not so high as that of cod liver oil. In our March issue, we noted the communication of certain Japanese investigators who claim to have succeeded in isolating a high concentrate of fat-soluble A from cod liver oil. The exhibition of this oil in the tropics is extremely troublesome. It will be of interest to follow the results of the exhibition, in Nyctalopia, of "Biosterin"—as the Japanese scientists referred to have named their product, and also that of "Ostelin," another concentrate containing the fat-soluble vitamin A.

CAMPAIGN AGAINST LEPROSY: The London Mission to Lepers has been doing relief work in China for the past 30 years. Dr. Henry Fowler, of Shanghai, has devoted his time and his resources to the alleviation of the lepers and is now privately supplying the ethyl esters of oil of chaulmoogra, which have been found to be specific in leprosy, to Mission and other hospitals in China which maintain clinics for lepers. Co-operating with him is the American Mission to Lepers, whose general secretary, Mr. W. M. Danner, recently lectured at Shanghai, Foochow and Nanking, giving great publicity to this subject and succeeding to arouse the interest of Chinese leaders to the point of co-operation with British and American efforts to deal with the scourge.

Following the work of an organizing committee with Dr. Fong Sec as its chairman and Mr. W. Y. Lee as its president, the Chinese Mission to Lepers has been established, of which Mr. Tang Shao-yi is honorary president and Mr. N. L. Han, treasurer. The Mission will undertake to establish auxiliaries in all principal centres where leprosy exists, looking to voluntary contributions for its funds. Hospitals are also under contemplation, the first to be located in Shanghai, Dr. E. S. Tyau having volunteered his services in connexion therewith.

R. R. L. F.

SHOOTING AND FISHING NOTES

SHOOTING

GAME AND OTHER ANIMALS OF THE SINO-TIBETAN BORDER:
The following very interesting letter has been received from a correspondent living on the Chinese border of Tibet in Western Szechuan:

DEAR SIR,—I have read with interest and profit your articles in the N. C. Herald, especially one in the Xmas supplement (Northern Shooting Grounds). I was glad to get the English names of some animals of which I had only known the Chinese names.

Long An Fu is at the foot of the range of mountains (known locally as 摸天林), which separates this province and Kansu. On these mountains, quite near here are most of those you mention as being in N. Shansi and Manchuria. The wild pigs have become a pest and in one section farming cannot be done because of them. Part of the work of the farmer is to destroy them. One man killed eight a few weeks ago.

The takin are also numerous, but I am not sure about what you call the "blue sheep." There is an 岩羊, a bit of the hair of which I enclose. It is about as big as a year old calf, but I am not sure if it is what you call the *Ngai yang*.

The musk deer are plentiful. Their great enemy is the 黄腰, an animal in size and shape like a fox, but black with a yellow band around its middle. As the fur has a very bad smell it is not used. Can you tell me what this animal is?

We have also the 人熊 (man bear) and a black and white one, which I suppose is the same as you name the "*hua yao tze*." Two weeks ago a fur was brought to me, and I am puzzled to know what it is. The Chinese call it the 黄豹, yellow leopard. Its colour is similar to the red fox and its tail is like that of a fox, but its head and legs are like those of a leopard. Its tail was 16-in. long and the body 3-ft. The fur is soft and thick. Will you be kind enough to tell me what this could be?

I have also a fur they call black fox and I think probably it is. The Chinese say 千年黑, 万年白. The fur is thick, soft and even. I have also a black wild cat which is very different. The fur of the animal the Chinese call the wild cat is very like that of a raccoon. The most valuable fur here is the 線絨. I was told by Mr. Lee of the Salt Gabelle that it is the golden haired monkey. In Manchu days, only officials wore it. It is said that the wearer will never have rheumatism.

Some tribesmen have just brought me eleven of these furs: they cost quite a bit but are very fine. These monkeys live in the forest, and because of the depth of snow they are hard to capture. They do not come to earth except for water. The hair on the back of the male is 3-in. long and of a dark grey. The head, belly and inner sides of the legs are a golden colour. The hair of the female is shorter and nearer white than golden underneath. I have four male and eight female skins. One of the males I have measures 26-in.; the tail 22-in.; legs 14-in. The width of the skin at the middle is 16-in.

I will be grateful for any information you can give about these.

Thanking you,

Yours truly,

WOOD B. WILLISTON.

Long An Fu, W. Szechuen,
January 13, 1926.

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With reference to the above the following points may be noted. The animal called 岩羊, which means rock sheep, is the goral, as evidenced by the samples of the hair sent by Mr. Williston. The animal called 黄腰, is the yellow-throated marten, *Charronia flavigula ssp.*, which ranges throughout China into Manchuria and East Siberia, where its skin is an article of commerce. The 黄豹, or yellow leopard, is probably a local form of the golden cat of India (*Felis temminckii*), of which at least two forms are known to China, namely La Touche's cat (*F. dominicanorum*) from Fukien, and Baine's cat (*F. bainei*) which we recently described from Yunnan. It is probable that black specimens of both the fox and wild cat occur on the Tibetan border. The goldenhaired monkey is known to science as *Rhinopithecus roxellana*. Its fur may frequently be seen on sale in Shanghai.

WOLVES AT CHINKIANG: No little interest has been aroused in sporting circles in Shanghai by the statement made by members of a shooting party who visited the Chinkiang district during the China New Year holidays that they had several shots at a wolf. Doubt has been thrown upon the story, it being stated that the animal seen and shot at was probably a large Chinese village dog, some of which look very much like wolves. In defence of the sportsmen who claim that they shot at a wolf, it may be stated that wolves are very common in the Chinkiang district, and along the range leading towards Nanking. We ourselves have seen wolves in the hills behind Chinkiang on at least three occasions. A well known sportsman, who used to live at Chinkiang, had at least three to his credit to our personal knowledge.

To the north of Pukow (north bank of the Yangtze), in the San Chieh district, wolves are also common. While shooting pheasants there we put up two.

The wolf in China is almost universally distributed. It is exceedingly abundant in certain areas in the north, notably in the provinces of Shansi, Shensi and Kansu. Less common in Chihli and Shantung, it again becomes numerous in certain of the Yangtze Valley provinces. In the south it is common in Fukien, and is well known in Kuangtung and Kwangsi. Along the borders of Mongolia, in Mongolia itself, and also in Western Manchuria, the wolf is a positive pest to the herdsmen and farmers.

The species common to China has been described as distinct by Mastchie, a German zoologist, and may be known as *Canis lupus tschiliensis*.

UNUSUAL SHOOTING INCIDENTS AND THE SIZES OF SHOT TO USE: The following letter upon these subjects has been received from a well-known sportsman and will doubtless prove of interest to our readers:

DEAR SIR,—I have read with considerable interest your article on unusual incidents occurring when birds fall in the manner of what one might term "surprise packets." A similar incident to your own happened to me several years ago on the North end of Block House Island, the tide was at the full when I landed at the South side, crossed to the northern embankment, peeped over, and there were ducks galore within twenty five yards of me feeding under the bank. I browned them. My old setter retrieved six and had given up chasing wingers. I was looking on when a duck came down like a "bolt from the blue" and struck the ground only a few feet from where I stood, which, had it struck me would have stopped my shooting for sometime without a doubt. Upon examining the bird I found it had been shot through the neck but could not find any other shot marks.

To continue on matters shooting; your article on size of shot you recommend should be of great interest generally and to beginners in particular. Personally I think that the size of shot to be used depends considerably on the gun in use, whether the barrels are cylinder and medium choke or both barrels

SHOOTING AND FISHING NOTES

choked. For a number of years I have used a 12 bore gun, right barrel cylinder and left medium choke, No. 4 shot in the right and No. 2 in the left, with fairly good results when after duck.

Of late I have been using a 20 bore, choked in both barrels, using principally No. 6 shot and found this number very useful on any species of duck, but my experience is that no hard and fast rule can be laid down in this matter as I find that almost all sportsmen have their own pet theories of what is best under certain conditions. Quite possibly one's opinions are based on some special day when almost everything has fallen to your gun no matter what sized shot you have used, and from that time on nothing but that particular number will be worth considering. I remember Dr. Monro-Horne was very partial to No. 1 in the left when duck shooting and always said: "it puts the weight *there*."

I can give you an instance which you will probably consider supports your own opinion with regard to penetration: two seasons ago while shooting from a launch it was my good fortune to bring down four geese with a right and left, using a B.S.A. 12 bore, the shots used were No. 1. After picking up the birds I noticed that shot were falling out of the feathers and finally picked up 21 pellets in all, all more or less flattened out. Perhaps had No. 6 shot been used they would have got through—its a moot point but there it is.—*Pick your Fancy.*

I am, etc.

H. WRIGHT.

Woosung Forts,
February 18, 1926.

A HEN PHEASANT WITH MALE PLUMAGE: We have received a report from Mr. Geoffrey C. Purton of Chinkiang of a hen pheasant, secured by him, which showed partially male plumage. There was a distinct greenish washing on the top and back of the head, the white collar was present and very pronounced, and the flanks and sides were strongly tinged with orange. While not common, this phenomenon is not unknown. We have heard of similar occurrences in China. However, it would be interesting to hear from our readers of any other cases of a similar nature.

FISHING

A SPINNER FOR USE IN CHINA: Some time ago we received the following letter from a correspondent. More recently he sent us drawings of the "bass minnow" he has constructed and used with success in Chinese waters. We here give a reproduction of the latter:

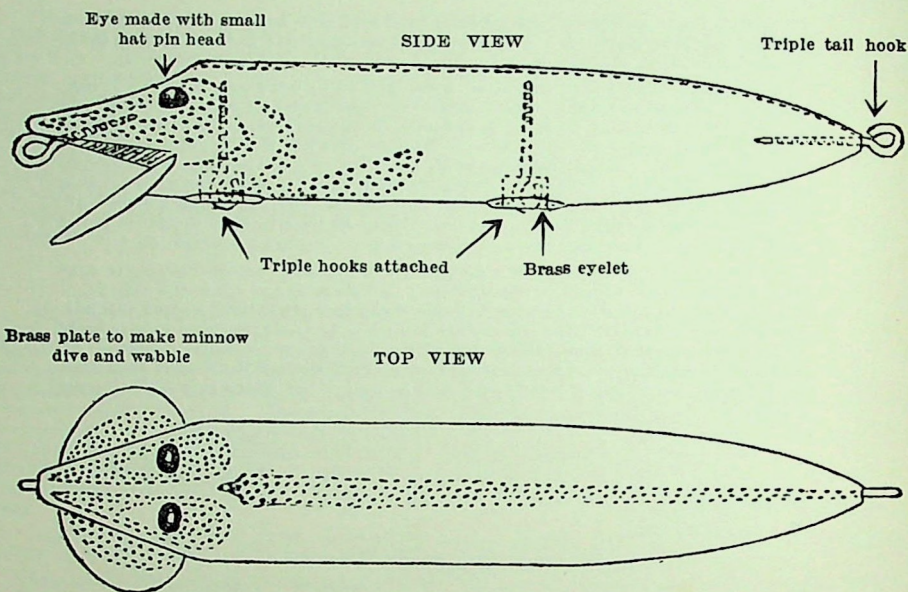
DEAR MR. SOWERBY,—I have been very much interested in reading your account of fishing for Huang Chuan in "The Naturalist's Notebook in China" and intend trying for this fish in the vicinity of Shanghai.

As I have not been a resident of Shanghai very long and do not know just where to find the most likely spots I am taking the liberty of writing to ask if you would be good enough to give me what information you can, and any suggestions would be very welcome.

I should like to join the "Angler's Club" and would be very much obliged if you would let me know to whom I should apply.

I have read Major Percival Lea Birch's account of taking a 7 lb. Huang Chuan near Kiukiang in the September, 1924, number of the China Journal of Science and Arts, and if there is sport of this nature around Shanghai it is well worth going after.

THE CHINA JOURNAL OF SCIENCE & ARTS



Bass Minnow (Natural size). The wood of which it is composed should be of such density that the minnow will float head downwards when at rest. The dotted areas should be painted red.

Do you think the Huang Chuan would take a red and white minnow such as are successfully used for Sea Bass in the north? I got several bass this summer at Peitaiho with a minnow of my own making and am rather anxious to try it out here, but the creeks seem so full of weeds that casting appears to be out of the question.

I hope I am not troubling you too much,

Yours sincerely,

G. F. R. JACKSON.

Shanghai, October 10, 1925.

SOCIETIES AND INSTITUTIONS

THE CHINA SOCIETY OF SCIENCE AND ARTS

ANNUAL SPRING ART EXHIBITION.

The Annual Spring Art Exhibition of the Society is going to be held this year jointly with the Art Departments of the British Women's Association and the American Women's Club. It will take place on the premises of the Old British Post Office, Peking Road, corner of Museum Road, and will extend from Saturday, April 24, to Friday, April 30, inclusive.

Artists interested in sending in exhibits should apply for particulars to the Secretary at the offices of The China Journal of Science & Arts, 8 Museum Road. This is the third exhibition which is being held by the Society, and it is hoped that all interested will co-operate to make it as successful as the two previous ones.

THE QUEST SOCIETY

LECTURE ON INDIA.

At a meeting of the Quest Society on February 22, Dr. Couper Patrick lectured on "Some Recollections of India." He spoke principally of famine relief work in the neighbourhood of Bombay in 1899, and gave a vivid picture of the official methods which are applied in India for dealing with famine. The lecture was well illustrated with lantern slides and was much appreciated.

LECTURE ON PSYCHO-ANALYSIS.

At the Society's ninth meeting for this season, held on March 8 at the Royal Asiatic Society's Hall, Mr. W. J. Cornerford read a paper on "The Basal Facts of Psycho-Analysis."

The lecturer demonstrated his wide reading of the subject, outlining the concepts of acknowledged authorities rather than offering any original conclusions. Professor Bary followed the lecturer with some remarks on the subject from the purely medical view point. Dr. H. Chatley occupied the Chair and participated in the lengthy discussion which followed, as did also Dr. Maurice Price, whose elucidation of certain psycho-analytical concepts was interesting in the extreme.

ROYAL ASIATIC SOCIETY

ON CHINESE MIGRATIONS.

Professor S. M. Shirokogoroff addressed the Society on March 17, presenting new data respecting "Chinese Migrations in the Light of Anthropological Investigations." Reiterating his well known objection to the classification "Mongolian Race," the lecturer stated that since his address of two years ago on this same subject, he had been able to extend his investigations throughout the provinces of China, concentrating on the differences between the Chinese and other ethnical groups inhabiting Europe.

He touched also upon the relation of certain phases of cultural development to the migrations in question. The thesis of this lecture is presented *in extenso* in his recently published work, "Process of Physical Growth Among the Chinese, Vol. I" which we reviewed in our March issue.

THE CHINA JOURNAL OF SCIENCE & ARTS

THE STANDARD HISTORIES OF CHINA

At a meeting of the Royal Asiatic Society (North-China Branch) held in Shanghai on March 25, Dr. John C. Ferguson read a paper entitled "A General Survey of Standard Chinese Histories," which he considered one of the most important, if not the most important, paper he had ever presented before the Society. As he pointed out, no attempt had yet been made in the English language to analyse or classify the numerous Chinese histories extant, and his object in presenting this paper was to assist modern foreign students of Chinese and Chinese history in the difficult task before them. The subject is so vast that without some such guidance no student would know where to begin. The paper, as presented to the Society, represents years of study and hard work, but it will undoubtedly open the way to a closer and keener study and appreciation of the history of China as displayed in Chinese literature.

In his opening paragraphs Dr. Ferguson said that he adopted the division of Chinese History, suggested by Liang Ch'i-chiao, into six periods: (1) from the time of Confucius and Mencius down to B.C. 221, when Shin Huang founded the Ch'in Dynasty; (2) the Ch'in Han dynasties, B.C. 221 to A.D. 220; (3) the Warring States A.D. 220-581; (4) the Tang Dynasty and the Five Dynasties A.D. 581-960; (5) the Sung, Yuan and Ming Dynasties, A.D. 960-1644, and (6) the late Ch'ing Dynasty to the present time, which may be called the modern era.

While granting that all records of historical facts before the times of Confucius and Mencius must be scrutinized with great care and quoted with due caution, the lecturer suggested B.C. 841 as the starting point of Chinese History in accordance with the views of the Sung Dynasty historian, Ssu-ma Kuang (A.D. 1019-1086). As far as our present records go, it is perforce necessary to be content with historical researches from the time of Confucius downward, leaving chiefly to archæological students of mythology all the rest of ancient lore.

The usual divisions of Chinese histories were sketched, but students were reminded that three divisions only are of primary importance, *i.e.* dynastic histories, annals, and complete records, even though a fourth division, which contains histories of particular periods, is the most fascinating of all. The lecturer contended that it is impossible to understand the events of special periods in their true meaning without a preceding knowledge of the general outlines of Chinese history. To gain such a knowledge it was recommended that the student should read the compendium "History Made Easy," known in Chinese as Kang Chien I Chih Lu.

It was suggested by the lecturer that a commission of Chinese and foreign scholars should be organized for the purpose of rendering the early records of China available to foreign students in the English language, while the lecturer considered that there could be no better purpose to which to devote part, at least, of the returned Boxer Indemnity Funds, than this.

THE ENGINEERING SOCIETY OF CHINA

THE CHANGING EVAPORATION-PRECIPITATION CYCLE OF NORTH CHINA.

Before the members of this Society on March 23, Professor W. C. Lowdermilk, of the College of Agriculture and Forestry, University of Nanking, delivered a lecture dealing with experiments carried out in the forested mountainous areas of Shansi during the summers of 1924 and 5 to determine the amount of rainfall run-off on mountain sides that had been denuded of vegetation and where the natural forest vegetation had been left intact.

The results showed that the run-off from denuded surfaces was in the region of from 56 to 60 times as great as from surfaces covered with vegetation. It was found that the cutting away of the forests in these regions was carried out by the natives primarily to bring new and fertile land under cultivation, and only secondarily for the sale of the timber derived. The cutting of the timber and underbrush and the cultivation of the soil on these steep slopes was a very pernicious practice. In a very short time the rich sub-soil was carried away, and then set in a serious erosion

SOCIETIES AND INSTITUTIONS

of the whole slope, the formation of deep gullies, the carrying away of requisite moisture in the form of intermittent torrents, the burying of valuable fields in the valleys under accumulations of bowlders, pebbles and silt and a marked interference with evaporation necessary to an adequate precipitation of moisture, so that the whole area showed a tendency to become more and more arid.

It was stated that there was plenty of evidence to show that the whole of North China was once forested, but that the forest had been almost completely destroyed by human agency. After the forests had been cut away and the slopes used for cultivation for a few years, the latter would then be abandoned, after which innumerable herds of sheep and goats would be turned out upon them to graze, thus preventing a new growth of vegetation.

The lecture was illustrated with charts and an excellent series of lantern slides. After the lecture the meeting was thrown open and a lively discussion ensued.

EDUCATIONAL NOTES AND INTELLIGENCE

FUH TAN UNIVERSITY.

Through the generosity of Mr. Kuo Tsu-ping, a local cotton mill magnate, the Kuo Hall of Biological Sciences was completed in December last and is a notable addition to the equipment of this Institution. The structure cost in the neighbourhood of Mex. \$80,000 and embodies the very latest features in educational plant.

Apart from vital accessories to teaching, the individual needs of the students have been meticulously catered to. No effort has been spared to make the kitchens and sleeping accommodations models of their kind. It is greatly encouraging to note the increasing interest of Chinese merchant princes in the educational welfare of their compatriots at a time when the country is riven by internal dissension.

THE CHINESE STUDENT AND HIS LITTLE WAYS.

Mr. Rodney Gilbert, Peking Correspondent of the *North-China Daily News*, forsakes political topics, for the nonce, to pay his respects to the Chinese students—by which title the heterogeneous mass of youthful trouble-makers is still known—stressing the chaotic condition into which China's schools are fast lapsing.

His observations are both timely and pertinent. The hope of any land is centred in its youth: and "as the twig is bent, so is the tree inclined." It is sincerely to be hoped that the present domination of the schools by an unruly student body is but a passing phase prompted, no doubt, by the students' increasing acquaintance with the part played by their fellows in other lands and in other times. It is none the less disquieting to observe the effect upon education. Here we have the immature, not only dictating what they shall learn and who shall expound it to them, but also applying the precious hours that should be devoted to the school room, to abortive efforts to embarrass their elders. It is but the reflexion of Western trends in the education of the young, but none the less a sad commentary on the state of affairs.

PRACTICE v. THEORY.

From the University of Nanking, Professor Joseph Bailee, who has accomplished marvels by way of practical instruction in agriculture, proclaims the need of co-ordinating the practical and the theoretical in teaching all subjects. In an interesting

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series of articles published in the *North-China Daily News* early in March, Professor Bailee explains how he would extend the system, which has succeeded so admirably with his classes in agriculture, to the training of the Chinese in industrial and engineering pursuits.

Naturally, he draws an analogy from what has been accomplished in this way in the United States of America and cites numerous examples of the efficiency of students trained in this way in that country. While conceding that Professor Bailee establishes his thesis for the greater part, it is evident that he has been happier in his experiences of the returned student than many others. Be this as it may, the present need in China for those who can do something besides talk, is paramount: and the results of Professor Bailee's suggestions will be awaited with the greatest interest.

At the University of Nanking, much valuable and original research work is being conducted in several departments. Professor Lowdermilk's recent lecture before the China Society of Science and Arts, reported in our March issue, embodies considerations that have a most important bearing on river conservancy problems in China. Professor C. S. Gibbs, of the Department of Biology, has succeeded in isolating the specific organism responsible for the disease known as *flacherie* in silk worms. Taken all in all, the University is doing work of a practical nature calculated to bestow great benefits on the Chinese.

JUNIOR TRAFFIC POLICE.

Through the efforts of the School Commissioner of the island of Hawaii, a junior traffic police has been created. This is composed of the older boys in the public schools, who do traffic duties on the streets adjacent to the schools. The system has been in effect for the past two years in Honolulu and has proved very successful.

R. R. L. F.

BOOKS AND PERIODICALS RECEIVED

BOOKS:

Our Minds and their Bodies, by John Laird: Oxford University Press, London.
Dragon Lure, by N. H. Pitman: Commercial Press, Ltd., Shanghai.
Defendu, by W. E. Fairbairn: North-China Daily News & Herald, Ltd., Shanghai.

PERIODICALS:

Extreme Asia—Discovery—The Philippine Journal of Science—The French Colonial Digest—The Chinese Economic Bulletin—The New Zealand Journal of Science and Technology—La Revue Economique—Natural History—The China Weekly Review—Asia—The Asiatic Motor—Chinese Social and Political Science Review—The Bulletin of the Geological Society of China—The China Medical Journal—The American Journal of Science—Psyche—The Lingnaam Agriculture Review—The New Orient—The Annals and Magazine of Natural History—Man—The Modern Review—Health—Ginling College Magazine—Chinese Students Monthly—The New Mandarin—Mid-Pacific Magazine—Far Eastern Review.

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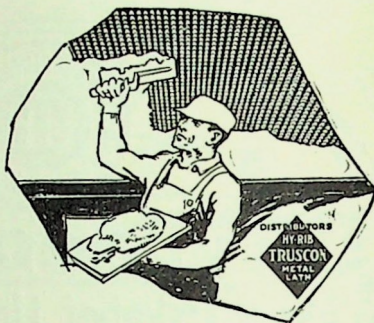
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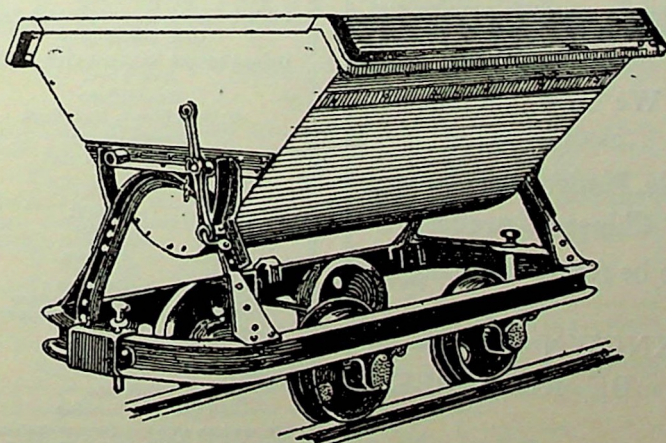
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