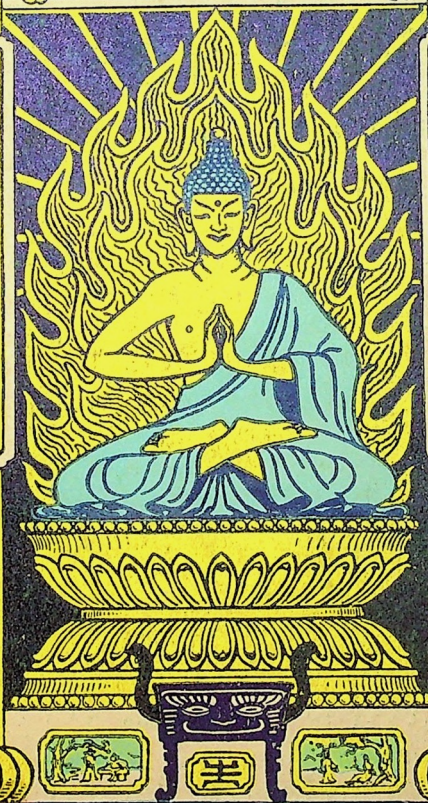


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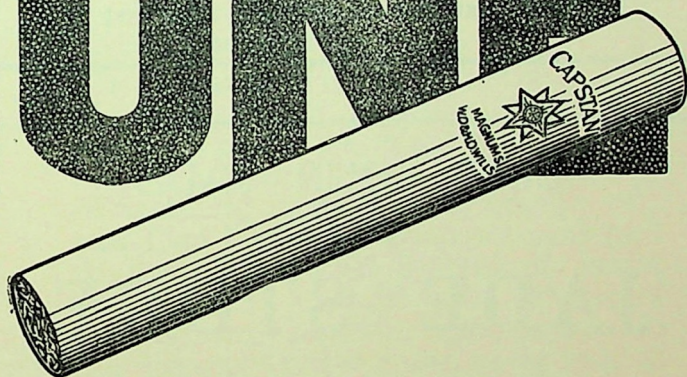
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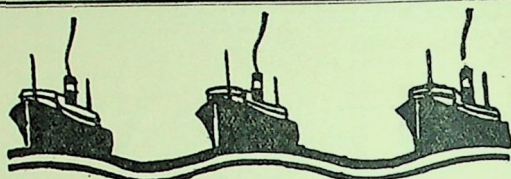
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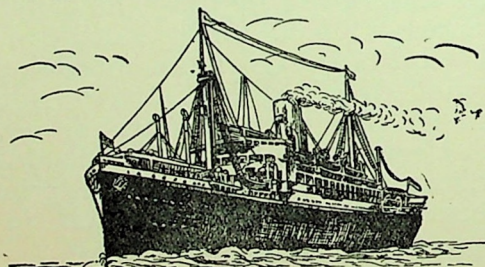
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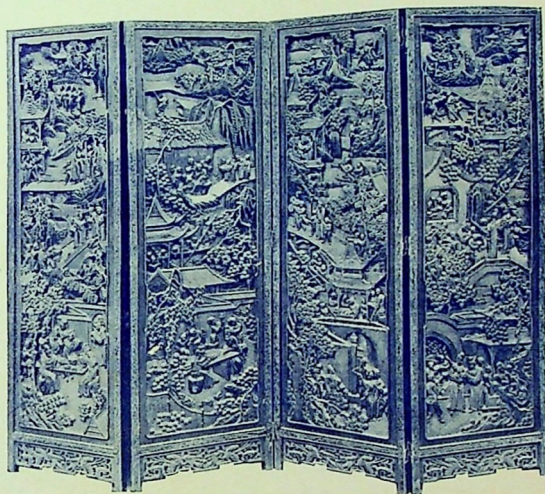
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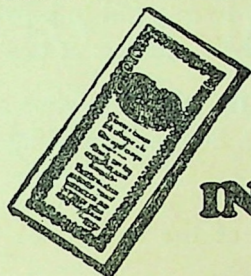
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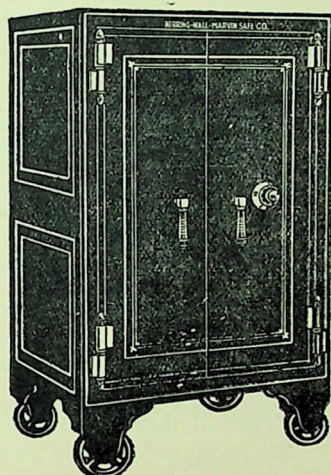
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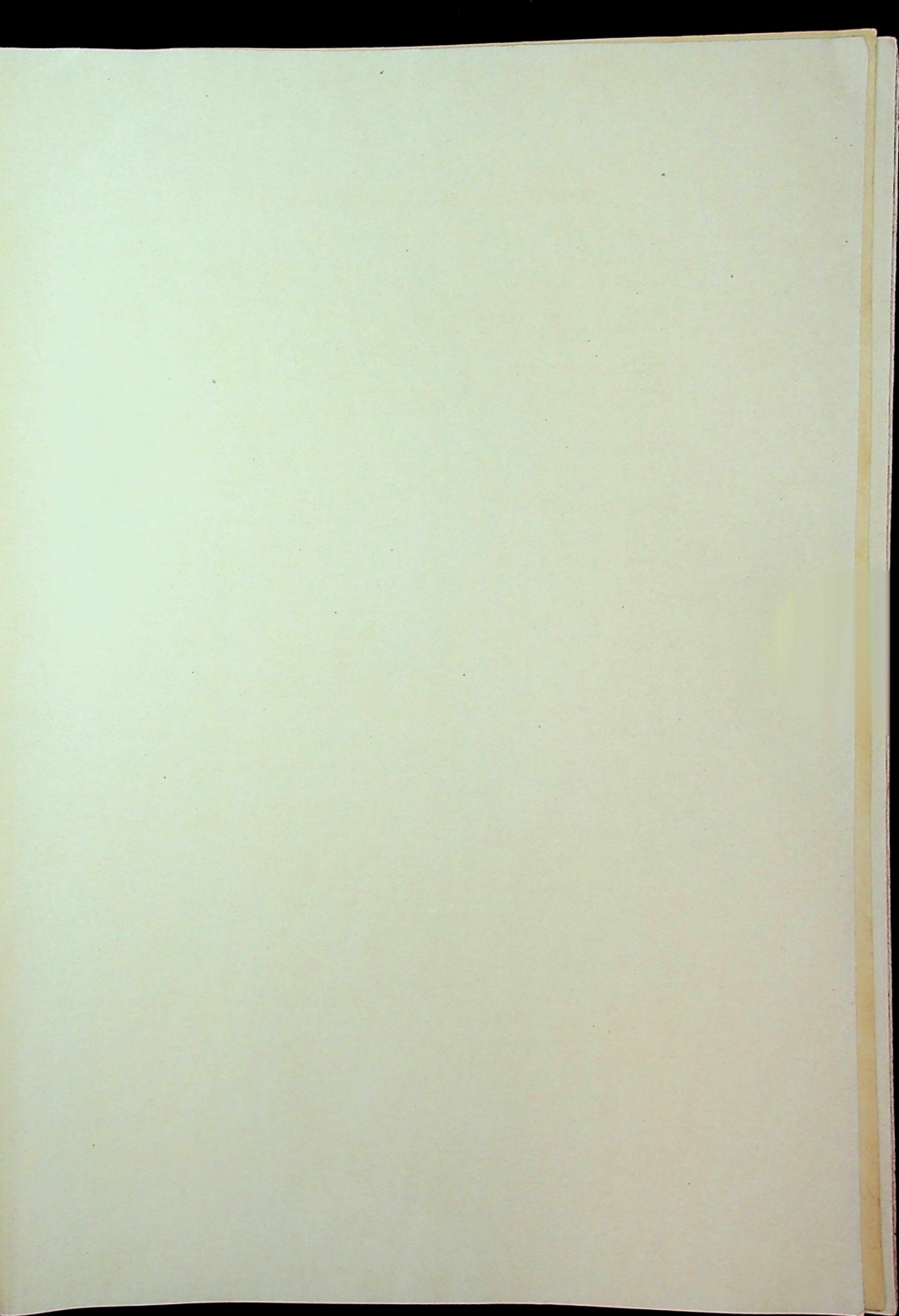
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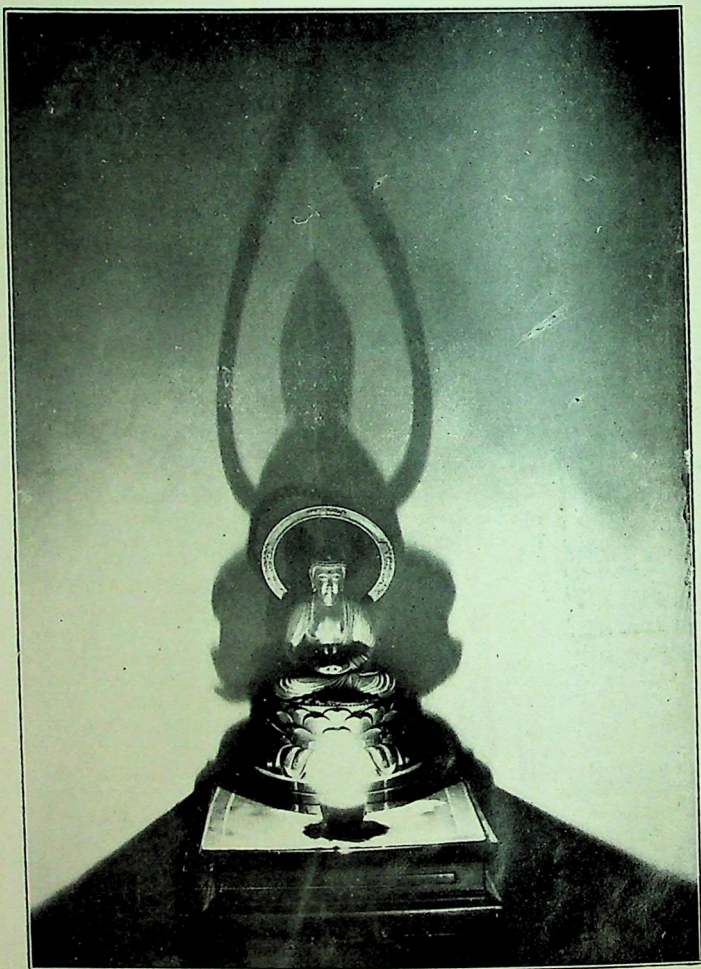
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Advertisers, Journal and Readers form a circle of mutual interdependence and co-operation. Do not break the circle.





"AN OLD WOODEN BUDDHA"

One of the Exhibits at the recent Photography Exhibition of the
Peking Institute of Fine Arts. It was by Benjamin March.
(See Societies and Institutions)

THE
CHINA JOURNAL
OF
SCIENCE & ARTS

VOL. V

JULY 1926

No. 1

CONCERNING MILK

Of the many news items of scientific import coming to the notice of residents in the Far East, not the least interesting is that dealing with the recent discovery that certain animals in captivity, when fed upon fresh milk, are stricken with bovine tuberculosis regardless of the care exercised to see that the milk is pure: whereas, when fed upon concentrated milk or preparations of dried milk, not only do they appear to be immune from the disease, but may even recover from an attack if the diet be changed from fresh to prepared milk.

To the dweller in China this is of more than passing interest, since it not only reopens the entire question of what is the safest source of milk-supply, but presents an altogether new phase for his consideration. Perhaps it is not quite true to say that this phase is altogether new, since certain residents—notably those dwelling in remote settlements in China, and to whom fresh milk as a regular article of diet has been denied—long ago concluded that, as between a questionable quality of fresh milk and various preparations of the tinned, there could be little or no choice.

The writer does not propose to dwell at length upon the bacteriological considerations involved, beyond stressing the fact that certain of the processes, through which fresh milk is put in the belief that they insure its hygienic purity, render it somewhat more prone to contamination. For example, the process of Pasteurization, while it undoubtedly lowers the bacterial count of milk for the time being, through the very fact that the *Bacillus Acidi Lactici* (which is responsible for the normal souring of milk) is destroyed at the same time as are any pathogenic organisms by the process, renders the product far more liable to subsequent invasion by pathogenic organisms than before. It has been known for some years that the lactic acid bacillus, if not inter-

fered with, tends to restrain pathogenic organisms from obtaining a foothold in milk.

Like many natural products, milk is intended to be consumed as soon as possible after its production. In large communities, this is obviously not feasible, and hence safeguards are instituted with a view to insuring that not only shall it be contaminated as little as possible at the source, but in transport as well. That these safeguards have done much to protect the public's health, is not to be denied for a moment: but this is not altogether the point. Nor is it for one moment contended that dilutions of evaporated or of dried milk, if exposed to contamination, will not be contaminated. Far from it. Where any food is concerned, the greatest care must be exercised in keeping it under sanitary conditions. To the dweller in the East, where the facilities for effecting this are more limited than elsewhere, the problem has a far different and greater significance.

The reason why prepared milks are safer for human consumption in many instances than fresh, is not to be found in the fact that the very processes they undergo render them practically sterile for the time being. So does Pasteurization of fresh milk, for that matter: and, as has been pointed out, because a product is sterile at the moment, it does not follow that it can be subsequently exposed without liability to invasion by disease germs. There is evidence that prepared milk undergoes certain constitutional changes, not only augmenting the efficacy of its vitamine content, but actually rendering the product somewhat more immune to invasion by pathogenic organisms than is Pasteurized fresh milk.

Perhaps the commonest symptoms bred of the consumption of fresh milk in the summer time are those of intestinal disturbances. These come about through the invasion of the milk by the hay bacillus of Fitz, which, while itself not a pathogenic organism, has the power of creating toxins in milk which are directly responsible for such ailments as *Cholera morbus* in the adult and *Cholera infantum* in the young. Like the bacillus of lactic acid, the hay bacillus will precipitate the casein of milk, giving it the appearance of having gone sour. In addition, being the one of the three butyric acid ferments, it converts a portion of the casein into that acid and creates a definitely poisonous milk, quite distinct from that which goes sour normally.

That prepared milks undergo a definite change in constitution, is evidenced by the fact that their aqueous solutions are seldom if ever acted upon thus by the hay bacillus, even when inoculated with a virile strain of the latter. This bacillus is extremely common in China. It will thus be readily understood not only why the intestinal disturbances and those of the stomach above mentioned are so prevalent here, independent of the great care that is exercised to insure a supply of pure fresh milk, but, more particularly, why the various prepared milks recommend themselves over the fresh.

R. R. L. F.

OBITUARY

PROFESSOR E. H. PARKER

Shortly after having passed his seventy-sixth birthday the death of Edward Harper Parker has been announced. Since 1901 he has been Professor of Chinese in the Victoria University of Manchester and also held concurrently the position of Reader in Chinese in University College, Liverpool. He lived in Liverpool and it was in his home at 14 Gambier Terrace that I last saw him. He was one of the brilliant galaxy of members of the British Consular Service in China who devoted all their leisure moments to studies concerning the country in which their lot was cast. He came to China in 1869 and after service in many consulates retired on pension in 1895—more than thirty years ago. His contributions to the *Journal of the North China Branch of the Royal Asiatic Society* and to the *China Review* were frequent and they were always piquant. He was a militant scholar and found plenty of scope for his peculiar genius in calling attention to the mistakes of others. His books on "China," and "China and Religion" were away his best, but it is difficult to choose among the many contributions which he made to the knowledge of things Chinese in western lands. His patient unremitt-ing scholarship will long be held in high regard by all students of the language and literature of China. He is survived by a daughter who has been his constant companion for many years.

J.C.F.

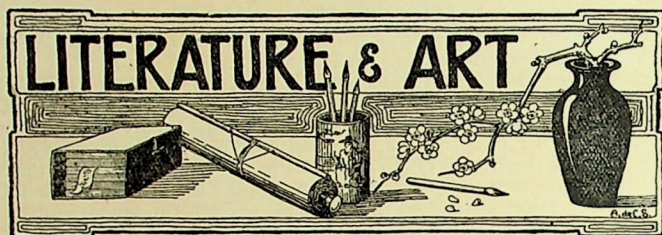
SIR PAUL CHATER

Sir Paul Chater, Kt., C.M.G., LL.D., whose death at the age of seventy was announced on May 27, was one of Hongkong's leading and most respected citizens. Besides being a prominent man of business, he was active in many other branches of the community's interests. He was a strong supporter of Hongkong University, being the Honorary Treasurer of this institution at the time of his death and for several years previous to this sad event. He also contributed, during his lifetime, large sums to its support. He was a keen collector of Chinese porcelain, and is said to have owned one of the best collections in the country. Besides this he made a fine collection of pictures, done by European artists of Chinese subjects. This collection forms the subject of a handsome work by James Orange, in which a large number of the pictures are reproduced. Sir Paul was a keen racing man as well as a business man, philanthropist and art collector, and his loss will be felt by a very wide circle of friends along the entire China Coast.

A. de C. S.

NOTICE

Readers will have noticed that with the present number we have started a new volume. The reason for this is that the Journal has now grown to such dimensions that the twelve issues of the year are too bulky to bind in one volume. An index for the six numbers of the present year from January to June is being prepared, while the usual covers will be available for those wishing to bind their copies.—Ed.



THE DRAMATIC ROLE OF KUAN KUNG

AS PORTRAYED BY

MR. LIN SHU-SHEN, 林樹森, OF THE KUNG WUTAI

BY

GEORGE KIN LEUNG.

A seat in the second to the sixth row centre is best from which to witness a programme in the Kung Wutai, which often presents Mr. Lin Shu-shan in one of his superb impersonations of the mighty hero Kuan Yu, 關羽, more widely known as Kuan Kung to the reverent populace.

The moment this truly great interpreter of this exacting rôle appears at the footlights, he is greeted with a chorus of *hao* (bravos) from the enthusiastic audience. Face of brilliant red, and his strong body clad in war regalia of green silk embroidered with gold thread and edged with orange fringe, the actor thrills even the uninitiated theatre-goer with his majestic poise. Behind and above him is raised his green and gold banner, on which is embroidered his surname, Kuan.

Brief mention of the historical period of the Three Kingdoms and of the novel of the same name will serve to bring the dramatic rôle of Kuan Kung to its full heroic proportions. When the puppet emperor, Fei-ti, was dethroned (188-220), the Eastern Han Dynasty may be said to have come to a close. From that time, there followed a period of struggle and dissension between various warlords, of whom three gained supremacy, namely, Tsoa Tsoa, 曹操, the ruler of Wei, 魏, in the north, Sun Chuan, 孫權, the ruler of Wu, 吳, in the south-east, and Liu Pei, 劉備, the ruler of Shu, 蜀, in the south-west. This period of three kingdoms ended with the establishment of the Tsin Dynasty, A.D. 264.

However, it is the historical novel, entitled "The Three Kingdoms," which forms the basis of many dramas, mostly of the military kind. Although there is insufficient time to deal adequately with this masterpiece, a recent edition of which has appeared in four volumes consisting of one hundred and twenty chapters, still, it is by following the events of this work that the spectator may acquire appreciation for the dramatic interpretations of Kuan Kung.

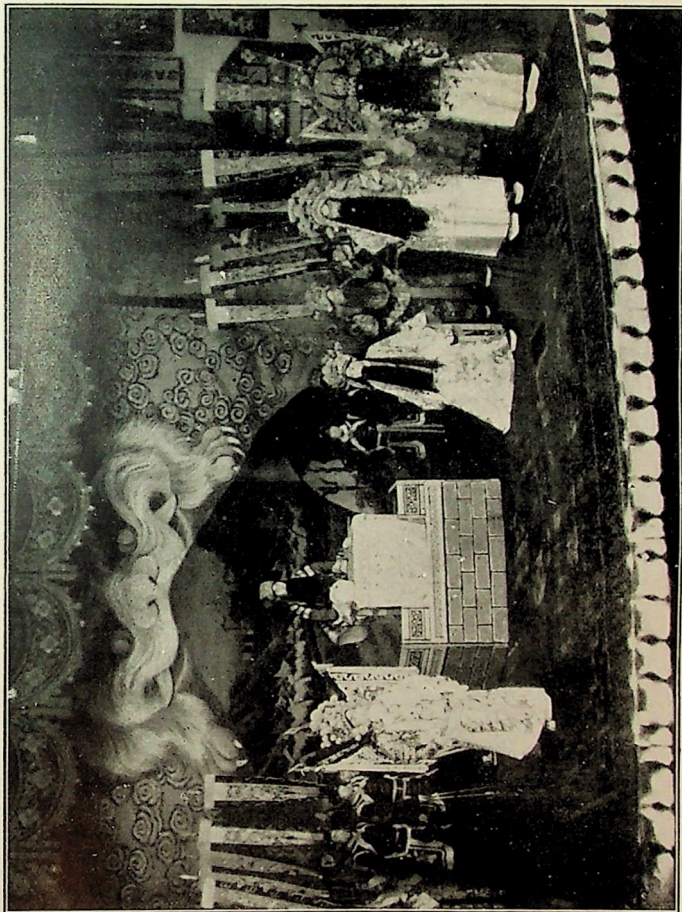
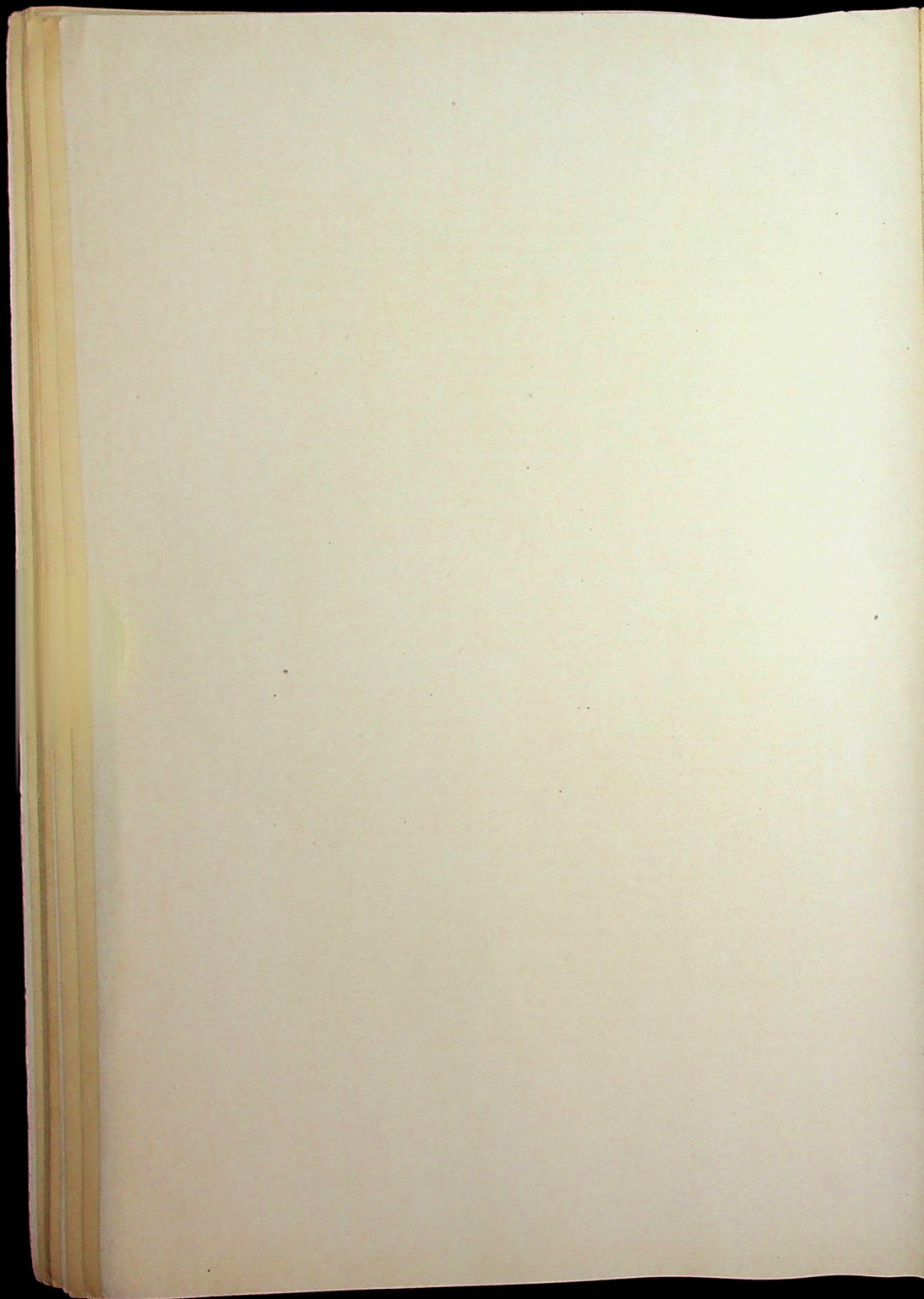


Photo by the Chung Wua Studio.

Lin Shu-shen, one of the Leading Actors on the Chinese Stage to-day, holds his Character, Kuan Kung, in the Deepest Reverence. A Scene in the famous play "The Three Kingdoms," China's heroic Period.



THE DRAMATIC ROLE OF KUAN KUNG

In the opening chapter of "The Three Kingdoms," the writer reveals a peach orchard in full bloom. Here Liu Pei, 劉備, Kuan Yu (Kung), 關羽 and Chang Fei, 張飛, after preparing a dark cow and a white horse for sacrifice, and burning incense, bowed low and made their fraternal oath, repeating in unison: "Let it be known that although Liu Pei, Kuan Yu, and Chang Fei are of different surnames, we are now welded together as brothers: with one heart and combined strength, we will aid one another through all danger. Above, we will give our utmost to our country; below, we will make happy the populace. We do not seek to be born in the same year, month and day, but rather seek to die in the same year, month and day. May the Emperor Heaven and the Mother Earth bear witness to our pact and may Heaven and the people combine to smite dead him who breaks faith!" Thus, for many years, these three soldiers of fortune kept their oath. When the short lived success of Liu Pei came to an end, Kuan Kung was an old man; but his military prowess had in nowise waned, rather did his name inspire terror in the ranks of the enemy. One by one the generals were won over or forced over to Sun Chuan, the ruler of Wu; Kuan Kung alone remained faithful to Liu Pei, although Sun Chuan made many attempts to persuade the old hero to transfer his allegiance. Chu Kuo-chen, 諸葛瑾, the brother of the great strategist, Chu Kuo-liang, 諸葛亮, came in person to win Kuan Kung over to Wu, only to be reviled and driven out of camp. Alone, deserted, and with less than three hundred men, the old hero made his last stand at Mai-ch'eng, where he was captured at the age of fifty-eight. He and his son, Kuan Ping, 關平, were beheaded (220). At least five dramas in which Mr. Lin Shu-shen impersonates Kuan Kung are based on episodes of this novel.

In discussing the two interviews, which Mr. Lin was so gracious as to grant, it should be continually borne in mind that Kuan Kung is a quasi-divinity, who was deified by the Ming Emperor, Wanli, in 1594. Sacrifices are offered him on the fifteenth of the Second Moon and the thirteenth of the Fifth. He is revered as the God of War, the Military Sage, and somehow has acquired the title of the God of Literature as well. As early as the Sui Dynasty (580-618) there was a poem written by Hsieh Tso-heng, who describes the New Year festivities at the capital where impersonations of Chang-liang, Kuan Kung, and a certain lady of the court of Han Ch'eng Ti, were given. Kuan Kung is the only deified hero who appears on the stage in person in works written in his honour.

The foregoing discussions have served to help us enjoy a performance by the great Lin Shu-shen. When this artist explains the deep reverence in which he holds Kuan Kung and the sustained efforts he makes in order to maintain his adoration of the old hero, then one begins to understand why his impersonations possess, above and beyond a perfect adherence to stage convention, an indefinable something which elevates his interpretation into the realms of fine art.

The following general details of an actor's routine may be of interest. Mr. Lin, who was born in P'u-t'eng, Fukien, began his theatrical training at the early age of ten. While taking deep breathing exercises each morning, it is his custom to face an open space, but, while singing, he sits

in an upright position before a wall. Breathing is abdominal and the emission of the breath very slow. No food is taken before exercises. Wine, tobacco, fish, shrimps, and certain kinds of fruit are barred, while pork is eaten only sparingly because it increases phlegm. Eggs, both raw and cooked, are desirable.

The rôle of Kuan Kung, which Mr. Lin Shu-shen loves so well, he has been interpreting for fourteen years, from the age of nineteen to thirty-three. During this period, he has never permitted himself to be photographed in Kuan Kung regalia, because of his deep respect for the old hero, although, one evening, a local photographer, without his knowledge, photographed several scenes while he was acting in the "Battle of Red Cliff," which contained the famous "Hua-yung Pass" scene.

His master, San Ma-tzu, 三麻子, is acknowledged by the theatrical public as the greatest of all interpreters of this exacting rôle. He died last year at the age of seventy-six. This maestro, who sang with his pupils, was a past master in the arts of singing, acting, and military action; but he merely taught Mr. Lin the vocal part of the rôle, because the latter had already learned military action from Chen Chun-yuan of Peking. The great San Ma-tzu was always on friendly terms with his pupils and taught them to give all of themselves to their impersonations, regardless of the size of the audience.

According to Mr. Lin, an interpreter of Kuan Kung should be tall, majestic, and of good habits, on stage and off. He must sing, act, and execute military action with equal skill.

In the rôle of Kuan Kung, the vocal technique differs from that of *lao-sheng*, 老生, which is one of the stereotyped styles of the drama, in that the tones are somewhat lower and include some of those used in the *hua-min*, 花面, a more robust style.

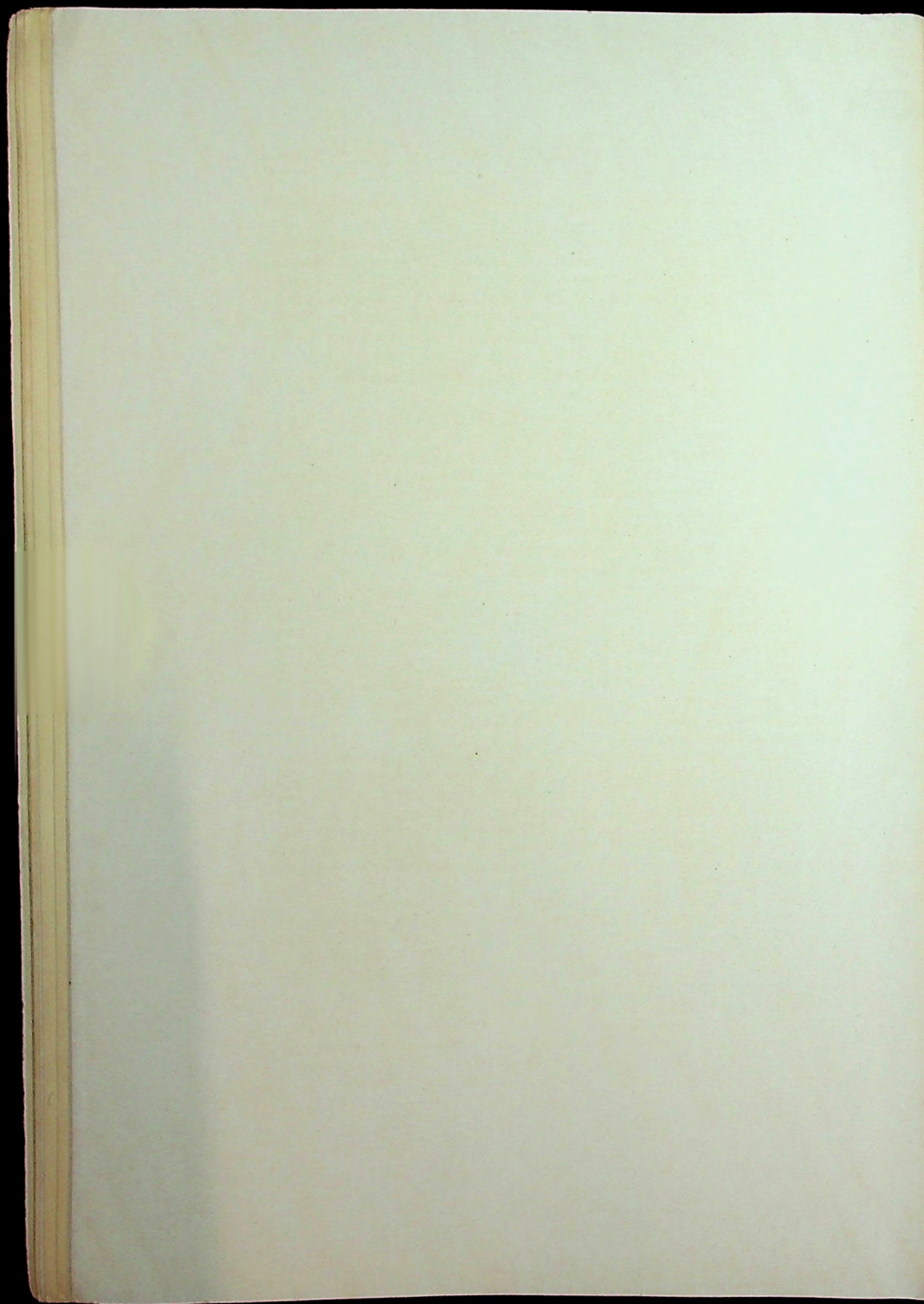
Of no less importance than the singing is the declamation, in which is maintained a tone of fidelity and majesty while expressing the thought and emotion of the moment. A stirring instance of this is kept before the spectator in "The Retreat from Mai-ch'eng," in which the first words of Kuan Kung foreshadow his tragic end, while other tones of anguish and despair move the hearer to the depths of feeling. Mr. Lin is a past master in the use of his voice, for it rises to pitches of silvery clearness and suddenly drops to guttural cries that foreshadow the end.

The actual routine of an orthodox interpreter of Kuan Kung is exceedingly strict, because, aside from adhering to the numerous demands of theatrical convention, he must always remain clean physically, mentally and morally. When Mr. Lin is to appear in this rôle, he bathes carefully early in the day. Not a word is spoken by him when he enters the dressing room, for any trivial thought or remark would mar the impersonation. After the burning of incense to the hero, Mr. Lin begins the actual impersonation of this great character. No one is permitted in his room while he applies his make-up. It is after he has completed this that his attendants dress him, while he remains silent and with eyes shut tight in deep reverence to the hero. While on the stage, the eyes are kept half open. He does not speak between scenes and keeps his thoughts on things fitting for the hero to entertain. However, he meditates, con-



Photo by the Chung Hwa Studio.

Lin Shu-shen in one of his superb impersonations of the mighty Hero Kuan Yu, more widely known as Kuan Kung to the reverent Populace.



THE DRAMATIC ROLE OF KUAN KUNG

concentrates, and takes deep breathing because of the fatigue resulting from the exacting rôle.

His banner and costume of green, gold, and orange are made strictly after patterns prescribed by research. Indeed, it is easy to understand why not only his physical movement brings out the meaning of a moment, but even the swing and sweep of his garments heighten any desired dramatic effect. The mighty weapon, known as the Green Dragon Blade, 青龍刀, when held by Kuan Kung himself, is called the Kuan Blade, 關刀, when held by any other warrior.

There are at least five dramas in which Mr. Lin acts the rôle of Kuan Kung at the Kung Wutai, namely:

1. The Cutting Down of Yen-lang (斬顏良)
2. Meeting at Ku-ch'eng (古城相會)
3. The Battle of Red Cliff, (赤壁鏖兵), a long episode dealing with the Three Kingdoms, which includes Chu Kuo-liang's giving out military commissions in camp and the great finale at Huayung Pass, where, moved by 華容道 Tsoa Tsoa's piteous pleading, Kuan Kung allows his enemy to pass.
4. To the Meeting with a Single Blade (單刀赴會).
5. The Retreat from Mai-ch'eng (走麥城).

Although each of these dramas reveals certain aspects of the hero's character and military prowess, space permits brief mention of only some. Space will, however, be devoted to "The Retreat from Mai-ch'eng," which deals with the tragic end of the old hero. In both "The Cutting Down of Yen-lang" and "Meeting at Ku-ch'eng" much military action is displayed, while the Kuan Kung episodes in "The Battle of Red Cliff" offer a good opportunity for a display of histrionic talent, as well as an excellent solo, which is sung by Kuan Kung on being moved by the pleadings of Tsoa Tsoa.

The most glorious and spectacular of all Kuan Kung dramas, by far, is "The Retreat from Mai-ch'eng," which is a vivid description of the last days of the old hero. The original, unabridged drama requires four hours for its presentation, but the current version has been cut down to an hour in length in order to conform to the congested programme. Mr. Lin states that, of all Kuan Kung dramas, this is the most exacting and fatiguing, because acting, singing, and military action follow one another in rapid succession.

The work opens with the ominous rollings of war drums. Grey bearded, his body slightly stooped, but with his Green Dragon Blade firm in his strong hands, the old hero enters with slow tragic strides. The regal lines of his cape emphasize the nobility of his head and heroic shoulders. The heads of scowling tigers, embroidered on his regalia, hang from his waist.

Thus, he enters, his eyes shut tight and when he does open them, he keeps them as narrow as one of the thin black lines on his brilliant red face. Every posture, every line of his body, and even the swing and sweep of his regalia and the angle at which he bends his fore-arm while grasping the Green Dragon Blade, speak of deep tragedy.

The rhythmic motion of his head serves to heighten the noble spirit of his declamation, while his fingers, held out full length, give his words added dignity. The prolonged terminations of the last words of some of his heart rending declamations and soliloquies are not only varied but delivered with fine feeling. It is while battling with scores of the enemy and cutting a trail of blood in their midst that the old hero utters a cry of deepest tragedy, a peculiar tragedy, that no other drama in Chinese or English has to offer.

The height of acting and military action is reached when the old hero, with his followers thinned down by two pursuing armies, and himself deserted save for a few faithful generals and his son, rushes upon the stage, his face seared with fire from the ambush which his enemies had set for him. In the wild ride that follows, he twirls about the stage in majestic gyration, brandishing his blade into shining figures. His faithful horseman, Chou-ts'ang, 周倉, although supposed to be leading the fiery "red rabbit" steed, 赤兔馬, keeps tumbling on another part of the stage, adding much to the idea of confusion; and, strange to relate, the effect is more satisfactory than if he had preceded Kuan Kung in direct line as he would have in real life. This, then, is an unreal means of making one enjoy the essence of reality without strict adherence to physical exactitude, and may be called art.

Although vocal fragments occur throughout the work, it is the solo, sung from the rampart of the city wall, that throws the audience into a furor of applause. This exquisite aria sung by Kuan Kung possesses much of a tenor quality with runs of velvety legato that sometimes end in high sweet falsetto. His soldiers march to the lilting rhythm, which, though heroic, reveals grief and despair, but also a determination to die rather than surrender.

One is overpowered with grief when the great hero falls in a swoon and the curtain is drawn over the stage.

In conclusion, it must be stressed that much which might have been said has been omitted because of limited space and time. Those who are interested in Kuan Kung as a dramatic rôle, will certainly derive pleasure from one of the superb performances given by Mr. Lin at the Kung Wutai in the French Concession in Shanghai. Kuan Kung dramas are offered once or even three times a week when Mr. Lin is in the city.

NOTES ON THE PROVINCIAL MINTED COINS OF CHINA

BY

A. M. TRACEY WOODWARD, F.R.G.S., F.R.N.S.

"They who know the truth are not equal to those who love it, and they who love it are not equal to those who find pleasure in it." Confucius. Book 6, § 18.

ARTICLE II

GENERAL REMARKS, CONTINUED: It may be well to remember that copper coins issued during the Imperial *régime* without any counter-mark denoting any particular province, and hence intended for general circulation all over China, were produced only by the Nanking, Tientsin and Kirin mints, but such coins will be placed under the one heading of "General Issues."

Where a coin is described from a particular cabinet, credit to that collection will be given.*

MILLING: In some exceptional cases, copper ten-cash pieces have been milled, but in the absence of any special mention of this fact, all copper pieces are to be understood to exist in smooth rims. Milled ten-cash pieces have been discovered among those minted by the following mints: Anhui, a single trial piece, Chinkiang, Kiangnan and Kiangsu.

MULES: So many obverses are found with different reverses, and *vice versa*, that in China, the expression "mule" can only be employed with much reserve, the large number of combinations found fully prove

* In *Chinese Characteristics*, Arthur H. Smith has comprehensively analysed the Chinese temperament, nevertheless a most curious phase of the psychology of the Chinese race manifests itself strongly in oriental numismatics. The serious collector fully realizes how utterly impossible it is for the numismatist to assemble a full, or even sufficiently complete collection of all known Chinese minted coins, and generally this collector is generous and tolerant in the matter of granting the loan of a unique piece from his collection for the purpose of photographing it, so as to permit of a reproduction when that coin is published. But, not so with some of my Chinese collecting friends, his mentality runs counter to tolerance in such cases, for, he soliloquizes thus, "Why should I acquaint the public with a coin of which I only have a known specimen, it might prejudice its value if that coin became widely known, for search will be made for further specimens, and, if another is discovered, mine would not be unique any longer," forgetting all the while that a unique coin, the existence of which has not been revealed, has no market value, being as it were, more of a curio than anything else. It is for this reason that in some instances I shall be unable to produce the illustration of certain specimens, but, nevertheless, mention will be made in whose cabinet such a coin exists, should this be deemed judicious.

this contention, and undoubtedly the reader will more intelligently follow these articles, if we first tabulate each side of the coins, and afterwards list them numerically and consecutively.

RARITY : It will have been observed that frequent mention has been made regarding the quantity of ten-cash pieces that have been produced,* and, as a consequence, it may be presumed that most varieties can be procured with comparative facility, whereas quite the contrary is the case, strange as this fact may seem. The common pieces of to-day, are undoubtedly the rare pieces of to-morrow.† In the lists appended to each province, the comparative rarity of the coins is denoted thus : C.=common ; S.=scarce ; R.=rare ; R.R.=very rare ; E.R.=excessively rare ; U.=so far unique.

HISTORY : ‡ Copper money, as is well known, was employed without interval in the form of *cash* pieces, since the Chow dynasty, eleven centuries before Christ, and during that period, it is curious to note that certain issues of copper pieces were reckoned as of a value of ten-cash. One of these took place as early as A.D. 1310 under the Emperor Wu Tsung.§ These ten-cash ¶ pieces were called Ta Yuen t'ung Pao,** and Ma Tuan Lin†† says that a still very much earlier attempt was made by the circulation

* With regard to production, M. Kennelly, S. J. of the Siewei College, writing in 1907, states that the Provincial mints have lately introduced new copper coins of ten cash (face value) called T'ung kiohtzu, 銅角子, and that some 10,000,000,000 of them were estimated to be at that time in circulation. He adds that "they are rapidly spreading and displacing the old coins (vulgo cash), but on account of their enormous output, they are at present much depreciated." Cf. *Comprehensive Geography of the Chinese Empire*, p. 320. There are various elements that also contribute to this "depreciation," and a writer in the early part of 1906 says : "Shanghai has had an object lesson in this during the year. The arsenal was supplied with much of its funds in the new bronze coin, which it used for the purpose of paying the workmen ; coin was poured in more than sufficient for this purpose, and the Director-General announced to the Mint that he would in future receive it only at 10 per cent. discount ; he probably saw no reason why he should not have, at least, a fifth of the seigniorage. When this became known, the exchange market at once responded and the coin was depreciated throughout Shanghai, the rate for the silver dollar going in twenty-four hours from 88 to 96 ; the decline has gone steadily on, and the rate is now at 107 or 108—within six months a coin which filled an actual need and which was popular, but which had not before been put to the test, has depreciated 18 per cent." *Spink & Son's Monthly Numismatic Circular*, Vol. XIV, No. 162 (May 1906), Col. 9097.

† Ros writes : "my rather lengthy experience in coin hunting has shown me that some varieties of silver pieces or bronze cents which, seven or eight years ago were common enough, and could be picked up with little or no difficulty, have altogether disappeared at present from circulation." *Coins of the Republic of China*, p. 1.

‡ Notwithstanding that in my Article I it was not intended to touch upon the historical aspect of minted copper coins, it is as well that some reference to this should be placed on record.

§ 武宗 of the reign of Chih Ta, 至大.

¶ Edkins says : "There were also five cash pieces, three cash pieces, and cash of a large size which counted as two ordinary cash." *Banking and Prices in China*, p. 230.

** A Manchu expression written 大元通寶, i.e. of the Yuan Dynasty (元紀).

†† Wen Hsien T'ung K'ao or Encyclopædic Researches.

NOTES ON THE PROVINCIAL MINTED COINS OF CHINA

of a large coin by Ching Wan.* It will thus be apparent that the new copper coinage was not an innovation, simply a revival of an ancient practice, but under modern conditions and with modern machinery. The proposal to produce minted pieces by modern methods was officially brought forward for the first time during A.D. 1897, by the censor Ch'en Ch'i-chang,† but, as with most memorials of those days, the proposal was ignored for several years, and it was only on February 2, 1902, that an edict was issued, a free translation of which may be rendered as follows: "For some time during the past, the legal currency in the various Provinces has been insufficient for use. Formerly the two Provinces of Fukien and Kuangtung‡ minted some large round copper coins of excellent workmanship, which, after they had been put into circulation, were declared by the people to be convenient for the purpose of handling.

"The Province of Kiangsu has now adopted this same coinage and realizes its very convenient and beneficial attributes, and that moreover, it places a check upon the practices of illicit coining and melting as well.§

"Let the Viceroy and Governors of the provinces bordering the banks of the Yangtze River¶ and along the Seacoast** provide the necessary funds and adopt the aforementioned plan, and immediately mint these coins in addition to those now being made by them, so that they may get into general circulation. The legal *cash* of the Capital†† should also be of the same kinds. Therefore, let the provinces of Fukien, Kuangtung and Kiangsu send immediately to the Board of Revenue‡‡ several hundred thousand each of the new copper coins minted by them, so that the already mentioned Board may pay them out and place them into circulation. This we hope will prove to be a help to the currency, and a boon to the people. Respect This!"

* 景王 of the Chow Dynasty, B.C. 544-520.

† Emperor Kuang Hsü's State Papers. Year 23, p. 21. Although this statement is official, silver at least was minted much earlier—during 1882 and 1884 at Kirin, when, on both occasions, an abortive tael currency was attempted.

‡ The first modern mint in China of European production which had been installed by Viceroy Chang Chi T'ung and began operations at Canton in the summer of 1890, had already begun to produce ten-cash pieces, only from A.D. 1900 onwards.

§ In the light of the recent extensive melting of copper pieces minted during the Imperial régime, and re-minting them into thinner and more debased composition form by the irresponsible republican mints, this prognostication was evidently ill-timed.

¶ The provinces bordering on the Yang-tze-kiang, are: Yunnan, Süch'uan, Hupei, Kiangsi, Anhui and Kiangsu.

** The coastal provinces of China are: Kuangtung, Fukien, Chekiang, Kiangsu, Shantung, Chihli and Fungtien.

†† Peking, the "Khanbalig" of Marco Polo, but really of the Tartar name of Cambalu. Cf. Martin, *A Cycle of Cathay*, p. 226. It is also called 順天府, Shun-t'ien-fu.

‡‡ 戶部.

This was the cause for an enormous and precipitate production, and the corresponding depreciation in value, due to over supply,* immediately began; whilst, despite the Regulations promulgated on August 22, 1905, and on November 19 of the same year, the government was obliged to order on December 7, 1905, the suspension of minting copper coinage for a period of three months. Upon the resumption of minting operations, as the production continued to flood the money market in excess of its requirements, within the years 1906-1909, the depreciation of copper ten-cash pieces was not less than sixty two per cent.† At the time of this writing, the production of ten-cash copper coins has been so fabulously enormous, that it stands at the high discount of about 255 pieces per dollar, local currency, of Shanghai.‡

SYMBOLS: No work on China is known, either in the vernacular or in any foreign language, where a reference is made to the fact that that fabulous reptile, the dragon,§ is made and designed in so many varied forms on the modern minted coins of China under the imperial banner.¶ Some have been produced in a most artistic and exquisite pose, others are more indifferent, but they all reveal the artist's

* Writing during 1907, Arthur H. Smith says "within the past few years the various provincial mints have been pouring forth so-called 'ten-cash' pieces (worth in reality only from two and one half to six of the old cash) at the estimated rate of between one and two billions every year. The people would only take them on condition that they were available for the payment of taxes. When at a later period this was forbidden, a financial crisis ensued, prices rose, and much distress ensued." Cf. *The Uplift of China*. p. 15.

† United States Mint Report. 1910, p. 223.

‡ "The depreciation, which had taken place between the years 1906 and 1911, was due to overproduction, and not to adulteration of the metal contents. But shortly after the inauguration of the republican regime, and especially after the ending of the World War in 1919, the production of copper coins became so prolific and the metal contents so variable that, within five years, the situation had become desperate. In certain districts of the country not less than 300 copper cents had to be tendered for a dollar, in 1924. Occasional analysis of the fine contents of 10 cash pieces showed that there were debased coins in circulation which deviated up to 25% from the standard weight of 18 candareens." Cf. E. Kann, *The Currencies of China*, p. 407.

§ Thus we find that many Chinese classics have made mention of the dragon. It is in that oldest Chinese work, the wonderful *Yih King*; in the classical *Shu King*; the dictionary of terms *Rh Ya Yih* says that the dragon is fond of roasted swallow flesh. That mine of historical wealth, the *Shan Hai King* (山海經) refers to it, and likewise the encyclopaedia, *Yuen Kien Lei Han*. That great Chinese *Materia Medica* and standard work on natural history, the *Pen ts'ao Kang-muh* (本草綱目) says that the dragon is rough and fierce by nature, and yet it likes beautiful gems. The most notable books in the English language are: Gould, *Mythical Monsters*; W. de Visser, *The Dragon in China and Japan*, which book is a complete treatise on the subject; Werner, *Myths and Legends of China*; Anderson, *Catalogue of Japanese Prints*; Newton Hays wrote an illustrated but superficial small brochure entitled, *The Chinese Dragon*.

¶ This flag itself was symbolical of the dragon, fashioning this reptile in blue on an imperial yellow ground, rampant, and in the act of attempting to seize a red ball.

NOTES ON THE PROVINCIAL MINTED COINS OF CHINA

skill in a manner well depicting the true spirit of Manchu imperial authority, much the same as the lion is peculiarly the emblem of British royal power.* In the provincial series, then, will be found the largest variety of dragons, especially in the coins of Hunan and Hupei provinces; whilst in the Tai Ch'ingTi Kuo series, more regular uniformity is apparent.

Soon after the revolution of 1911, when republican rule and creed swept over the country under a somewhat artificial wave of passion, a twofold national device was seemingly adopted—the republican military† and national‡ flags crossed, and the Chia-ho or five ears of rice, an emblem of agriculture and of national prosperity. In some isolated instances, such as in the early republican coins of Kiangsi and Hunan, the single large nine-pointed star was employed; Ssüch'uan adopted on its coins a device completely in harmony with the traditions of its distant western seclusion.

CHINESE TRANSCRIPTS: *Section I.*—It may be observed that the most general Chinese inscriptions on the obverse of the Provincial issues read either 每元當制錢十文 (Mei Yuen Dan Chi Chen Shih Wen) "Every round (is) equivalent (to) ten cash," or: 當制錢十文 (Dan Chi Chen Shih Wen) "Equivalent (to) ten cash." These inscriptions are found at the bottom of the coins, whilst at the top the ideograms denoting the province, followed by 省造 (Shun Tsoh) "Made (in)—Province," are inscribed. The

* "the flying Dragon is the Image of those who are entirely disengaged from earthly things. There are other ancient coins stamp'd with Dragons, and the Dragon is doubtless the Symbol of the Chinese Nation, as the Eagle was of the Roman." Cf. P. Duhalde, *The General History of China*, London, 1741. Vol. II, p. 291.

† The Chinese republican military flag is composed of a red ground on which appears a large black nine-point star, with a yellow sphere at the end of each point; around a central ball there are nine more yellow spheres, thus making eighteen in all, symbolical of the eighteen provinces of China that existed at the conclusion of the revolution of 1911-1912.

‡ The national republican banner consists of five horizontal stripes of equal width, in the colours in consecutive order from the top: red, yellow, blue, white and black. These colours are declared to represent the five principal races: Chinese, Manchus, Mongolians, Mahomedans, and Tibetans, (漢滿蒙回藏) 'Han, Man, Meng, Hwei and Cheong', respectively, inhabiting China. Such, at least, is the description given by the Chinese of their flag, classifying, as it were, the Islamic believers as a "race." In this connection, emphasis may be laid on the words of Baron von Richthofen, who, when reporting to the General Chamber of Commerce of Shanghai on the Shensi/Kansu Mahommedan Rebellion which Tso Tsung Tan quelled, wrote from Si-an-fu on January 12, 1872: "Although those of Shensi and Kansu wear the queue and speak Chinese, they are considered by the pagans as a different people; and this view is corroborated by their features, which differ from those of the Chinese proper. The pagans generally use here for themselves the well known term 'han-jin,' to mark their distinction from the Mahomedans. These, including the numerous converts of purely Chinese origin, they are called *Hwei-hwei*, and since they are in rebellion, *Hwei-wei*."

four characters of: 寶光元, i.e. Kuang Hsü Yuen Pao,* or "Round currency (of the) Kuang Hsü (period)," are always in the centre. Sometimes the two characters: 當十 (Tan Shih) "Value ten" only are met with.

Section II.—In this Tai Ch'ing Ti Kuo series, the provincial counter-mark is usually found in the middle of the obverse, around which the characters 幣大銅 (Tah Ch'ing T'ung Pien), "Tah Ch'ing Copper Coin," appear, with a Manchu equivalent of this at the top of the coin. The characters 當制錢十文 (T'ung Tsu Chien Shih Wen) are generally found at the bottom; the coin is always dated with the ideographic symbols of the Sexagenary Cycle. The characters 光緒年造 (Kuang Hsü Nien Tsao), meaning "Kuang Hsü era," appear on the obverse. This is changed to 宣統 (Hsüan T'ung), however, in the 1909-1911 issues.†

Section III.—The principal legends of the republican series are 開國紀念幣 (Kung Kuo Chi Nien Pien), "Coin Commemorative (of the) change (of) régime," and 共和紀念幣 (Kung Ho Chi Nien Pien), "Coin Commemorative (of the) Republic," and the four permanent characters 中華民國 (Ch'ung Hwa Ming Kuo), "Republic of China," are invariably present on all coins. No mention is made of the reverses, being mostly in English. The illustrations will speak for themselves.

ERRORS AND OMISSIONS: It would be superhuman to mention every coin that has been minted, for the reason that China is such a remarkable country of surprises and paradoxes, and I lay no claim for completeness to the schedules in my future articles. I am certain local numismatists will readily concede the justice of these remarks, and overlook with magnanimity all errors, omissions and inaccuracies caused by the difficulties confronting the student to even enumerate those coins that will be illustrated in future articles. If much has not been accomplished, at least a basis for a tentative list for further additions will have been instituted.

(To be continued.)

* This character 寶, Pao, (in Manchu: 𐩣𐩺𐩨) is generally rendered as "currency," but Wylie in his *Coins of the Ta-ts'ing Dynasty*, No. 1, June, 1858 number of the *Journal of the Shanghai Literary and Scientific Society*, declares that the word Pao is read "circulating medium." p.62. After all, it is only a matter of choice of idiom.

† These years are 1909 巳酉, 1910 庚戌 and 1911 辛亥.

EUROPEAN MOTIFS IN CHINESE ART
(From the Norman Dyer Collection)

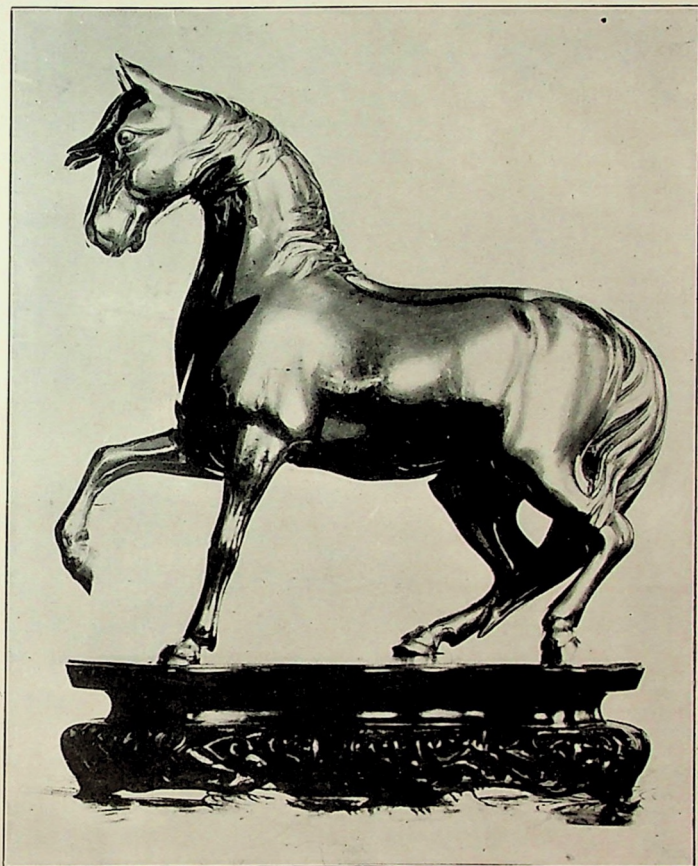
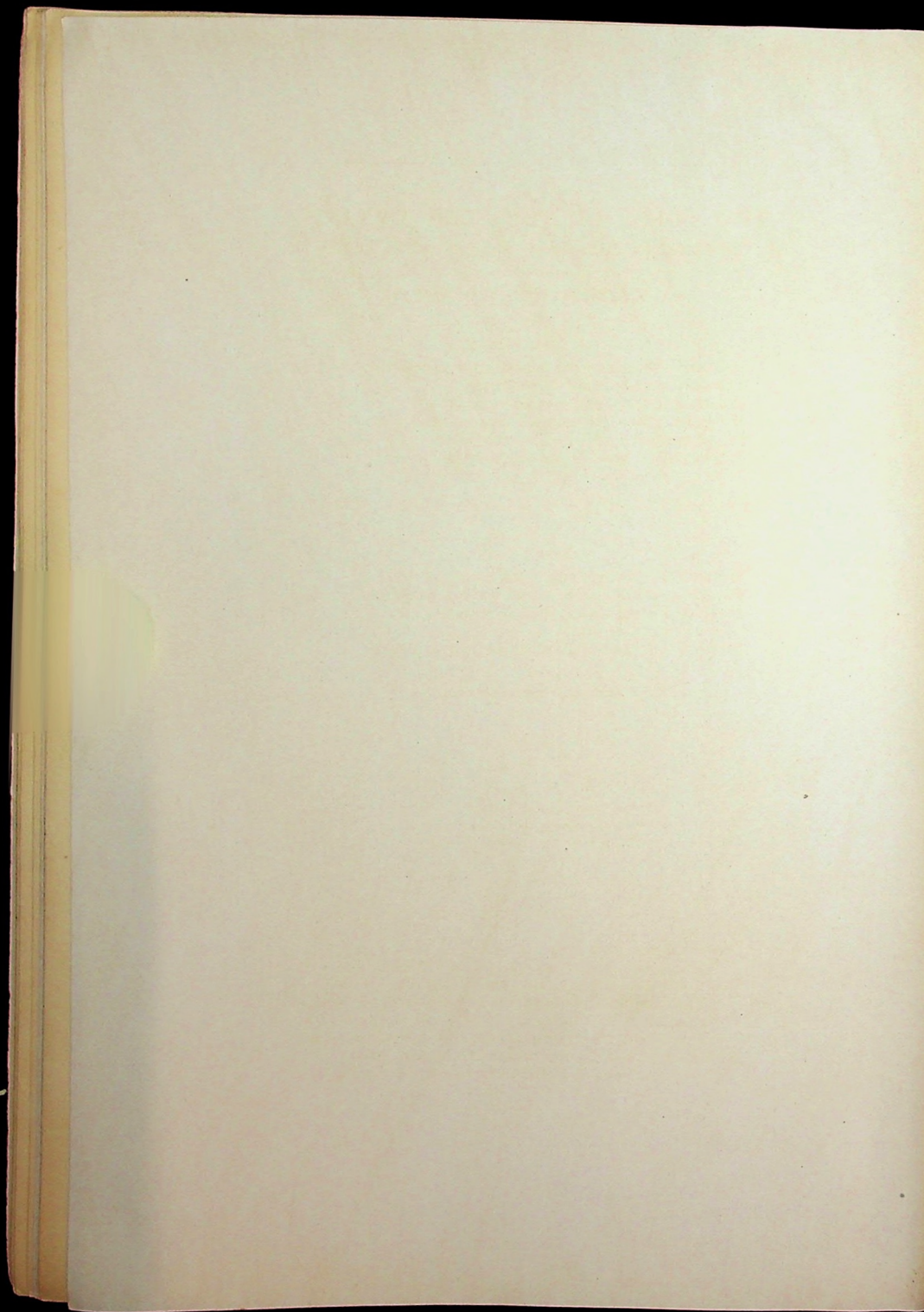


Photo by Young Photo Co.

This Beautiful Brass Figure of a Horse, believed to be of Chinese workmanship, was purchased by Mr. J. W. N. Dyer about twenty years ago from a Dealer who said it came from Peking. Two years later Mr. Percy Wisner, formerly of Shanghai, bought its Mate.



TWO POEMS OF THE SUNG DYNASTY

Translated by Stella Fisher Burgess and Li An-Che

WAITING FOR A GUEST

BY

SSU MA KUANG.

It is early summer when plums grow yellow ;
The only sounds—rain on the roofs,
Croaking of frogs in the grass or pool.
My guest is late in coming—it is past midnight.
Idly I move the chessmen on the board—
The vibration lets fall the ashes of the burner.

ON AWAKING FROM A NAP IN EARLY SUMMER

BY

YANG CHIN

My teeth are still on edge with eating plums.
The green of the plantain-leaf brushes my window-curtain.
The day is long, and I, just up from my nap,
Feel no stir of emotion.
Idly I watch the children chasing willow-down.

TO LAO TZU

In written stone the wise refrain
Reveals a soul and will remain
To point from out forlorn decay
Back centuries to the Learned Way
When Princes sought with zealous care
To hold in trust a heavenly share,—
In fast retreats of mountain nooks
To search for truth in sacred books.

Centuries now have crept and sped
Since the scholarly group by Lao Tzu was led ;
Our world has outgrown the truth of his life
That the Way of Heaven is not in strife.
The characters once fresh on the white marble slab
Have been blown by the dust and washed into drab
By Nature's cruel force ; and man's blinded reason
Still proclaims it as folly and names it as treason.

The court yard in rain, the shrine without cover,
No worshipers now but the birds as they hover
O'er priestly tools of faded beauty,
While soldiery pace off a better learned duty ;—
Tents under the cedars, gun clanks on the floor,
Side arms piled up by the figure carved door.

A bugle sounds night-fall ; they march off to rest.
I stand by the stone where the blue magpie's nest
Shrieks its clatter of hate to the still temple dove
And conquest waves on in abnegation of Love.

Robert Merrill Bartlett

In this day of growing militarism China's old temples have been turned into barracks. In this incident soldiers drill in the sacred old temple yard under the tablet giving Lao Tzu's famous words on peaceful non-assertion.

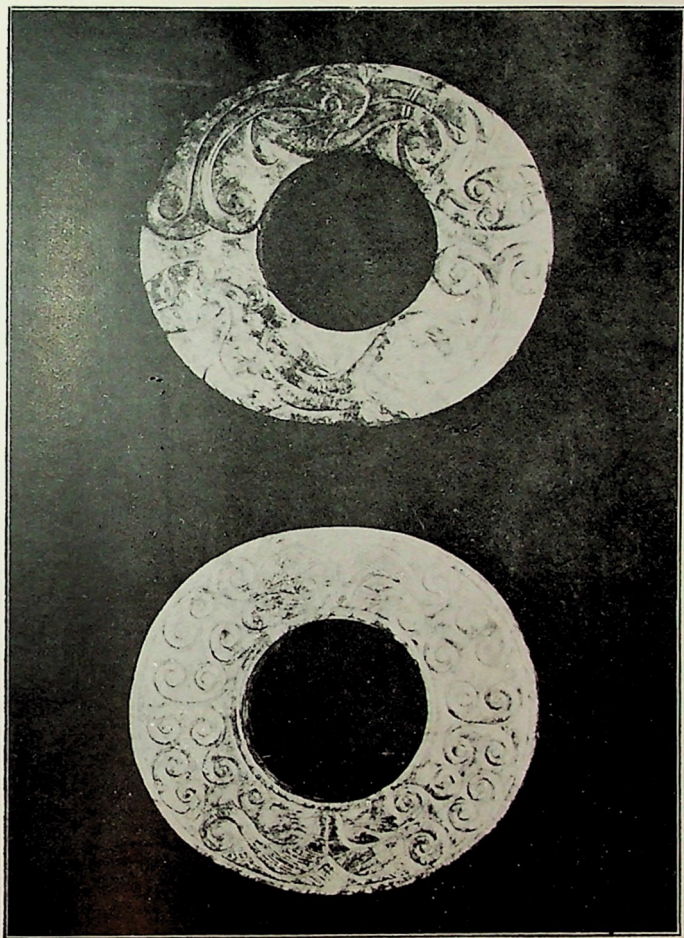
EDITORIAL COMMENTS

THE TSING HUA RESEARCH INSTITUTE

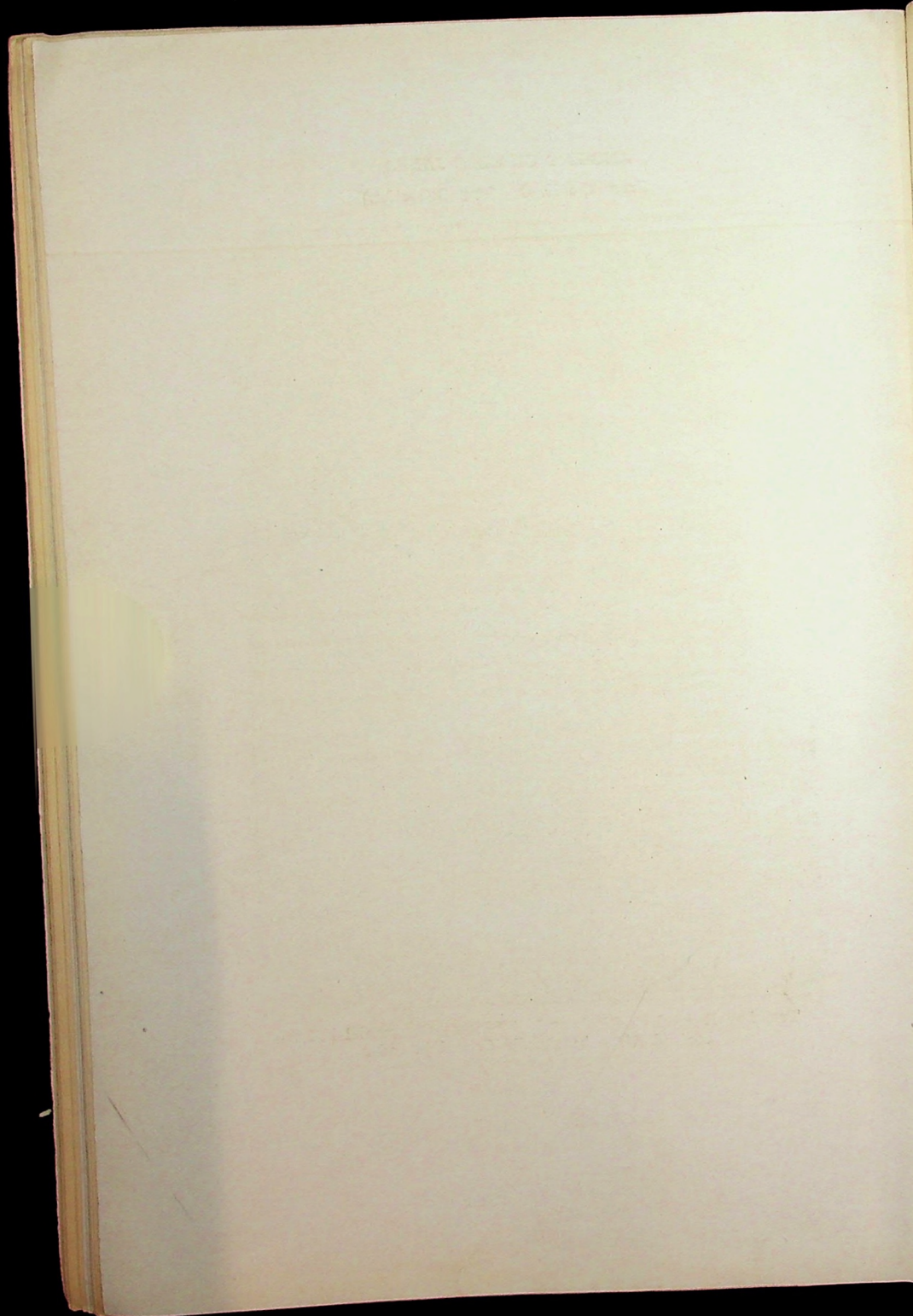
The work of this Institute has now been carried on for one scholastic year and it is most interesting to know what subjects have attracted the attention of teachers and students. The eminent scholar, Liang Chi-chao, has conducted studies in the following subjects :—

1. Making a Revised and Critical Edition of the Shih Pu “詩譜.”
2. A Study of the Development of Chinese Painting from the title of the Pictures.
3. History of Wall-Painting in China.
4. A Study of “Bi-signification” in Shuo Wen “說文.”
5. A Study of the Social Life and Psychology of Ancient China through the Early Chinese Language.
6. The Origin and Development of the “Bondman” Caste (部曲).
7. Sexual Morality in the Age of Confucius (722-481 B. c.).
8. A Comparative Study of the Conditions of Ancient Society from the Account of Foreign Nations in Chinese History.
9. Studies in Buddhistic Sutras.
10. Evolution of the Custom House for Foreign Trade in Chinese History.
11. Forced Emigration in Chinese History.
12. A Study of Tung Chung-shu 董仲舒.
13. A Study of Wang Ch'ung 王充.
14. A Study of Ch'ien Ta-ch'e 錢大昕.
15. A Study of Chang Hsüen-ch'en 章學誠.

ANCIENT CHINESE JADES
(From the K. C. Wong Collection)



Two fine Examples of Pei, ancient Chinese Ceremonial hollow-centred Discs, beautifully Carved in Jade.



EDITORIAL COMMENTS

Wang Kuo-wei has come to be recognized as one of the most learned men in China. The following courses were offered by him :—

1. A Comparative Study of the Syntax, Phrases and Adverbs in the "Book of History" (Shu King).
2. A Study of the "Single" and "Double" Descriptive Epithets in the "Book of Poetry" (Shi King).
3. Studies in Ancient Chinese Rituals and Articles of Worship.
4. A Study of Chinese Etymological Roots as Given in the Shuo Wen "說文."
5. A Study of the Geographical Names and Institutions found in the Oracles and Inscriptions of Ancient China.
6. A Study of the Accounts of Foreign Nations in Chinese History.
7. A Systematic Study of Mongolian Names in the History of the Yuan Dynasty (1279-1367 A.D.).
8. Comparative Studies in Phonetics.

Linguistic studies were in charge of Professor Y. R. Chao as follows :—

1. System of phonetic notation for temporary use (mainly an adaptation of the International Phonetic Alphabet).
2. Construction of "type list" of characters, based on ancient phonology, for use in the comparative study of dialects.
3. Study of Peking pronunciation, differentiating parts of Peking.
4. Exhaustive study of own dialect.
5. Study of some parts of Hunan, e.g., that of Changsha
6. Study of Kiangsi, e.g., that of Fuchou
7. Study of Southern Anhui, e.g., that of Huichou
8. Study of differences between reading and speaking pronunciation.
9. Comparison of class differences in pronunciation in the same locality.
10. Collection of "nichtlautgesetzliche" pronunciations, e.g., 去 Nanking College [k'i].
11. Collection of variant pronunciations of words not given in ordinary dictionaries.
12. Collection of "mispronunciations" which are nevertheless the only pronunciation used in normal speech.
13. Universal classification of "tones" on the basis of families of time-pitch curves.
14. Definitions of kinds of "average pitch."
15. Classificatory study of tones in the dialects.
16. Experimental study of actual tone values of single syllables.
17. Influence of tones on each other.
18. Speech melody and its relation to syllabic tones.
19. Study of "irregular" classification of tones, e.g., the redistribution of the *ju sheng* class in Peking
20. Rhythm in *wenli* prose.
21. Rhythm in speech.
22. Rhythm in *wenli* verse.
23. Rhythm in colloquial verse.
24. Recording of local melodies of chanting prose.
25. Recording of local melodies of chanting verse.
26. Basic vocabulary of *wenli*.
27. Basic vocabulary of Mandarin.
28. Basic vocabulary of dialects.
29. Comparative study of particles in *wenli* and in Mandarin.
30. Comparative study of particles in the dialects.
31. Grammar of *wenli* differentiating the historical periods.
32. Grammar of Mandarin.
33. Grammar of dialects.
34. Study of the proper character and etymology of words "without" characters.
35. Comparative study of unification of national language between Germany, France, and Norway.
36. Translation of some important books, e.g., Karlgren's "Etudes sur la Phonologie Chinoise."

37. Chinese-English (etc.) and English (etc.)-Chinese Idiomatic Dictionary.
38. Chinese-English (etc.) and English (etc.)-Chinese equivalences in grammatical forms, in the form of substitution formulae.
39. Principles of terminology.
40. Relation of tones to song writing.

In addition to the above Professor Tschen conducted courses in Sinological and Oriental Bibliography and Dr. Chi Li in Ethnology. It will thus be seen that this Institute has entered upon the most serious and varied work that has yet been attempted in Sinology.

J.C.F.

REVIEWS

THE SAN KUO, OR THE ROMANCE OF THE THREE KINGDOMS. By C. H. Brewitt-Taylor: Kelly and Walsh, Ltd., Shanghai, 1925:

This translation of the famous historical novel, written by Lo Wuan-chung about 600 years ago, is, so far as we know, the first attempt to make a complete translation in the English language.

Mr. Brewitt-Taylor, formerly of the Chinese Customs Service, has placed the West under great obligation by this translation of a very distinctively Eastern work. Throughout the entire Orient, "The Three Kingdoms" is widely known, not only by scholars and general readers, but also by the illiterate, for its marvellous adventures and stirring battles have been told in countless tea-shops and way-side inns by matchless story-tellers from the time of our own great story-teller, Chaucer, to the present day.

The original was written during the Yuan or Mongol dynasty (1280-1368), not in the deeper "literary" style called *wen li*, but in an easier flowing style, most admirably suited to the swift action, the sudden and startling changes and the vivid portrayal of events. The San Kuo is undoubtedly the most popular of all of China's many novels.

The period covered in the 120 chapters of the work—60 of which are covered in this first volume of 638 pages of English translation—is, roughly, the one hundred years marking the last fifty-odd years of the illustrious Latter Han dynasty (25-221), and the turbulent forty-four years of the Three Kingdoms (221-265).

One needs to read these stirring chapters with plot and counterplot, with endless fighting and whole armies and cities again and again wiped out, and to remember the fourteen or fifteen succeeding dynasties with untold bloodshed, to see that "militarism" and war are not an exclusively western product of modern days.

The translator has done a most excellent piece of work. It is a real translation, and not an extended summary. It gives you the author's exact words, in so far as they can be expressed in idiomatic English. But better still, the way of saying it in English preserves very well indeed the tone and the spirit and the movement of the original—a task by no means easy of accomplishment, a success which few translators of Chinese achieve.

Although the sixty chapters covered in this volume make a large book, one is loath to put it down till finished and looks forward to the final volume as one does to succeeding chapters in this one. Like the original in the Chinese language, it is a work not to be criticised or too closely analyzed, but to be breathlessly followed and enjoyed as it leads the reader from one astounding event to another. May we have the concluding volume soon?

A. J. BOWEN.

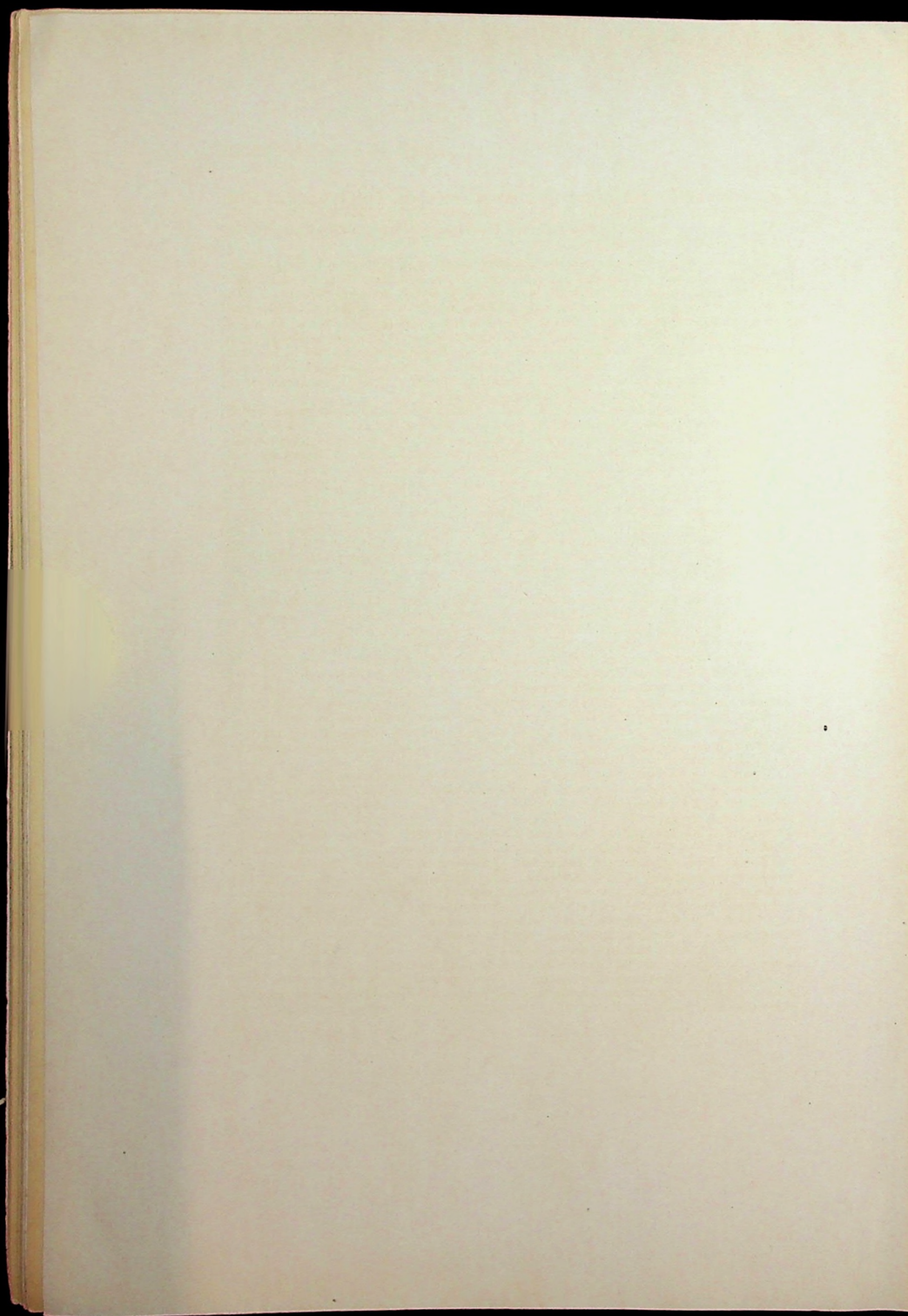
Note:—Volume II of this work has just made its appearance, and will be reviewed in due course.—Ed.

CHINESE PORCELAIN

(From the Chun Wing Kee Collection)



Beautiful Blanc de Chine Figures of Kuan Yin, the Goddess of Love and Mercy. Believed to be of the Ming Dynasty Period (A.D. 1368-1644).



EDITORIAL COMMENTS

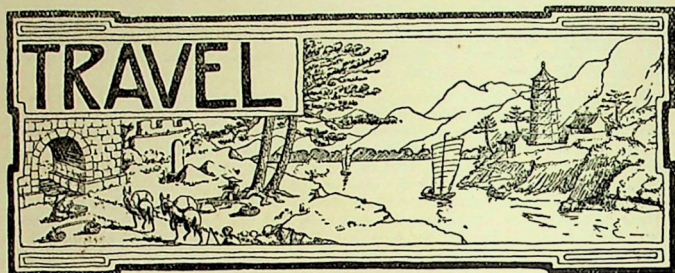
WONG'S SYSTEM OF CHINESE LEXICOGRAPHY, OR THE FOUR-CORNER NUMERAL SYSTEM OF ARRANGING CHINESE CHARACTERS. By Y. W. Wong, Editor in Chief of The Commercial Press. Published by The Commercial Press, Shanghai, 1926.

This little book is a good example of the excellent work that some of the present-day Chinese scholars are doing in the reorganization and simplification of China's literary heritage under the influence and the pressure of western methods. The difficulty of finding Chinese characters in a dictionary has always been a serious one, involving much waste of time. But the problem becomes especially acute when one looks for speed and efficiency in the classification of library cards, business files, and directories of all kinds. Attempts have been made to classify characters by strokes, by their phonetics, or by alphabetic symbols, but the prevailing method has been "radicals," although it usually means looking through a list of one-hundred or two-hundred characters before the right one appears.

The aim of all those who have searched for new methods has been to make this task of character-finding more direct, more rapid, and less difficult, and without too many rules or exceptions to rules. In the system which Mr. Wong has invented he seems to have met most and perhaps all of these requirements. Taking his cue from the Chinese telegraphic code, he has endeavoured to assign to each of the ten thousand most common characters a more or less fixed number, which would give it its permanent place in a natural, numerical order, and would do away with the need of any other index to point out the page on which the character might be found. The number of any character may be found by looking at the character itself. By actual test Mr. Wong has found that the maximum number of characters grouped under one figure would never be more than thirteen; sixty-two per cent. of the numbers would not have more than two characters, and ninety per cent. not more than five.

The number which can be extracted from any character by looking at it is obtained, not by the conventional method of counting all the strokes of the character, but by analyzing the strokes in each of the four corners according to a few simple rules which must be memorized. Each corner is made to yield either a digit or a cipher, which, when taken together, make a numeral of four figures, or the number of the ideograph in question. A numeral of at least four figures is necessary in order to meet the requirements of a standard dictionary or encyclopedia. In a work that requires more than four digits, others may be added to the right of a decimal point by taking into account the strokes in one corner alone, or in two corners, as the circumstances require. In this way, also, not only the first character of a name or a phrase may be classified, but the second and third characters as well, thus making the system applicable to library catalogues.

This four-corner numeral system has passed beyond the stage of mere theory, for we are told in *The Far Eastern Miscellany* (Tung Fang Tsa Chih) that we may soon expect the Commercial Press to issue its great books of reference in the new classification. In fact, Mr. Wong has given in his book specimen pages to show the application of his method to the great biographical and encyclopedic dictionaries published by The Commercial Press. Already the system is in use to catalogue the 120,000 Chinese books and pamphlets in the Oriental Library, Shanghai, and is said to meet adequately all requirements. The application of the method to existing books simply involves the printing of the number above each character heading and the rearrangement of the entries in their numerical order. It would seem that Mr. Wong has hit upon the system which must, at least in its general details, ultimately prevail, and we congratulate him on his effort. Objections will be raised that the new system will not group together characters with the same radical or phonetic, but if only we can expedite the process of looking up characters, we may well forego this secondary advantage. If the system meets with success, those numerous students of Chinese who must spend a great portion of their lives thumbing dictionaries and reference books will be everlastingly indebted to Mr. Wong.



THE SALT INDUSTRY OF TZELIUTSING

BY

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

(Continued from page 229).

IX.

BY-PRODUCTS.

In an industry as great as the Salt Industry at Tzeliutsing, it is not to be wondered at that there are a number of important allied industries. Chief among these are to be mentioned the following :—

Buffalo Horn Products
Bone Products
Argol Fuel Products
Bamboo Materials for the main Industry
Associated Necessitated Farm Products.

The production of all sorts of commodities from the horns of the dead buffaloes assumes proportions large enough to make it an important allied industry to the main work of the place.

The buffalo is never dehorned, as is often done with cattle in Western countries. The Chinese claim that it weakens the buffalo and shortens his term of efficiency. I have never seen a buffalo without his great spreading horns. Even when he becomes fierce and vicious, he is controlled by other means than dehorning. But as soon as the buffalo is dead, his horns are taken off and fetch a price of fifty to sixty cash per catty. If the beast happen to be a white one, his horns will bring as much as thirty cents per catty, as white buffaloes are rare, and the white horn makes a prettier article for the market than the black.

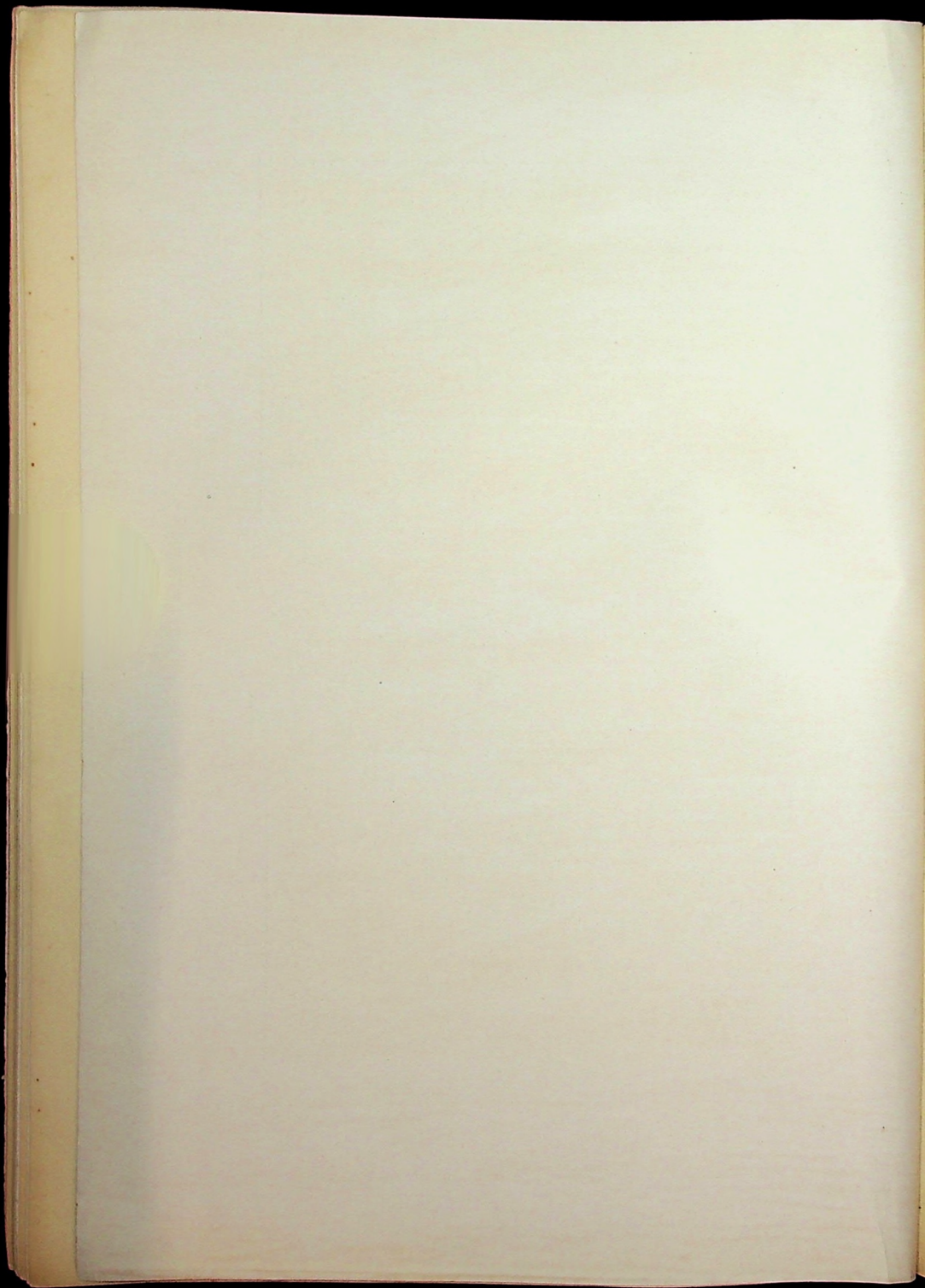
The horn is purchased by the horn workers in as large quantities as possible, and sorted into the different lots for which each piece is best suited. Not very much of the original horn is usable as it is taken off the beast, but it must be cut into the desired shapes. This



Salt being weighed as it is carried into the Store for Storage against Release for Shipment later. These Stores are built by the Government and help to reduce Smuggling, as they prevent the Accumulation of Salt on the Boilers' Premises.



The Government Store House. Salt being carried in for Storage preparatory to Release.



THE SALT INDUSTRY OF TZELIUTSING

is done by heating the horn and driving it into moulds, and allowing it to cool while in the latter. It is then cut (sawed) into the desired sizes, after which begins the smoothing and polishing. If the piece is to be round, it is put upon the lathe and turned into the desired product.

Most of the products are of round or oval shape as the bone lends itself to this kind of an article. The biggest class of articles are horn boxes.

The instruments used in the manufacture of the horn articles are simple and crude. Chisels, hammers and saws are practically all that the mechanic uses, aside from his lathe. This latter is simplicity itself. Worked by foot power, it does not permit of continuous driving, but must be reversed, and run over again, instead of making a regular and uninterrupted stroke. The article to be turned is driven into a wooden form, or, if the piece be flat, it is stuck to the turning arm with rosin. This is a very effectual if cumbersome method. There being no steel of any account in West China, all the tools are made of iron, but one occasionally sees a steel-edged tool. These are very expensive.

Among the articles made from the buffalo horn are :—

Horn Boxes	Images
Combs of all kinds	Dominoes
Brush Backs	Knitting Needles
Back Scratchers	Crochet Hooks
Dice	Buttons
Powder Horn	

About two years ago, after the cholera epidemic, many young children were left destitute by the loss of both parents. Some of the local Christians conceived the idea of opening an orphanage for these destitute boys. It was begun as an industrial orphanage and part time was spent in learning trades. One of these was the making of horn articles. As the apprentices became more expert, the manufacture of chessmen was tried, and now the orphanage produces very credible sets of chessmen, manufactured out of the horn. The sets are in two sizes, the smaller being about the size of the average set of chessmen, while the larger are nearly twice this size. The smaller sets are marketed at three dollars fifty while the larger ones sell for five.

Even the shavings and cuttings of the horn are carefully saved and sold to the farmers, who burn them and use the ash as a fertilizer. This brings nearly as much as the new horn, and is easier to reduce to ashes.

The bone of the buffalo is also made use of in commerce, but the industry is much smaller than that of the horn. From the bones are made hair-pins, dice, dominoes, brush backs, crochet hooks, knitting needles, combs, etc.

But the bone is most valuable as a fertilizer and is made up in coolie loads and carried several days travel overland to be utilized for this purpose. The bone is burned and only the ash used. One might wonder why it is not burned on the spot and the ash carried out instead of the heavier and bulkier bone. The answer we receive to this question is that the seller cannot be trusted by the buyer, lest he should sell him any

sort of ash and not the pure article. It is estimated that nine-tenths of the carriage would be saved if the ash were produced on the spot. But this is another case where one merchant in China cannot trust another. With a modern incinerator, one could make plenty of money in this business alone, after his reputation had been established.

The excreta of the buffalo is the perquisite of the coolies around the well, and they also receive the sweepings from the stalls and mangers of the beasts. This is made by the coolies into large round flat cakes, which are set out in the sun to dry, and, when sufficiently hard to stand handling, are placed up in the framework of the building to dry further. When quite dry it is peddled about by the coolies and sold as fuel. This product sold for some eight or ten cash each, up to a couple of years ago, when the price rose to as high as thirty. But in a place where other fuel is scarce and very dear, this makes a good and cheap substitute, and is in great demand. The Chinese will not admit that the manure would be more valuable as a fertilizer for the land.

Naturally, the industry influences the nature of the crops, and, as beans are one of the staple foods of the buffalo, it is not to be wondered at that many tons of these are produced. One may go for miles along some of the level roads and see little else than beans. The fields are capable of yielding two crops annually and need little attention: it is simply necessary to cut holes in the sod, add a little fertilizer, and the bean will grow well in such a soil. One wonders why such an intelligent race as the Chinese have not seen that the flower of the bean is capable of producing much honey, and, if the farmer would but keep bees, tons of this commodity would be possible to him.

In season, tons of grass are cut from the hills, these being reserved by the companies for grass growing, and controlled by them.

Whether it is natural to him or not, the water buffalo consumes great quantities of rice straw. It is very coarse, but it would appear that the buffalo munches it with satisfaction. However, as the cost of straw is high, it is not surprising that the grass cutters scour the neighbouring hills to gather even the smallest quantity of grass. Tons of straw are marketed daily.

From what has been written in preceding chapters, the reader will gather that large quantities of bamboo are used here. The biggest item, of course, is cable, but there are other commodities necessary around the well, and these are all made locally. The raw material is mostly imported as the local growth is not sufficient for the demand. This is one reason why the bamboo cable is made where the bamboo grows, and only small quantities of it are produced locally. But such articles as chopsticks, sieves, scoops, carrying-poles, baskets, brooms, strainers, ropes, covers, beds, pipes, whips, mats, partitions, in fact, anything which can be made from bamboo and utilized in the salt industry, are made on the spot. These constitute the main allied industries in the manufacture of salt, and each in its way is important to the main industry, but would not be peculiar to the place were it not for the production of salt itself.

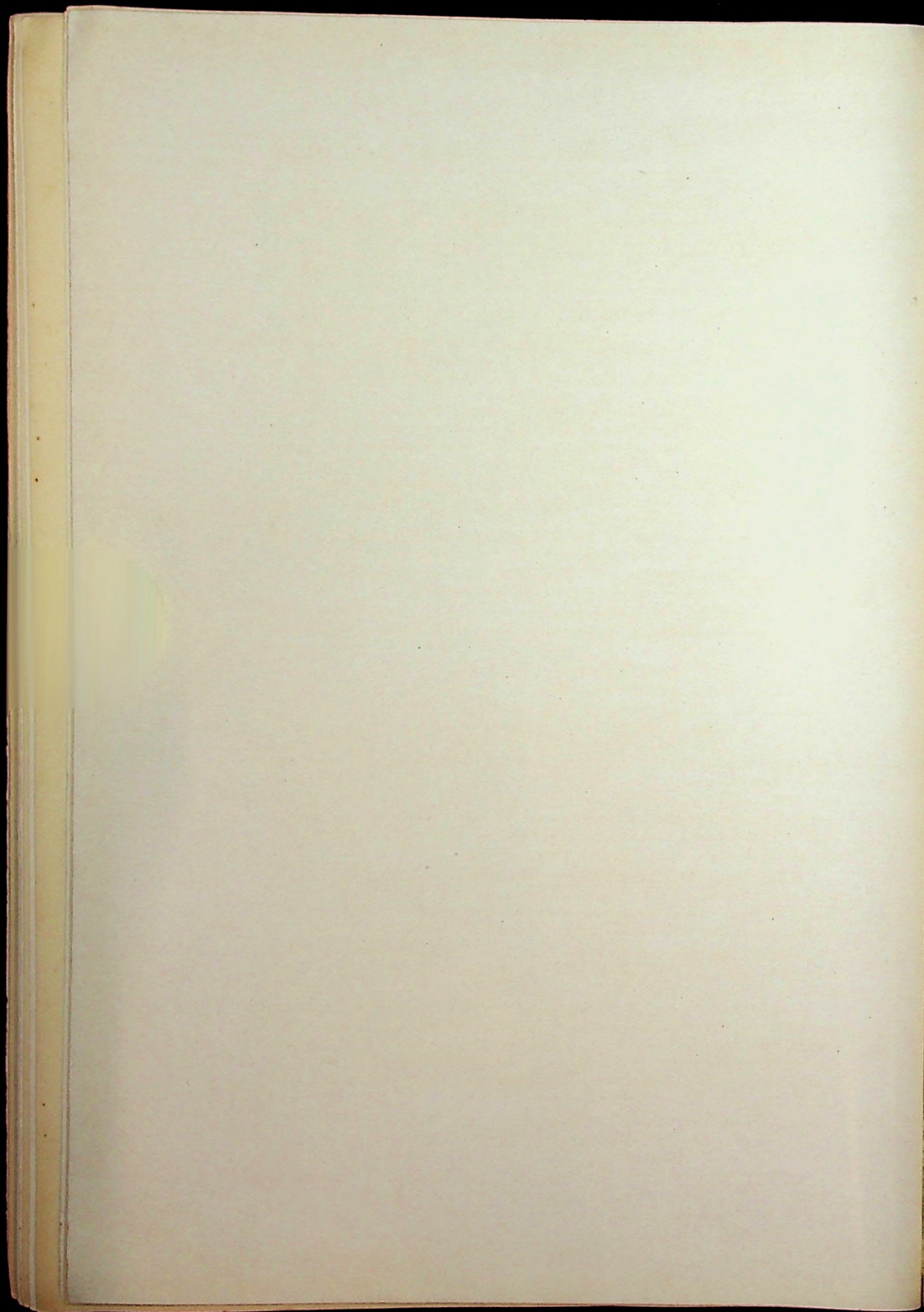
There are other minor industries in Tzeliutsing, but they are subsidiary to those mentioned above. Every city in West China is noted



Weighing in Crystal Salt for the Retail Market.



Horse and Mule Loads leaving the Government Stores.



THE SALT INDUSTRY OF TZELIUTSING

for some one manufacture. Tzeliutsing is noted for its salt, with these industries, as mentioned above; but of others there are few or none worth mentioning.

XI.

THE MISSIONARY HISTORY AND GEOGRAPHY OF TZELIUTSING.

MISSION HISTORY IN TZELIUTSING.

About thirty years ago the "Wells" were visited by the members of the China Inland Mission as an out-station. They journeyed into the district from Kiating and Luchow. A thriving work was opened up in the two places, Tzeliutsing and Kungchin, and to this day that Mission has a work in this latter place. Later, possibly by ten years, the workers of the Canadian Methodist Mission also itinerated into Tzeliutsing and shortly after that opened a resident station one day's march west of the place at a station called Jung Hsien. From this station regular itineraries were made to the Wells and a work opened up in this way. The China Inland Mission opened the city of Fushun, one day to the East of the Wells and two days North of Luchow, on the big river.

Unfortunately the work opened by the C.I.M. developed too fast for its proper supervision and it was found necessary to curtail it indefinitely.

The Canadian Methodist Mission came here to reside in the year 1907. Rev. R. O. Jolliffe with Rev. G. W. Sparling, and Dr. W. J. Sheridan were sent to the station by the Mission. These men took up residence in native quarters until property could be purchased and a plant begun. The Pastor's house and the church were first erected and later three houses for the itinerant pastor, the educational man and the doctor were erected. The Hospital was started in 1914, but the work was held up on account of the world war. The Men's Wing of the hospital was completed in 1918 and the Women's Wing was opened in 1920. The hospital is an up to date building with good equipment and can accommodate 150 patients without pressure.

A big Higher Primary Boy's school capable of boarding 100 boys has been erected and a Girl's Boarding school for 120 girls. Later, in 1919 a large Women's Bible School was erected, being operated by the Woman's Missionary Society of the Canadian Methodist Mission.

Thus it will be seen that the Canadian Methodist Mission has an extensive plant in the place, and for the most part it is not badly staffed.

Upon the entrance of workers of the Canadian Methodist Mission as residents of the station, the C.I.M. negotiated with that mission, the result being that the former Mission withdrew from the Wells proper, and the field was left to the workers on the spot. The C.I.M., however, retained their work in the Kung Ching district and carry it on to this day.

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THE DISTRICT GEOGRAPHICALLY.

If a line were drawn from Kiating to Chungking, it would pass close to, if not through the cities of Fushun, Tzeliutsing and Junghsien. The cities of Suifu, Luchow and Tzeliutsing would make an isosceles triangle with Tzeliutsing at the northern point, which is just 270 *li* or roughly 70 English miles from each of these two cities. The city of Tzechow is north some 30 miles.

At the present time the cities occupied around Tzeliutsing by missionaries are these just named, that is, Tzechow, Junghsien, Luchow and Suifu.

The population at the Wells themselves has been estimated as one million. Possibly eight hundred thousand would be a truer figure. I have asked several merchants here and they assert that the labourers in the Salt Wells alone would number five hundred thousand.

Another missionary is authority for the statement that, if a line were drawn through the Tzeliutsing District, East and West, cutting the city in two, the population on each side would run well up to two million souls.

X.

THE SALT GABELLE.

The Chinese Government has appointed a Revenue Department, under which the administration and collection of the Salt Revenue is operated. This Salt Revenue Administration has been conducted under various auspices since its inauguration. In 1909 it was under the Provincial Governments in the control of the Viceroys and Governors. In 1910 an attempt was made to co-ordinate the Administration under a Central Salt Bureau with Duke Tsai Tze at its head. However, before this Bureau could get under way, the Revolution broke out. With the re-organization of things, the Administration was placed under the Ministry of Finance, and in 1912 a special department was organized for the administration of the Salt Revenue.

In January, 1913, China negotiated with foreign powers for a loan, and the Salt Revenue was one of the guarantees of this loan. The Group Banks arranged that the Salt Revenue should be held as a special account. Later the Reorganization Loan Agreement was signed and Admiral Tsai Ting Kan was appointed Chief Inspector with Sir Richard Dane, formerly of the Indian Service, as Foreign Advisor. This gentleman was later appointed foreign Chief Inspector as a colleague of the Chinese Chief Inspector.

As the new department gained strength and experience, it originated a scheme of inspectors, Chinese and Foreign, known as District Inspectors. These were made up of Chinese, French, British, Danish, American, and Italians. In each District a Chinese and a Foreign Inspector were appointed.

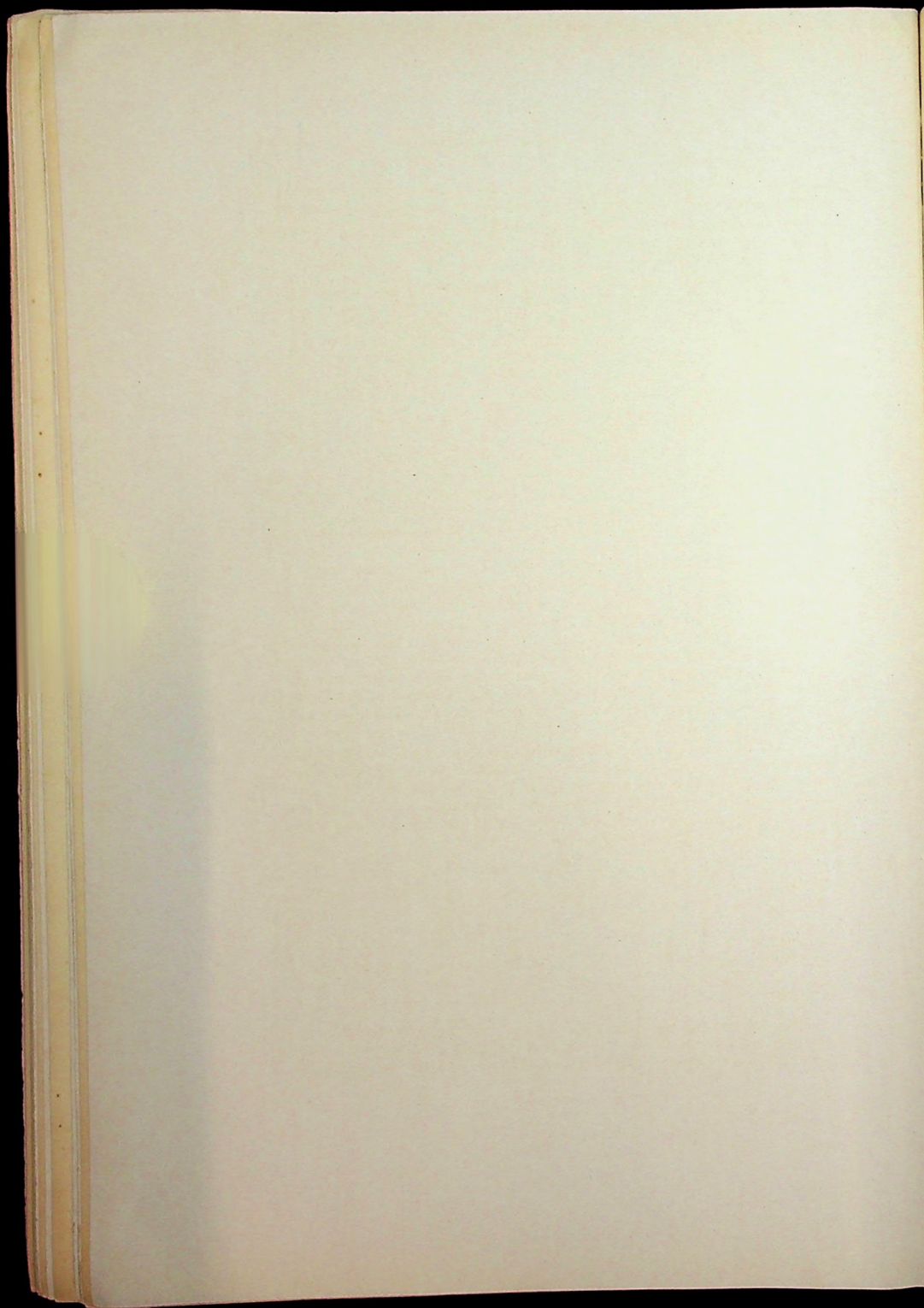
The first Inspectorate for Szechuan was located at Luchow, but this was found to be impracticable, as the source of the greater part (70 per cent.) of the salt was at Tzeliutsing, some three stages away. After recommendation to the Chief Inspectors it was agreed to move the District



This is the Government Retail Release Office for Crystal Salt.



Crystal Salt prepared for the Wholesale Market, to be Shipped down River, even as far as Hankow and Shasi.
The tying of these is a separate Industry.



THE SALT INDUSTRY OF TZELIUTSING

Inspectorate to Tzeliutsing, where a proper and efficient supervision of the Revenue and Administration for the district could be maintained.

This Inspectorate has been functioning ever since in Tzeliutsing with a Sub-inspectorate at a place called Wu Tong Chiao, where there are more salt wells.

That the Salt Gabelle, especially since its efficient inauguration, has been a great financial boon to the Chinese Government, cannot be denied. One has but to look at the following table to see what revenue has accrued to the Government since it launched this scheme: and, were it not for the general political upheaval in the nation and particularly in the provinces producing the majority of the revenue, the returns from the system would have been far greater.

This last statement is particularly true of Tzeliutsing. If Chengtu has been the political centre of the province and Chungking the commercial centre, Tzeliutsing has been and is still the financial centre for Szechuan. More fighting has taken place with a view to the occupation of "The Wells" than for in any other spot in the province. If any general had his hands on the money bags, he controlled the province.

A general, on reaching Tzeliutsing, would demand from the Inspectors all the funds on hand, and got them, often at the point of the bayonet. The safes were opened to them only after every other method of persuasion failed. On one occasion the writer knows for a fact that a Yunnanese general withdrew from an interview to prepare his men to attack the offices. Only after friendly overtures to the Inspectorate, did the latter agree to hand over the funds on hand. But it has become a common occurrence and now the District Inspectors are forced to hand out all the collections save those required for the actual overhead expenses of the offices. At the present time the Governor of the Province can count on almost one million dollars per month being forwarded by his deputy from Tzeliutsing.

With the introduction of this system of collections by the District Inspectors, one need not be surprised that there were difficulties in the way. No new scheme is ever introduced without troubles. But as the Inspectorate has grown, it has increased in efficiency and the collections have correspondingly increased. The export of salt and the revenue collected from it for the last few years is as follows:—

Year	Salt		Revenue
1914	..	..	4,357,756 piculs \$5,008,479.47
1915	..	..	4,934,193 do. \$6,422,890.31
1916	..	..	4,808,322 do. \$8,398,123.93
1917	..	..	4,870,034 do. \$8,162,038.18
1918	..	..	4,736,070 do. \$8,969,013.24
1919	..	..	3,835,032 do. \$7,126,197.44
1920	..	..	4,594,083 do. \$9,458,723.55

The figures for the year 1921 are not yet available, but it is to be noted that up to September 20 of that year 62,765,534 piculs of Salt passed through Ichang. The duty into Hupeh is \$1.50 per picul.

At the moment salt can be produced and placed on the market for about thirty cash per catty. But the market price in Tzeliutsing is somewhere near ninety. That is to say, the revenue collectable from salt makes the cost more than double the original producing cost.

The district has been subdivided into many smaller districts, where the salt is collected, inspected by the Government, as to weight of containers, etc., and then discharged from these collection stations. Some of these are small as in the case of the retail release stations, but there are several large storehouses where the great bulk of the salt is collected, examined, approximately ten per cent. of it weighed and then release tickets given the merchants upon their having paid the revenue at the Inspectorate.

There is, of course, a great deal of smuggling. This is dealt with by the Salt Police, maintained by the Salt Gabelle. They are more or less efficient, as this branch of the service is chiefly under the supervision of the Chinese themselves.

There are checking stations at all the main entrances to and exits from the district, where the merchants have to show their release tickets, whether wholesale or retail. These retail merchants may purchase their salt in lots of forty, eighty or one hundred and twenty catties, which weights are convenient for the coolies to carry.

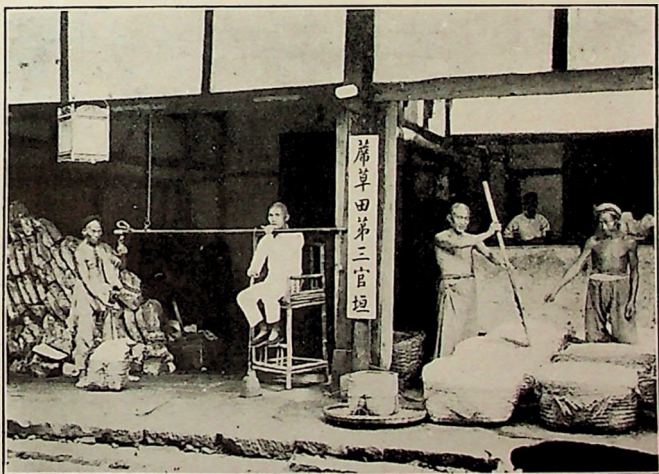
At the checking stations are located the Salt Police who watch for the smugglers. Of late the smuggling has been less than formerly. There was a time when the Salt Police were the best trained soldiers in the province, but with an official in charge who has no inclination for the proper upkeep of the force, its efficiency is lowered.

The overhead expenses of the Inspectorates run all the way from five to twelve per cent. Some of the offices are careful of their expenditures, while others would seem indifferent. One might venture to say that about seven per cent. would be an average, and then, with careful watching on the part of the Inspectors, it might be lessened.

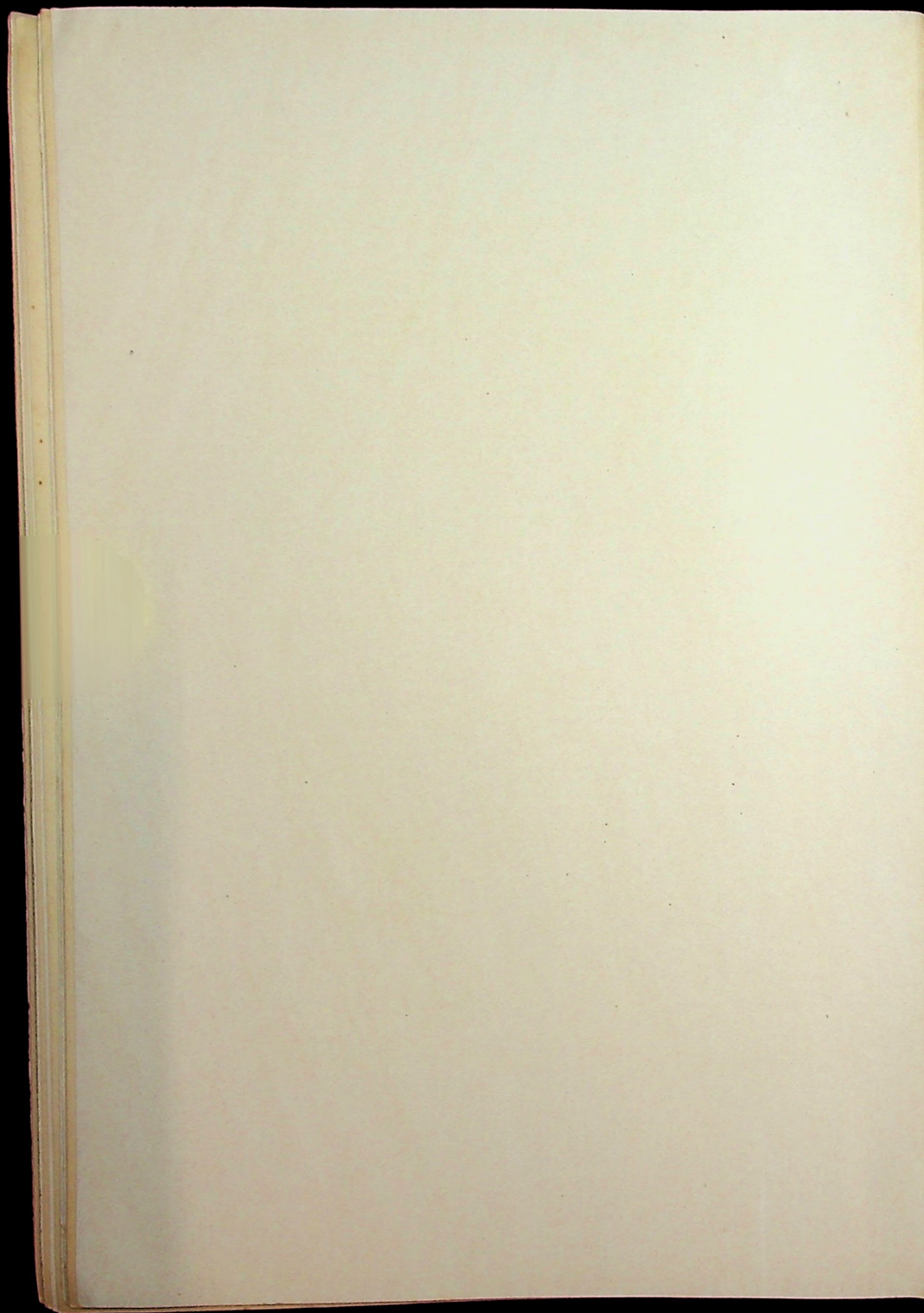
The Salt Gabelle is a splendid institution for the Chinese, not only from the standpoint of the financial results, but also from the example of control which it gives to the merchants and those who come in contact with the system. There are no doubt other energies in China which ought to be thus organized, and which would be great sources of income to the Government in times of law and order. But, with the different tuchuns managing the provinces as they see fit and placing the funds where they wish, the system is not looked upon with much favour by the natives. This is but a transitory period in the history of the Salt Gabelle and its benefits to all will be seen as soon as order once more emerges from the present chaos.



Making Cakes of the Excreta of the Buffalo, mixed with the Sweepings of the Stables. This is the Perquisite of the Coolies at the Wells. They peddle it about the Streets, selling it for Fuel.



Government Retail Release Stores. Crystal Salt on the Right, Rock Salt on the Left.



TRAVEL AND EXPLORATION NOTES

NUMEROUS SCIENTIFIC EXPEDITIONS: According to a recent message from London, no fewer than 200 exploration expeditions to all parts of the world are getting under way this year, testifying to the increasing interest that is being taken in such undertakings. It is reckoned that more scientific expeditions are being carried out this year than ever before in the history of the world. The Polar Regions, the deserts of North Africa, Mesopotamia, Asia, the islands of the Pacific, the less explored regions of the United States and the wilds of Central America are all coming in for their share of attention. Archaeological, palaeontological, zoological and geographical interests are well represented: in fact, it is hard to find any part of the globe that is not being attacked by scientist or any field of human knowledge and research that is not involved. China, too, has her explorers; but what a pity it is that the terrible conditions that prevail throughout this country, curtailing and hampering the activities of the few who are vainly trying to open the interior to the savants of the world, are depriving her of the benefits of this efflorescence of the spirit of exploration and discovery.

FIELD MUSEUM EXPLORATION OF CENTRAL ASIA: Recently the brothers Theodore and Kermit Roosevelt returned to America, having successfully completed their expedition to Central Asia on behalf of the Field Museum of Chicago. According to all accounts the explorers are highly satisfied with the results of their months of arduous toil, having secured not only specimens of the far famed *Ovis poli*, one of the giant bighorn sheep of Central Asia, but numerous specimens of other interesting game animals as well as smaller stuff.

We look forward with interest to the publication of a detailed account of the results of the expedition.

FUKIEN SCIENTIFIC EXPEDITION

No word has been heard from Mr. F. T. Smith, who is conducting an expedition under the auspices of the China Society of Science and Arts into the interior of Fukien Province to secure motion pictures and biological specimens. When last heard from, Mr. Smith was on the Min River beyond Yen-ping Fu, and intended remaining in the interior for another month or so, although almost all his footage of film had been exposed and shipped back to Shanghai. No news is good news, however, in such cases, as bad news travels fast; and had anything untoward happened to him the missionaries at Yen-ping Fu would probably have got wind of it by now. Nevertheless, his friends cannot help feeling a little nervous regarding his welfare, especially as it has been reported that bandits are rather bad in the interior of Fukien, while Mr. Smith himself was not very well when last heard from. There is a possibility that he has tracked over one of the dividing ranges of mountains on the borders of the province and is working his way either down the Chientang River to Hangchow in Chekiang, or some other river more to the west which will bring him out into the Yangtze Valley. If all goes well news should be coming through any day; while it may be confidently expected that good biological results will have been obtained.

Since the above was written, and as we go to press, a letter has been received from Mr. Smith, which has been some considerable time on its way, to the effect that he has reached Kuatun on the Kiangsi border of Fukien, famous as a biological collecting ground. Previous to this he had spent several weeks in the Mission Hospital at Yen-ping Fu, down with a wasting fever. He is now making good collections of animals of various kinds, but will shortly be returning to Shanghai as, the rainy season being on, collecting and photographic work is becoming impossible.



RUS IN URBE

NOTES ON A FEW BIRDS SEEN IN SHANGHAI

BY
E. S. WILKINSON

How little we residents of Shanghai seem to know about the birds that are in our midst, and how little has been written about them for our information! Perhaps if an ignorant lover of bird life writes down a few notes on his observations and thoughts it may encourage others to observe and be interested, and thus provide a public for whom the naturalists in our midst may write and lecture.

The general impression I have gathered is that people are not interested because they think there are so few birds to observe, and that such as are worth observing in the Yangtze Valley can only be seen "up-country." To help contradict this impression I must state that every bird mentioned in these notes has been seen by me on early morning walks in the little country that is left between Route Doumer and Avenue Haig: an occasional walk may take me across the Avenue as far as Fah-Wah Village, but the fact remains that the little portion of country in the neighbourhood first named has proved more fruitful of bird life than the "outside country."

I begin my walk in a little patch of country surrounded by houses. Here the little red doves* feed in their hundreds side by side with the magpies. In this patch of ground I have observed three varieties of heron on different occasions feeding by the banks of the creek: the grey heron†, the white variety‡, generally known as the "paddy-bird," and a third variety§ having a white breast and wings, brownish maroon head and neck and dark grey back. This latter bird has always got away from me very quickly, but I am sure of the dark head and back and the white plumage on breast and wings.

* *Enopelopia tranquebarica humilis* (Temminch)

† *Ardea cinerea jouyi*, Clark

‡ Cattle egret, *Bubulcus coromandus* (Boddaert)

§ Chinese pond heron, *Ardeola bacchus* (Bonaparte).

Here also I know a pond across which, in spite of the pig-sties at one side and the old lady washing rice at the other, I have watched the little blue kingfisher* flit in his search for food. Scared either by me or the pigs or the old lady he takes his glittering course straight on and down the creek, which runs from the pond and disappears among the willows. In this same patch of country I once watched a tragi-comedy in bird life which is worth recording.

I remarked before that this is a favourite feeding ground for doves, which fact had apparently also been noticed by a cat of the variety



A female Grossbeak, one of Commonest Birds to be seen in the larger Gardens and Parks of Shanghai. The male is characterized by a black Face and Crown.†

* *Alcedo ispida bengalensis*, Gmelin.

† The pictures illustrating this article appeared originally in *The China Illustrated Weekly*, and are reproduced here by courtesy of *The Tientsin Press*.

domestica, who had decided upon a little hunting on the morning that I was observing while walking. While master Tom was crawling belly-flat across the mud with his greedy eyes firmly fixed upon a succulent dove, a pair of magpies* alighted in their usual clumsy fashion in search of food. Now, while I am sure that the magpie is the world's worst aviator and his landings a disgrace to the veriest beginner in an aviation school, I am assured by my scientific friends that he is a very constant husband, and is said to mate for life. Be that as it may, Mrs. Magpie landed right in the line of attack chosen by Tom the hunter, while Mr. Magpie made his clumsy contact with Mother Earth on Tom's left flank. Mr. Magpie promptly came to a perfectly natural, if erroneous, conclusion in thinking that Tom was after his wife, and equally promptly leapt into the air to the attack. He sailed right over the cat's head and there gave his best imitation of a helicopter, at the same time shrieking his warcry of *Ee-sack, Ee-sack, Ee-sack, Ee-sack*. Master Tom replied in his best roof-garden style, but the flapping wings and strident voice of Mr. Magpie were too much for him, so, with a final whisk of his tail, he left the field of battle and retired hastily. Mr. and Mrs. Magpie went on feeding and the frightened doves soon fluttered back, little knowing that one of their number had been so gallantly protected by the harsh-voiced, mistaken, faithful comedian in black and white feathers.

Crossing the road, I pass behind the houses and am again in the country. As I pass a deep pond bordered on one side by Chinese cottages a flash of blue attracts my attention and I come to a halt: another little blue kingfisher is at work flitting from one bamboo stump to another. He flies toward me and lands on a stump a few feet distant directly facing me and displays his ruddy fawn breast which looks almost red in the bright light. With his head on one side and his eyes firmly fixed on the water, he swings himself up and down until some movement in the water, invisible to me, sends him off with a swooping dive. I doubt if anything in bird life can be more beautiful than the shimmering blue of a kingfisher in the sunlight.

A passing minah† chatters to himself as he flies across to join his friends, while a flash of green, blue and black denotes a tit‡ which I have not time to observe more closely.

Here I walk along a narrow path through a winter crop of wheat and am startled by the sudden rise of a cock pheasant, who skims the field and crosses the road into the next feeding ground. Many little birds which I am unable to identify go fluttering through the crops. About the size of a sparrow, but of more graceful build, they have a brownish speckled plumage, sometimes appearing to be slightly crested, and they give me the impression of being migrant birds too tired by long flight to rise at my approach.§ Here, also, among the low, bare trees

* *Pica pica sericea*, Gould.

† *Acridotheres cristatellus* (L.)

‡ Probably *Parus major artatus*, Thayer and Bangs.

§ Probably buntings (*Emberiza*) of some sort.—ED.



One of the numerous Buntings that pass through Shanghai on migration

by the creek-side, I see a bird which exactly resembles our British robin, but without his scarlet waistcoat. Strangely enough, at the same place, I see a wren, which appears to be even smaller than our wren, and I am reminded of the old home saying "The robin and the wren are God's cock and hen," which might have arisen from their general habit of living and feeding in similar surroundings.

I now pass round an old Chinese family group of buildings which are surrounded by many large trees. Here the bulbuls* congregate and give me the best of their singing. Taken alone the bulbul is a disappointing songster in spite of his early reputation in Persian gardens: his notes are very sweet, but they are only about four in number repeated monotonously. Given a large number together, when one begins as the other

* Chinese bulbul, *Pycnonotus sinensis sinensis* (Gm.)

ends, the simple fugue is very charming, and the bird is heard at his best. Always seen in pairs, with their black caps, white crests greenish-grey-brown bodies, bulbuls are attractive birds and may be found in almost any garden in Shanghai.

A few hundred yards away I am attracted by a harsh quarrelling sound among the low trees, and finally see the flash of powder blue, which is the hallmark of what is generally spoken of as a blue jay.* I think I am right in saying that these birds are in truth the azure-winged magpies which may be seen in flocks in Jessfield Park. They wear a black cap but from neck to tail are plumed in varying shades from bluish-grey to azure-blue—harsh, noisy, clumsy birds, whom nature has compensated with plumage which needs only give pride of place to that of the gorgeous kingfisher.

The rooks are going out to their feeding-grounds by pond and river, and, as I try to imagine their respective destinations, my eye is attracted by a stately kite† wheeling round high up in the blue and regarding with obvious disdain all below him. Several of these birds may be observed landing in the fields with the apparent intention of feeding, though whether their food is living or dead I have never been able to discover.

It is now almost time to return home and I pass along a municipal road. Even here the trees at the roadside are alive with chattering tits hanging head down from the twigs and branches in their search for food: funny little chaps, like grey golf-balls with little black heads and perky tails. I am quite unable to give them a name. Passing again into the country, I skirt a half dry creek and here I see the delicately moulded grey wag-tail,‡ jumping in the air and flitting from place to place as if he were full of the joy of life. Long, thin legs and graceful patches of grey and white, with an ever flickering tail, are his distinguishing marks. Sometimes I see his cousin the yellow wagtail,§ who is a duplicate of the grey one with a bright yellow substituted for the white patches and streaks: he reminds me of a very small imitation of that beautiful bird the golden oriole¶, which I have only once seen on the near side of Avenue Haig.

To get home quickly I must take a short cut through a friend's garden, a procedure always worth while even if it is only to hear the blackbirds sing. There are plenty in the country, but the blackbird|| always seems more at home in a garden. He is a shy furtive bird and at the slightest alarm you hear his warning cry and he is away like a black streak into the thick bushes; so walk quietly and hear him sing, and you will hear the finest wild-bird song in China. Entering the garden quietly

* Azure-winged magpie (*Cyanopica cyana swinhoi*, Hartert.)

† *Milvus lineatus* (Gray)

‡ *Motacilla alba lugens*, Kittlitz.

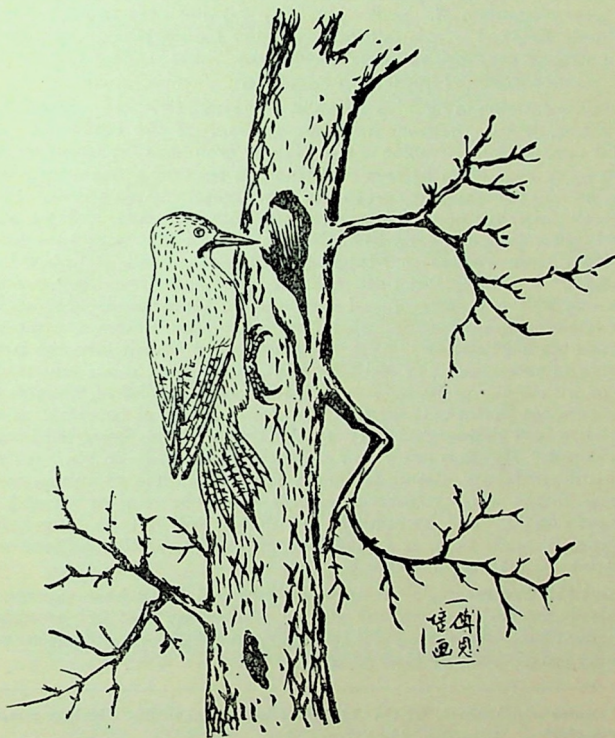
§ Possibly *Budytes citreolus citreolus* (Pallas)

¶ *Oriolus indicus*, Jerdon

|| Chinese blackbird, *Turdus merula mandarinus* (Bp.), differing from the European species in having a brownish instead of bright orange bill.

I hear at least three full-throated songsters giving thanks for the early worm ; but, when the first warning note is given, it is no use waiting ; a series of cries and fleeting black forms is all that will be heard or seen for some time. I sometimes see a few thrushes built and plumed something on the pattern of the European song thrush except for the strongly spotted breast of the latter, but have never yet ascertained if they have any distinctive song.*

Up in a tree a gracefully built speckled warbler keeps commencing a trilling solo, but he always seems to forget his song after the first few bars. I have not identified him yet, but I always have the feeling that if he would only learn his part, he might make the nightingale look to his laurels.



The Chinese Green Woodpecker

* There are several species that might answer to this description.

The magpie, emblem of good luck, has built in this happy garden and he appears to be having an argument with his wife about the closing of his front door, which stamps him as the typical benedict. As I leave the garden he gives her a parting peck and goes about his business.

I am now approaching a tree where I know I shall find my old friends Mr. and Mrs. Shrike. I do not know their exact species but they give the impression of being grey mixed with rufous fawn, black wings and a black neck and head-band.* They are rather large birds and Mr. Shrike fancies his voice, though he really cannot sing at all. As I approach he is attempting to wheedle Mrs. Shrike with a song and she is bearing up bravely. He is the type that sings in his bath and is so pleased with the result that he wonders why he is never asked to perform. I walk beneath their tree, whereupon Mr. Shrike gives his warning note and flies higher up, closely followed by his faithful wife. As I disappear he mocks me with a strident cry, which sounds exactly like "beat it, beat it, beat it," and I wonder where he learnt such language.

Before entering my garden I stop at a distance to observe a tall dead willow tree, which, far from being an eye-sore on the landscape, is a fruitful source of observation. Mr. Magpie who nests a quarter of a mile away may often be seen struggling to tear off a dead twig with which he flies in clumsy swoops to add another story to his house. He is a typical suburban house owner with the building craze, always going to add "just one more story to the shack." Here also may be seen an occasional green woodpecker† tapping the bark for food. To-day I am irritated by a mournful and oft-repeated *peep, peep, peep, peep*, which puzzles as well as annoys me. I can see something apparently sliding snake-like up a branch of the tree, but on my approach there is a flash of brownish plumage and he is gone. Much puzzled I walk into the house and five minutes later the insistent *peep, peep, peep* takes me to the window with a pair of field-glasses. Now I see him clearly, though the colours are not shown true through the glasses: a small brownish woodpecker-like bird gliding gracefully up the tree with his head held away when at rest. He stops every now and then to throw back his head and give his mournful cry, almost as though he were anxious to announce his presence to the whole country-side. He must be the wryneck‡ or "cuckoo's mate," and he reminds me that it will not be long before the spring is really here, as I shall know when I hear the strident *sau-sau-mei-ho* of the Indian cuckoo.§

But this last escapade has made me late and I can hear my special bulbuls singing on the telephone wire to remind me that my breakfast, and hence theirs, will be spoiled if I do not drop the glasses and get on with the more prosaic business of shaving.

* *Lanius schach schach*, L., the Chinese rufous backed shrike, which is common in these parts.

† *Picus canus zimmermanni*, Reichenow.

‡ *Iynx torquilla japonica*, Bonaparte.

§ *Cuculus micropterus micropterus*, Gould.

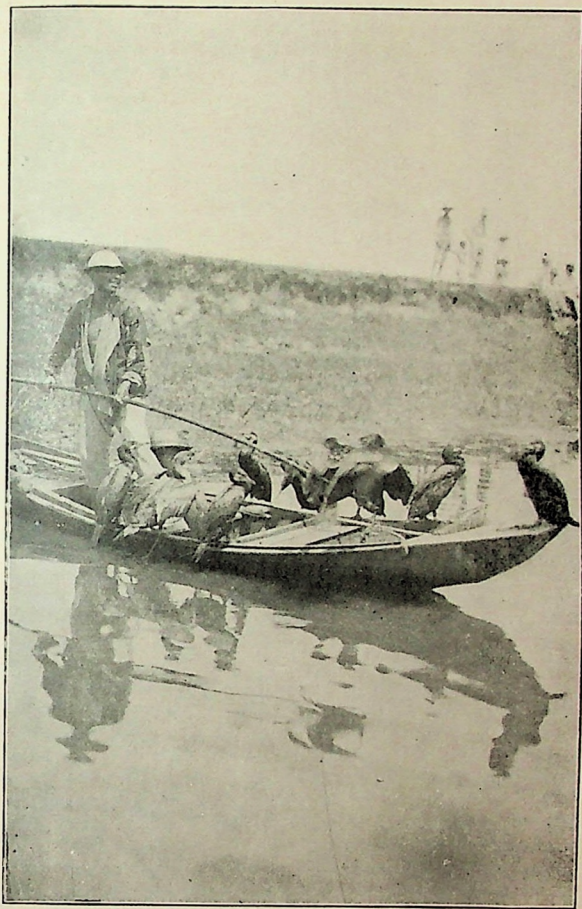
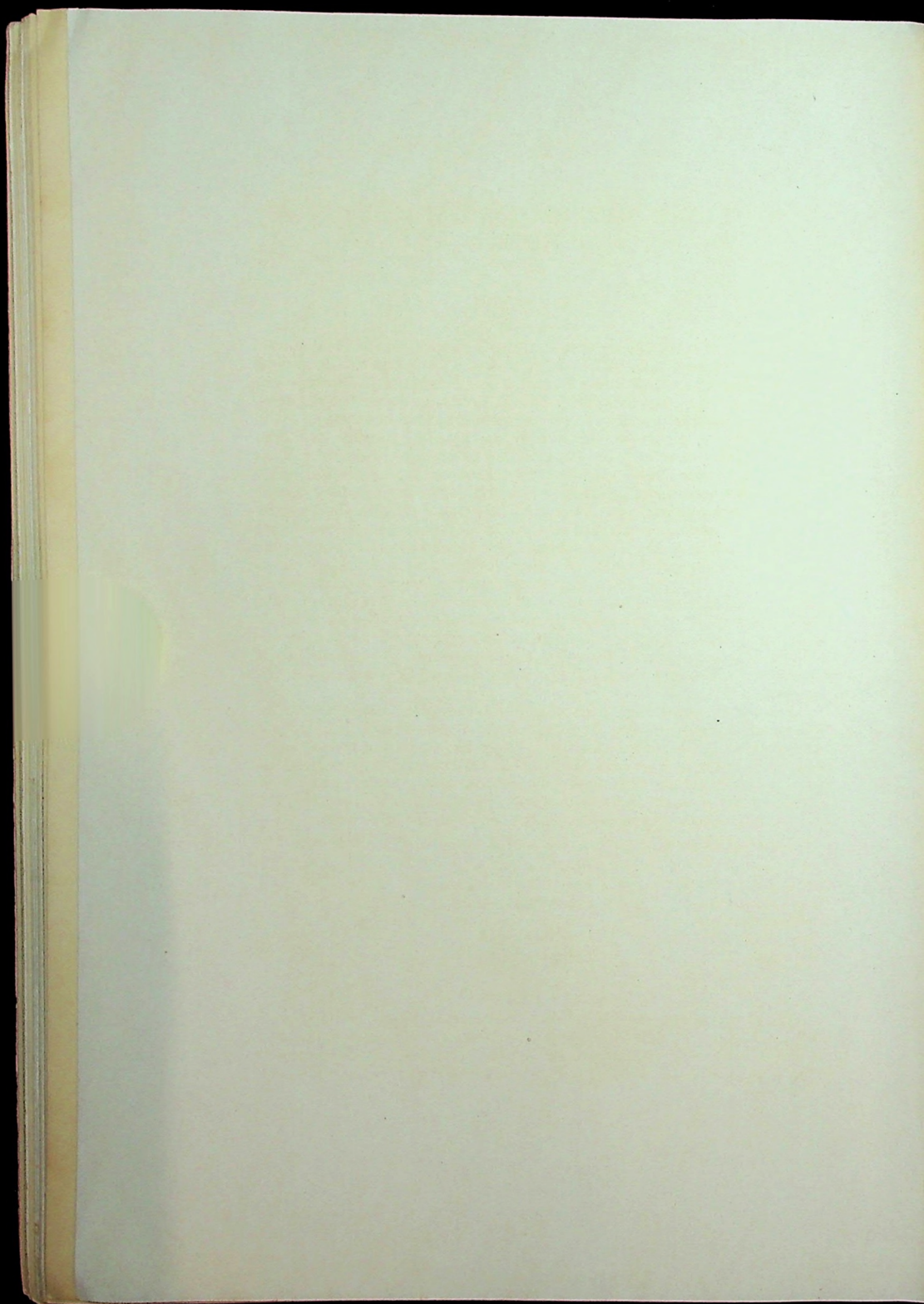


Photo by A. Hutchison.

Cormorants at Henli, where much interest was aroused amongst Visitors to the Regatta by these Birds catching Live Fish and Turtles thrown into the Water by their Owners.



SOME PLANT PATHOLOGICAL PROBLEMS OF CHINA

BY

R. H. PORTER.

Diseases of economic crops take a heavy annual toll in China, figured in terms of reduction in yield per unit area. This condition is natural in a country where the farmers have no knowledge of the nature and cause of, or control methods for, disease in plants, and where no organization exists which is prepared to extend such information to them.

Diseases of plants are of two types, namely parasitic and non-parasitic, depending on the cause. The latter type includes a large number of maladies which are as widespread in China as in any other country, and cause from slight to severe loss depending on many genetic and environmental factors. It is not the purpose of this discussion to deal with the cause or control of non-parasitic diseases however numerous and important they are. The attempt will be made to show how certain parasitic diseases are factors of prime importance in limiting China's food supply. In addition certain methods of control will be discussed, methods which if tested and put into practice will lighten the toll taken away every year. In the tables given for specific crop diseases it should be borne in mind that the percentages of loss do not include diseases due to the attacks of insects or those due to non-parasites. If such additional factors were included the total loss would be increased from 50 to 100 per cent.

During the past two years the division of plant pathology of the College of Agriculture and Forestry of the University of Nanking has been gathering, by means of surveys, information on the losses caused by crop diseases in East and North China. It may be of interest to list a few crops together with their common diseases. In the vicinity of Nanking, wheat is an important winter crop, and it is attacked by a number of diseases, the more destructive of which are as follows :

<i>Name of Disease</i>	<i>Causal Agent</i>	<i>Estimated loss</i>
Leaf Rust	<i>Puccinia triticina</i>	4%
Stripe Rust	<i>Puccinia glumarum</i>	6%
Black Steam Rust	<i>Puccinia graminis</i>	1%
Powdery Mildew	<i>Erysiphe graminis</i>	4%
Loose Smut	<i>Ustilago tritici</i>	2%
Flag Smut	<i>Urocystis tritici</i>	3%
Total loss for 1925		20%

All of the above mentioned diseases occur on wheat in the Lower Yangtze Valley, causing from slight to severe loss each year, depending on such factors as moisture, temperature, crop rotation and varietal differences. With the exception of powdery mildew all of these diseases

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occur in Northern Anhwei, Honan, and Shantung provinces in areas where wheat is the most important winter crop.

Barley is also a common winter crop in the Yangtze delta region and the common diseases occurring on this crop are summarized below :

<i>Name of Disease</i>	<i>Causal Agent</i>	<i>Estimated loss</i>
Cover Smut	<i>Ustilago hordei</i>	4.3%
Loose Smut	<i>Ustilago nuda</i>	3.6%
Stripe Disease	<i>Pleospora gramineum</i>	3.0%
Net Blotch	<i>Helminthesporium teres</i>	1.0%
Powdery Mildew	<i>Erysiphe graminis</i>	2.0%
Dwarf Leaf Rust	<i>Puccinia simplex</i>	trace
Black Stem Rust	<i>Puccinia graminis</i>	trace

Total loss 13.9%

It should be noted that many fields had a very high percentage of both smuts, the highest recorded being 24 per cent. in a field near Taiping Gate, Nanking. In the region of Hangchow it was common to find from 10 to 18 per cent. of the plants infected with smut, and a smutted plant is a complete loss.

Among the summer crops, corn, kaoliang and millet are important in East and North China, from Nanking north. We find parasitic diseases occurring on them as follows :

Corn :

<i>Name of Disease</i>	<i>Causal Agent</i>	<i>Estimated loss</i>
Smut	<i>Ustilago zeae</i>	4%
Leaf, Stalk and Sheath Spot	<i>Physoderma zeae-maydis</i>	3%
Leaf Spot	<i>Helminthesporium sp.</i>	5%
Soft Rot of Stalk and Ear	Cause undetermined	5%
Total		17%

Kaoliang—Survey of Three Provinces :

<i>Name of Disease</i>	<i>Causal Agent</i>	<i>Estimated loss</i>
Kernel Smut	<i>Sphacelotheca cruenta</i>	4%
Head Smut	<i>Sorosporium reilianum</i>	3%
Anthraxnose	<i>Collectotrichum lineola</i>	4%
Leaf Spot	<i>Cercospora sp.</i>	5%
Leaf Stripe	<i>Septoria pertusa</i>	4%
Total		20%

Millet—Survey at Weihsien, Shantung :

<i>Name of Disease</i>	<i>Causal Agent</i>	<i>Estimated loss</i>
Kernel Smut	<i>Ustilago crameri</i>	5%
Downy Mildew	<i>Sclerospora graminicola</i>	6%
Leaf Rust	<i>Puccinia sp.</i>	5%
Net Blotch	<i>Helminthesporium sp.</i>	1%
Total		17%

SOME PLANT PATHOLOGICAL PROBLEMS OF CHINA

Among fruit crops peaches are of considerable importance, yet brown rot (*Sclerotinia* sp.) and leaf curl (*Taphrina* sp.) cause from 10 to 20 per cent. loss every year.

It is unnecessary to present more data to substantiate the claim that plant diseases are limiting factors in crop production in China. In a country with such a dense population and harassed from time to time by famines, it is apparent that these losses are significant. Unfortunately little is being done at the present time to prevent this annual drain on China's food supply. The Chinese farmer has managed to eke out an existence for the past forty centuries without any aid, and perhaps he can continue to do so. Such an attitude, however, is hardly in keeping with the spirit of our modern conception of progress, hence we raise the question: What can be done to prevent these losses? It is in the answer to this question that numerous problems present themselves for discussion.

Of the twenty-five diseases mentioned above, not more than one is peculiar to China. Every agricultural region of any significance in the world has some or all of these diseases to fight. For most of them methods have been developed which will partially or completely keep them under control. But unfortunately the results of investigation along these lines cannot be applied directly to China without previous experiments, because of differences, as compared with other countries, in (1) varieties and types of crops grown, (2) soil and climate, and (3) economic and literate standards. The above factors also vary in different parts of China so that the problem becomes complicated by regional variations. The most pressing problem, therefore, is to determine to what extent western methods for disease control can be used in China. The solution of this problem depends upon carefully conducted experiments in as many typical areas as possible.

Among all of the various methods now in use in other countries for the control of crop diseases, there are two, which, in principle at least, may be adapted to Chinese conditions. They are (1) Seed disinfection in cases where diseases are known to be seed borne, and (2) The development of strains or varieties which are resistant to specific diseases.

If we refer again to the diseases listed in the preceding tables, we note that flag smut of wheat, the smuts and stripe disease of barley, kernel smut of *kaoliang* and smut of millet, all yield readily to control by seed treatment methods. For flag smut it is necessary, in addition, to practice crop rotation. All of these smuts are widespread and destructive, hence an effective control will give an increased yield. Numerous seed disinfectants, such as formaldehyde, copper sulfate, mercuric chloride and copper dusts, have been used in the west for many years, and new ones are coming on the market every year. The effectiveness of many of them in certain cases can hardly be questioned, but it is worthy of note that the effect of a seed disinfectant may vary within certain limits depending on the morphological and physiological characters of the variety of grain as well as the physical and chemical condition of the soil at planting time. A seed disinfectant must kill the disease with little or no injury to the viability of the seed. Furthermore, the cost of the chemical

is an important item in China, where poverty is so prevalent among the farming population. This latter factor is well illustrated by the following example. Copper carbonate dust is very effective in killing the spores of smuts which are carried on the surface of the seeds of wheat and *kaoliang*. This dust costs \$1.20 per pound in China and it requires from one eighth to one sixth of a pound to treat one bushel of grain. Fifteen to twenty cents per bushel may not seem high, but the writer ventures the assumption that the Chinese farmer will hesitate a long time before he will pay that price for a seed disinfectant. Recently we have been able to prepare in the plant pathology laboratory of the University of Nanking a compound which contains 80 per cent. as much copper as the commercial product mentioned above, at a cost of one-third that of the commercial mixture. One year's test indicates that this chemical is effective against the kernel smut of *kaoliang* and more tests are under way to determine its effectiveness on seeds of other crops. It is important that the most promising, as well as the cheapest, of these chemicals be tested out in a number of different regions to determine their effectiveness under Chinese conditions. Such a test will require from five to ten years, but when completed we should be able to recommend at least one seed disinfectant, preferably a dust, for each crop disease that is principally transmitted by the seed.

The most substantial method of disease control is by the development of varieties or strains which are highly resistant to specific diseases. A further study of the table of crop diseases will show that rusts and mildews are important diseases. Up to the present time, probably more study has been made by plant pathologists on control methods for rusts than on any other group of diseases. It is generally conceded that rust resistance offers the most hopeful means of control, in spite of the fact that the rust fungi are highly specialized to the point where one species may be divided into ten or more physiologic forms which react differently on different varieties of their host plants. All of the small grain crops are injured more or less each year by the attack of rusts and in addition most varieties of beans, including the cow pea, are attacked by rust. In North China one of the most serious diseases of flax is a species of rust. But there are numerous other diseases which can be controlled through varietal resistance. Certain wilt diseases caused by fungi which persist saprophytically in the soil for many years, yield readily to control by resistant varieties. The most outstanding examples are the fusarium wilts of cabbage, flax and tomatoes, the last two of which occur in China. Anthracnose spot of leaves and pods on garden and field beans is a very prevalent and destructive disease in China, but great progress in America has been made in its control by selection and breeding resistant sorts. In the case of certain of the smuts, namely, flag smut of wheat, a number of very promising varieties of wheat have been developed and tested by the United States Department of Agriculture and found to be highly resistant. Most of these varieties are under test and observation in the experimental plots of the College of Agriculture and Forestry at the University of Nanking. In addition, a large number of Chinese varieties have been inoculated with flag smut and their reaction will be studied.

SOME PLANT PATHOLOGICAL PROBLEMS OF CHINA

There are two methods by which resistant varieties may be developed, namely, selection and breeding. By close observation it is often possible to find one or more individual plants of a variety which exhibit resistance not only in the field, but which, when tested in the greenhouse, maintain the same resistance. Such a plant, if it possesses other desirable qualities, such as yield, adaptability to climatic conditions and ability to mature, may be grown in multiplication plots and their seed distributed. This is known as the selection method and it is based on individual plant variation which is a universal phenomenon. This method gives results more readily than the breeding method and is to be recommended whenever possible. But, since regions vary in length of growing season and in soil and other climatic conditions, it is usually necessary to determine the adaptability of resistant strains to each region.

Occasionally a variety possesses unusual resistance to a specific disease, but its yield or adaptability may be such that even without succumbing to the disease in question it may be inferior to a susceptible variety. In such cases it is necessary to resort to the breeding method by means of which the factor for resistance may be bred into a hybrid from a variety whose economic value is high. This method is a long process and is usually quite complicated, requiring the attention of a trained plant breeder as well as a plant pathologist. It is also true that in some cases a hybrid from two varieties may possess greater resistance than either of the parents, a fact often discovered by chance in testing for resistance.

It is the writer's conviction that, in a country where illiteracy among the farmer class is as high as it is in China, the development of resistant varieties by methods mentioned above constitutes one of the most important crop production problems in Chinese agriculture. It is slow and oftentimes expensive but the final results should justify the time and expense. Certainly it is more scientific to provide the farmer with a variety resistant to disease than constantly to supply him with medicine to cure the disease only temporarily. What more fascinating problem is there for anyone interested in crop production, and, incidentally, in social welfare.

A third problem which deserves brief mention is that of spraying for the control of diseases. The writer has evidence to show that, in the fruit regions of China where such crops as peaches, pears, apples, grapes and citrus are grown, diseases are limiting factors in their production. The question naturally arises, under what conditions can the Chinese fruit grower afford to purchase, not only the necessary fungicides, but also such appliances and machines as are needed in applying the fungicides. It is known that varietal differences and climatic factors are closely related to the kind of fungicide which may safely be used. Furthermore, the economic standards of the people prevent the purchase of any elaborate equipment. The writer is convinced that, by careful study and experiment, methods may be devised which will make it possible for the fruit grower as well as the gardener to profit from that knowledge which scientific investigation has given us.

The problems listed above cannot be met and solved by the plant pathologists alone, for they require the assistance or co-operation of at

least two other groups of scientists, namely, the chemists and the plant breeders. The manufacture of cheap fungicides and seed disinfectants is a chemical as well as a pathological problem, and the question of plant breeding for resistance is certainly a joint problem between plant breeders and plant pathologists.

But the most important problem of all is that of securing experienced men who can attack these problems intelligently and carefully. Such men must not only be trained in the pathological and genetical sciences, but they must also know something about crop production from the practical standpoint. Very often the perspective of the worker is of greatest importance in attaining the ultimate goal. Perspective, however, depends not alone on education in an institution of higher learning, but equally on practical experience. In order for an investigator to be of the most value in plant pathological science he must be able to see not only the tiny organism responsible for the disease, but he must get the viewpoint of the farmer as well. The problems are here waiting for solution by those who are vitally interested and trained for the task.

SCIENTIFIC NOTES AND REVIEWS

BIOLOGY

NEW BIRDS FROM CHINA: It is somewhat surprising, in view of all the work that has been done on Chinese birds, and the innumerable collections that have been made and sent to the Museums of Europe and America, that there should be any undescribed species or sub-species left. Yet recently two new forms have been added to the list. These are *Streptopelia chinensis forresti* and *Pnoepyga squamata magnirostris*, both described by Lord Rothschild in his paper "On the Fourth Collection of Birds made by Mr. George Forrest in North-western Yunnan" (*Nov. Zool. XXXII 1925, pp. 292-313*). The birds of Yunnan have received considerable attention during the last few years at the hands of collectors. La Touche, Rock, Forrest and others have all made extensive collections, and numerous new forms have been described from these. It is reported that Lord Rothschild is preparing a comprehensive work on the birds of this rich avi-faunal region. This will be welcomed by Chinese ornithologists.

BALANCED AQUARIA FOR EVERYBODY: Considerable interest attaches to the fact that numerous Shanghai residents are going in for small balanced aquaria. These enable them to study aquatic life in their homes under ideal conditions, and open a wonderful world of new interests. The creeks and ponds round Shanghai afford a plethora of interesting aquatic plants and animals, so that a well stocked aquarium is easily acquired and maintained. There are at least half a dozen water-weeds and plants that are suitable for an aquarium, and which maintain the necessary supply of oxygen for the other inmates; while as many species of small fish may be taken in the ponds and creeks which are eminently suitable. Amongst these are bitterlings and paradise fish, young carps of various species and bulheads. Some of these are pugnacious and so should not be placed with the gentler varieties.

SCIENTIFIC NOTES AND REVIEWS

The paradise fish are particularly attractive, as they are intelligent, alert fishes, with many interesting habits. They soon learn to take food from the human hand; indulge in fierce fights; display their gorgeous colours and markings when courting or angered, much after the manner of birds; and generally keep the observer thoroughly entertained.

Goldfish—black, white, blue, bronze, mottled and of mixed colours, not to mention numerous variations in form—may be purchased if the enthusiast so desires.

Important points in connexion with fish is to see that they are well fed and are not over-crowded. Life processes being faster in summer than in winter, fewer fish can be kept in an aquarium of a given size in summer than in winter.

To keep the water clear many species of river mussel may be had, while pond and river snails in great variety may be introduced to keep the glass clean. The mussels pass a continuous stream of water through their systems, thereby deriving food in the way of suspended particles of organic matter, as well as a supply of oxygen. The snails feed on the green algal growth that tends to cover the glass sides of the aquarium. Pond snails have one drawback in that they eat up the leaves of some of the more attractive plants. Crustaceans, such as various species of shrimps, prawns and crabs, as well as the larvae and nymph stages of many insects, such as dragonflies, stoneflies and mayflies, help to complete what may be looked upon as a perfect little cosmos enclosed within the four glass walls or the round sides of the aquarium, which, if properly balanced, needs but little attention from day to day.

CONDENSED MILK ELIMINATES BOVINE TUBERCULOSIS: An announcement made in the annual report of the Zoological Society of London to the effect that "The complete replacement of fresh milk by condensed milk has notably reduced tuberculosis" amongst the animals in the Zoological Gardens, Regents Park, is of considerable interest. According to an account in *The Daily Mail* (April 13, 1926), it was explained at the Zoological Gardens that many animals, especially ruminants, are liable to severe epidemics of bovine tuberculosis. Certain forms, such as the antelopes, seemed to die of nothing else, although living under extremely good conditions. Daily drinks of fresh milk were given. On the substitution of tinned milk for fresh a marked improvement was noted, and now tuberculosis has been completely stamped out in the antelope paddocks. The paper goes on to say:

"Infected milk does not produce bovine tuberculosis in human beings, but it may lead to tuberculous glands which have to be cut out, leaving badly scarred necks.

"The state of affairs in this country (England) is indeed strange. Uncertified ordinary milk is given to our children without question. The Zoo's monkeys are protected from it."

We may add that these facts supply food for thought for the medical profession and the public health departments in China, and we would make the suggestion that cattle, sheep and goat keepers and breeders might experiment with tinned milks. It would be a remarkably interesting thing if it were found that tubercle could be eliminated from a dairy farm by feeding calves on condensed milk.

GEOLOGY

THE LOWER CARBONIFEROUS FAUNA OF THE KUZNETSK COAL FIELD, ALTAI, SIBERIA: In the *American Journal of Science* (Vol XI, Fifth Series, No. 65, May, 1926, pp. 411-422), Mr. J. P. Tolmachoff discusses the above subject, having had access to practically all the material connected therewith that has been collected up to date. This material has been gathered at different times by many collectors of varying qualifications, with the result that there is considerable variation in its value. The author himself worked in the Kuznetsk Coal Field as a geologist with the Geological Survey of the Czar's domain, and "discovered some localities of Carboniferous limestones, in part with an abundant fauna." According to the author the Kuznetsk Coal Field is situated "in a huge graben between two horsts, the northern branches of the Altai Mountains, namely, Salair Ridge on the

west and Kuznetzký Alatan on the east. This graben probably had its origin in Lower Devonian time, a very important period in the geological history of Siberia; the subsidence going on during the whole of the Devonian, and to a lesser extent, probably even during the Post-Carboniferous. The graben is filled up with Devonian and Lower Carboniferous strata and the overlying, partly coal-bearing deposits of Carboniferous and Permian age."

"The geological structure is a rather simple one in the middle part of the graben and the folding is very moderate, but near its eastern and western borders the strata are folded very intensively, and the structure is complicated by faults and overthrusts. Eruptive rocks are located chiefly near the borders as well." As a result the fossiliferous marine strata, Devonian and Lower Carboniferous, appear only near the borders.

From the fifty-two localities where the material studied was gathered 211 species have been collected. These are divided as follows: 1 amphibian; 3 fishes; 6 trilobites; 4 cephalopods; 31 gastropods; 5 pelecypods; 100 brachiopods; 22 bryozoans; 6 crinoids; 10 tabulates; and 23 tetracorallines.

Of these, forty-four species occur also in the Dinantian of Belgium, four are common in the Viséan as well as in the Tournacium of Belgium, while ten are peculiar to the Viséan of Belgium. Over one fifth (43 species) of the fauna is known also from the English Mountain Limestone and Culm; while 61 species are related to species in the English Carboniferous strata.

Twenty-seven species are found in the Carboniferous of North America, most of them in the Mississippian; while 61 species are more or less closely related to the American ones. Details of the inter-relationships of these faunas, namely Siberian, European and North American, are carefully worked out in the paper, as well as deductions therefrom. The paper should prove of extreme interest to Chinese palaeontologists.

ERUPTION OF HAWAIIAN VOLCANO AND NATIVE SUPERSTITION:

With the appearance of a spectacular lava flow on the slopes of Mauna Loa, near Hawaii National Park, another prediction of Hawaiian natives came true.

Several weeks ago, Hawaiians of the district claimed they saw and spoke to a mysterious person whom they believe was Pele, the Hawaiian goddess of volcanoes. Her presence, they said, was a sign that volcanic activity of some kind would result. Early in April a beautiful flow broke out on the slopes of the mountain, causing visitors and residents to flock to the scene.

The last pronounced activity of Mauna Loa took place in 1919 and was similarly predicted by a Hawaiian cow-boy, who claimed he saw Pele in the form of a mortal in the Ka-u Desert. Previous lava flows have all been predicted by superstitious natives, who have no fear of the goddess, as she is known to them as a kindly influence.

VOLCANIC ERUPTION IN HOKKAIDO: At about noon on May 24, Mount Tokachi, a dormant volcano situated at about the centre of Hokkaido, the northernmost island of the Japanese group, broke into violent eruption, throwing out vast accumulations of molten lava, mud and boiling water, which poured down the sides of the mountain and over the country side, destroying numerous homesteads and villages. It is believed that the roll of human victims is very heavy, numbering something like 400.

According to eye witnesses there were three violent explosions, the third blowing off the flank of the mountain. This was almost immediately followed by a torrent of muddy water, which, rushing down in a wall 20-ft. high, engulfed the neighbouring lowlands. The torrent was caused by the release of the waters of a lake.

A. DE C. S.

PHYSICS AND CHEMISTRY

NEW ELEMENTS: The two remaining elements Nos. 85 and 87, which are respectively termed Eka-Iodine and Eka-Caesium are being actively sought for. Prof. Hahn reports failure to isolate No. 87 from a highly active mesothorium pre-

SCIENTIFIC NOTES AND REVIEWS

paration containing radium. Dolejšek and Heyrovsky of Prague and also Messrs. Druce and Loring claim observations of No. 75, which they suggest should retain the name of Dwi-Manganese.

RELATIVITY: The extraordinary dilemma created by Miller's ether drift results are discussed by Prof. Eve in "Nature" (April 10th). This is the best summary recently published on the matter.

FLEXIBLE GLASS: Drs. Fritz Pollak and Curt Ripper of Vienna have produced a flexible but transparent material which it is expected will have important industrial uses. It is a colloidal product of carbamide and formaldehyde, and is reported to have the following properties:—hardness (Mohr Scale) 2.95; specific gravity 1.44; crushing strength 2230 Kilogrammes per sq. centimetre; is resilient and flexible, does not splinter; resists atmospheric influences and, to a certain extent, acids; is a good insulator; can be turned and also pressed together; and mixes with organic dyes.

LIGHT ALLOY: A Magnesium alloy termed "Electron," lighter than aluminium (density 1.8) and with greater strength and plasticity than aluminium, is reported to have been produced by Sterling Metals, Ltd., Foleshill, Coventry.

TRANSMUTATION OF ELEMENTS: *The Scientific American* reports failure of the attempt to repeat Miethe's transmutation of mercury into gold by mercury lamps, and suggests that the mercury was initially contaminated with gold. Dr. Miethe asserts that his conditions were not reproduced correctly and denies contamination.

Drs. Smits and Karssen of Amsterdam claim to have converted lead into mercury by a similar method, and also by a method resembling Nagaoka's mercury-gold process. In all cases tremendous energy is required.

H.C.

MEDICINE

P. U. M. C. BIBLIOGRAPHY. The Bibliography of the Publications from the Laboratories and Clinics of the Peking Union Medical College for the first decade (From July 1, 1915 to June 30, 1925) is a striking testimonial to the valuable scientific research carried on in that Institution. The field covered in that decade is enormous, including those phases of Anthropology, Botany, Chemistry, and even Physics that have a bearing on Medicine. In the realm of this last, investigations appear to have been directed towards every possible phase of interest. It were futile to attempt to select, at random, from such a wealth of contributions to the advancement of medical science, since each, in its relation to the whole, is as of great importance as any other.

The great value of the Bibliography lies in the fact that it proves conclusively that the Peking Union Medical College deems no subject, no clue, too insignificant to warrant exhaustive investigation in the interests of abortion of and cure of disease. In view of this remarkable showing, it may appear somewhat ungracious to offer a criticism of the format of this Bibliography. There is no question, however, but that its usefulness would be greatly increased by the addition of a separate alphabetical index to subjects independent of these, as well as a statement of the number of contributions to these subjects.

SHANGHAI COUNTRY HOSPITAL: There is no event in the medical world that can have quite the same interest, at the moment, to the local practitioner as the completion and opening of the Country Hospital. Without intending to reflect in any way upon Shanghai's facilities hitherto in the way of hospitals, it has

long been apparent that the growth of the city, with its attendant increase in need of medical services, has warranted something better than has been available up to the present. This need has at length been supplied through the generosity of a donor who prefers to remain anonymous. Though he refuse to permit the public to do him the honour that is his due, he is doubtless consoled by the knowledge that he has earned their heart-felt gratitude.

Not only does the new hospital embody the very latest facilities for the treatment of the ill, but the attempt has been successfully made to get away as far as is possible from the institutional character.

DISEASE TO COUNTERACT DISEASE: The public mental hospitals of Great Britain have adopted the treatment of paralysis recommended quite some time ago by the Viennese specialist, Wagner von Jauregg, at a Medical Congress held at Wiesbaden. The treatment consists in inoculating the paralytic with the plasmodium of benign tertian malaria. As originally carried out in Britain, the blood of a paralytic who had thus been inoculated was employed, in diluted form, for the treatment of others. Not only was it found that considerable prejudice existed against this practice, but the malarial parasite quickly dies in the blood upon its becoming cold, and hence the preparation could not be transported to any distance.

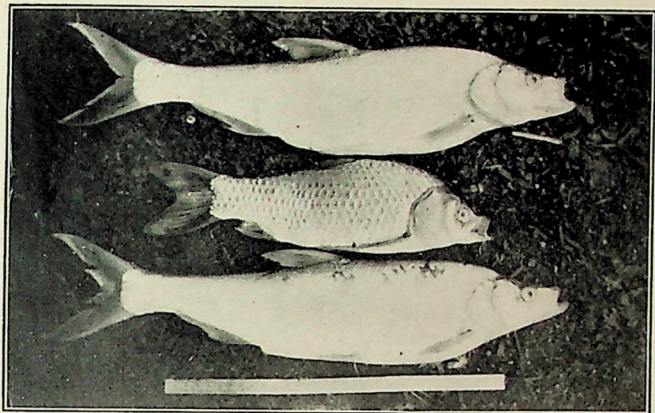
The latest practice involves the cultivation of malaria-bearing mosquitoes which are to be found in Romney Marsh. These are first permitted to feed upon paralytic inmates of asylums for the insane, being kept in specially constructed cages and under specific degrees of heat and moisture. These are then encouraged to bite the paralytic who is to be treated. Great difficulty is experienced at times through the mosquito refusing to bite, and it has been then found necessary to kill the mosquito, dissect the head, and remove the salivary glands for the purpose of injecting them into the patient.

The treatment has, of course, been found most effective in the early stages of hemi- and para-plegia, while the results in advanced stages are so variable as to afford little or no basis for definite conclusions as to its value.

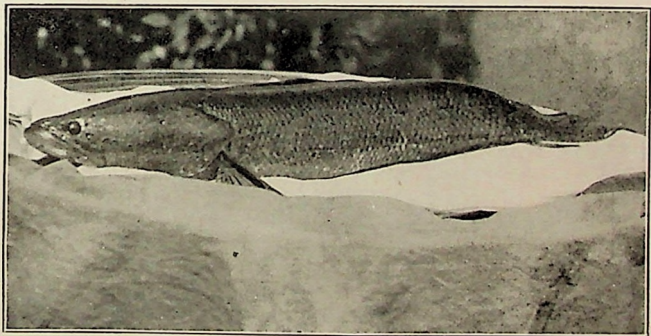
Dr. von Jauregg's first experiments were conducted as far back as 1887, since which time the treatment has made great strides on the Continent.

ANTHROPOLOGY

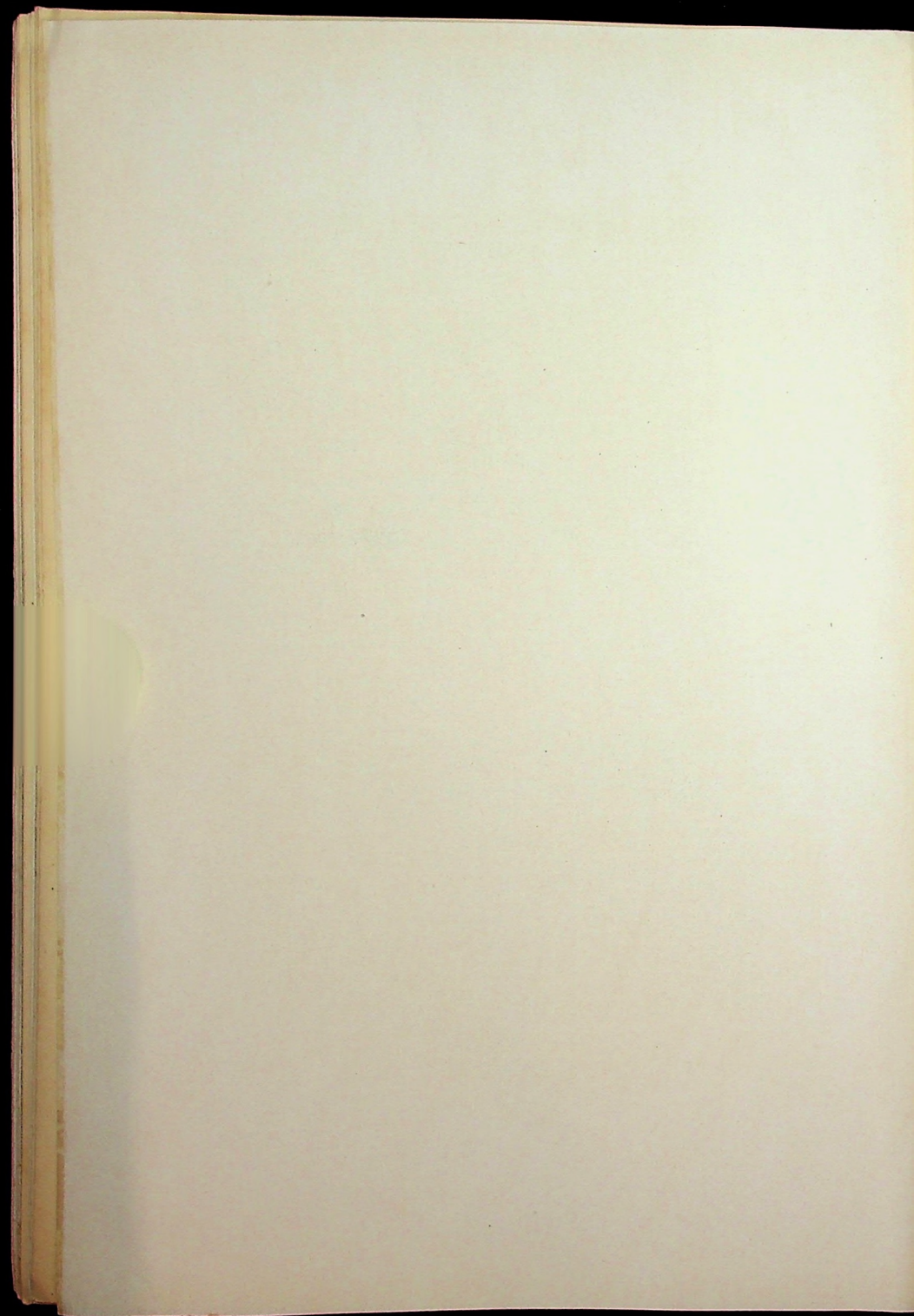
ANTHROPOLOGICAL RESEARCH ON THE TIBETAN BORDER: Mr. J. Huston Edgar, a well known missionary of West China, has recently passed through Shanghai on his way to England on furlough. For twenty-four years, Mr. Edgar has been stationed at Tatsienlu, on the Sino-Tibetan border, where, in addition to his itinerant mission work, he has carried out a considerable amount of very valuable anthropological investigation. A member of the Anthropological Society, his special line is "Cultural Anthropology." His investigations have led him to various interesting conclusions and theories, which, in due course, will be laid before the scientific world. Ever since 1913, Mr. Edgar has been finding stone implements, which are scattered all over the Tibetan borderland in suitable sites, and testify to the existence once of stone-age man in these parts. He has written extensively upon the anthropology of West China and neighbouring Tibet; and it is safe to say no European knows more of the subject than he does, as well, of course, as of the geography, products and general conditions of these wild territories. Two or three years ago he was mainly responsible for the organization of a society called "The West China Border Research Society," which puts out a Journal embodying the results of the researches of the members.



Two Fine Culters and a Carp caught recently by Mr. W.
G. Greenslade in a Pond in Shanghai.



The 4½ pound Serpenthead caught recently by Mr. F. A.
Sampson Jr. in a Pond in the Shanghai District.
(See *Fishing Notes*)



SHOOTING AND FISHING NOTES

SHOOTING

PROHIBITION OF SHOOTING FROM MARCH 31st TO OCTOBER 1st IN KIANGSU: Recently the Civil Governor of Kiangsu has issued instructions to the Shanghai Taoyin to the effect that in view of the continuous hunting being carried on in the province, and, inasmuch as the yearly hunting period is fixed to commence on October 1 and to run until the end of March the next year, it is therefore necessary that all city magistrates of Kiangsu be instructed to the same effect in order that continuous hunting after March will not be repeated.

This, on the face of it, looks like a real attempt on the part of the Kiangsu authorities to protect and preserve the game birds and animals of the province from undue persecution and possible extermination at the hands of ruthless pot-hunters. A more careful examination of the facts, however, leads us to wonder whether it is a wise or satisfactory action on the part of the authorities, or one likely to bring about the desired end.

In the first place it must be noted that in Kiangsu more shooting of game for sport by foreigners and Chinese is and has always been done than in any other part of China. Secondly, the law which it is proposed to enforce, and which we believe was passed about the year 1913 or 1914 by the Republican Government in Peking, makes no provision against the commercial exploitation of game birds and animals in China. It merely lays down an arbitrary closed season, which acts indiscriminately and without any consideration of the breeding and migration seasons of various species of game birds and wild fowl. From October 1st to March 31st pheasants, partridges, ducks, geese, snipe, deer, hares—in fact, any kind of bird or beast that can be turned to commercial account, may be slaughtered in any numbers and by any means, and exported from the country on a wholesale scale, either in cold storage or put up in tins. Passenger steamers calling at Shanghai may take on unlimited quantities of game, and, with cold storage installations aboard, can and do take in supplies sufficient to last them the round trip. Chinese packing companies are free to can and export large quantities of pheasants and other such birds. There is a large demand in the Strait Settlements for canned game from Shanghai. There is nothing in the law to prevent game birds and animals being trapped and poisoned: in fact, as far as may be judged, trapping may go on all the year round. The other day, weeks after all foreign sportsmen had ceased shooting pheasants, a coolie was seen entering Shanghai from the country with two baskets full of plucked pheasants.

The closed season, as prescribed by law, completely ruins two of the best shooting periods to be had in China, namely the so-called "spring snipe shooting." This is concerned with the two species of snipe known as "spring snipe," namely the pintail snip and Swinhoe's snipe. These birds do not make their appearance in Kiangsu till April on their northward migration and again appear in September on their return journey. Foreign sportsmen particularly look forward to this shooting, while native pot-hunters earn a good income from it by shooting the fat birds for the market. Duck shooting is also interfered with by the law. In other words, while it interferes with shooting of certain kinds of birds, which foreign sportsmen are particularly fond of, and which, by the very nature of their habits need no protection, and at the same time form an important food item, it does literally nothing to protect such game as pheasants, partridges, deer and hare, which do need protection, particularly against commercial exploitation. We believe that this peculiar legislation is not directed against the foreign sportsman, as some have suggested, but owes its shortcomings to ignorance on the part of those who formulated and passed it.

Since destructive criticism should always be followed by constructive criticism, we would suggest that the game protection law in China be altered, and that (1) a close season be established for all indigenous game birds and animals from the end of the China New Year holidays, or the last day of February, to September 30th, but that there should be no close season for migratory species such as wild duck,

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geese, swan, bustards, snipe, woodcock and waterfowl generally; (2) all commercial exploitation of game shall be under strict police surveillance, the sale of indigenous game birds and animals for food being strictly prohibited out of season; (3) the export of game birds or animals, either in cold storage or preserved in tins, be absolutely prohibited for a period of years, and then only allowed to be resumed to a limited extent and under strict police or customs surveillance; and (4) the capture of game birds and animals by snares or traps or by poisoning shall be made illegal.

If these means are adopted to protect China's game, it will not be long before such valuable species as the pheasant and partridge will regain their former abundance, and China's game reserves once more become a valuable national asset.

SNIPE, TEAL AND A GUN CLUB IN HANGCHOW: The following letter has been received from a Chinese sportsman who ranks high in the sporting fraternity of the China Coast. We are glad to note that Hangchow is forming a gun club, and feel sure that Shanghai will welcome visitors to compete in the annual championship shoot which is held in Shanghai at the end of the clay-pigeon shooting season and just before the pheasant season opens.

Dear Mr. Sowerby,

Please accept my sincere thanks for yours of the 17th and also for your information re Irish Setters. As I know Mr. Bates personally, I shall communicate with him direct.

In your issue of the Journal of this month, I notice in your Shooting and Fishing columns, that Mr. Bates bagged the first snipe and first summer teal this season in the Tahu district. Perhaps your readers will be interested to know that just before the close of the season (March 31st, according to the local police order) while shooting snipe towards the end of the day in the paddy fields between the Tiger Hill and the West Lake, the report of my gun put up two summer teals, one of which was bagged. I do not want to claim the credit of bagging the first bird; for, though summer teals are not plentiful here, snipes are found throughout the Winter and Spring, scattered all over the low land in this district. Unlike their migratory cousins that come in large flocks about this time of the year and that are fat and lazy, the Winter snipe are exceedingly sporting birds. Many of my friends are novices, and, for fear of being accused of being in league with some ammunition makers, I hate telling them to pop at these more or less solitary Winter birds.

We are arranging to open the Railway Recreation Club, and, after this I wish to make the embryonic Hangchow Gun Club a subsidiary to the former and better financed club.

With best regards,

Yours sincerely,

Z. W. KWAUK,

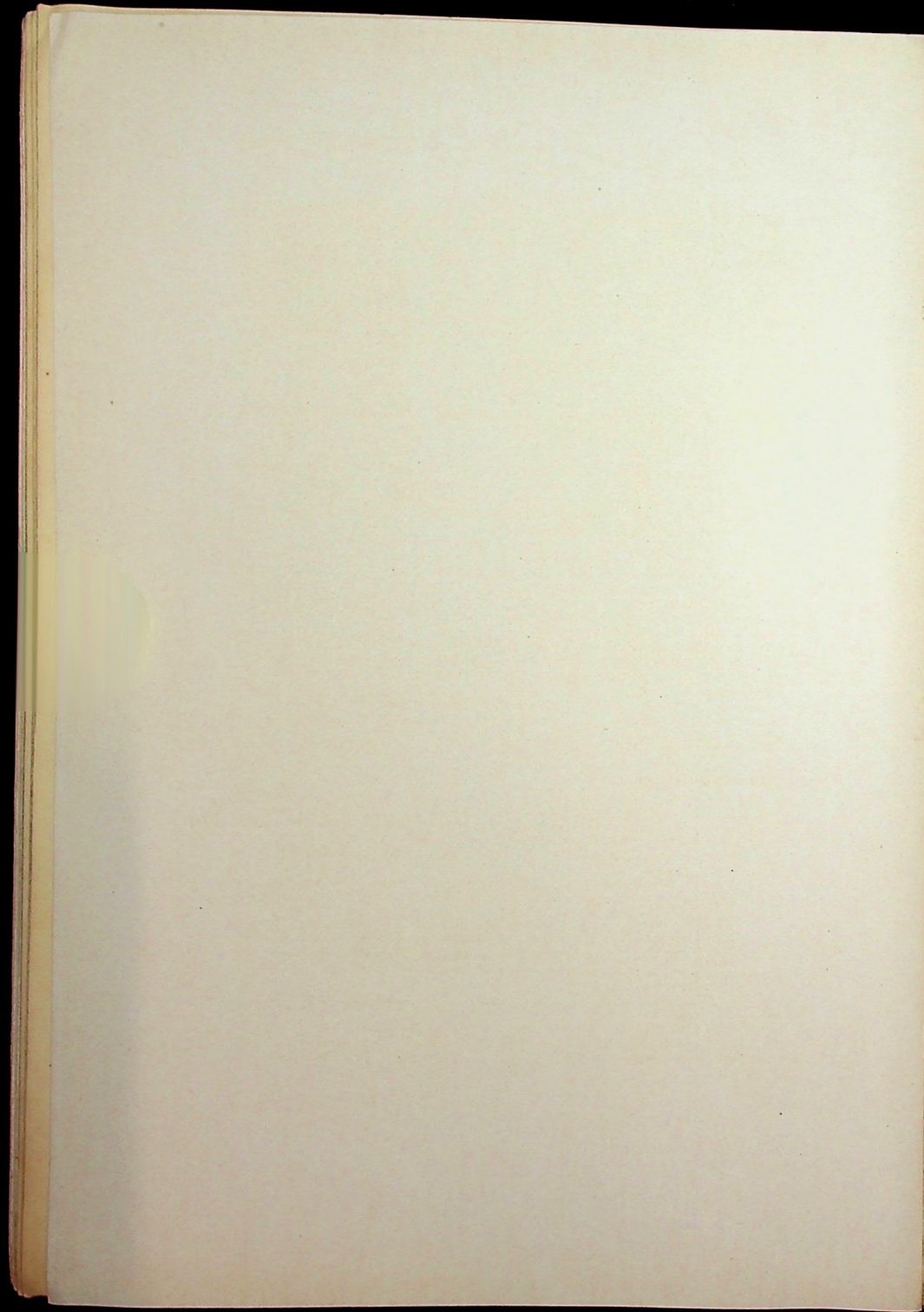
Hangchow, May 10, 1926.

SHANGHAI REVOLVER CHAMPIONSHIP SHOOT: On May 31, the annual .455 calibre revolver and pistol championship shoot, held at the Miniature Rifle and Revolver Club's range at 151 Avenue Haig, Shanghai, closed. Open throughout the month of May to all comers for practice, the ranges were in daily use. The competition was won by Mr. E. Landau, who received the gold medal. He made a score of 165. Silver medals were won by Mr. P. Kowk, with a score of 164, and Mr. R. F. O. Block, with a score of 153. In the competition the standard American 20 yard target with a 2.72 inch bullseye was used. Ten shots at 15 yards and ten at 20 yards were allowed each competitor. Representatives of the Revolver Club held the first five places in the competition, and also the seventh, while members of the S. V. C. Machine Gun Company came next as a group.



Photo by W. Beatty.

Two Shanghai Sportsmen and some nice Ides or
Chub taken in a Pond at Chinkiang.



SHOOTING AND FISHING NOTES

FISHING

ANGLING IN SHANGHAI: For some reason fishing on the part of Shanghai anglers has not assumed any prominence in the life and interests of the community this season. Possibly a reason for this is that several enthusiastic fishermen are on home leave, while the local Angler's Club has given up the rental of the large pond in which the members used to catch carp, knife-fish, culters and an occasional ide. This pond was stocked with young Mandarin fish in the hopes that these bass (which they actually are) would turn out to be really sporting fish: but with the exception of a large specimen which was netted, the fish put in were never seen or heard of again. Fishing has been going on, however, and several catches of knife-fish and culters have been made. So far we have heard of no parties visiting Hangchow for the excellent flyfishing for rainbow carp and culters that may be had in that district.

CULTERS, CARPS AND SERPENT-HEADS: Since the season started, the following two letters have been received:

Dear Mr. Sowerby,

I thought you might be interested to know that I have been fishing on two occasions this season, with a fair amount of success. At first I tried the fly, about six weeks ago, but was not fortunate enough to hook anything although I rose quite a few small fish, therefore I am looking forward to getting some good sport with them later on.

On the second occasion, June 6, I was more successful. I was using bait (Bradlings) and got a very fine catch; really the best I have had since my arrival in this country, both as regards numbers and size. I got five fish altogether. Three Culters, and two Carp. The largest Culter was a beauty, 19-ins. in length and weighed 2½ lbs. The second was 18-ins. in length and weighed 2 lbs. The third (Carp) weighed 14-ozs. The other two fish which were small, I returned to the pond.

I have photographed them and am enclosing a print of the three first together and one of the two Culters* (Red Fins) together, as I think they make a fine pair. So if you care to publish them in your Magazine you are quite at liberty to do so.

Yours faithfully,

W. G. GREENSLADE.

P.S.—I might state that they fought splendidly.

Dear Mr. Sowerby,

I am leaving you the three photographs that A. E. Lanning took of the blackfish†. I am not too sure that they will be of any use for publication purposes, as the fish was alive when he was photographed and it would not have been easy to string him up and show him to the best advantage. If you want the negatives I can get hold of them from Mactavish's, as I gave them to be enlarged yesterday.

I also leave one jaw: the other jaw was snaffled by a rat last night, just before I went down to the office: the teeth on the latter were all small and spiky like the teeth at the front of the former.

Details: Weight, 4½ lbs: length, 24½ inches: girth just behind the gills or rather the fins, 10½ inches. Bait, worm from a manure heap. Hook, about size 4. Cast "Winchester Trout" from Squires Bingham. Line, a very fine one, such as I use for dace and roach at home. Rod, my usual all-purpose, 8½ foot, steel rod.

**Culter erythropterus*.

†The Chinese name is Hei-yü, literally "black fish." The English name for this species is serpenthead or murrel; the scientific name *Ophiocephalus argus*, Cantor.—Ed.

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I believe that I cast a handful of bran into the water just before I caught him : this would have had the effect of attracting the small fishes to the spot, and these in turn would attract a predatory fish.

Yours

F. A. SAMPSON, Jr.

Shanghai, June 11, 1926.

Since the above letters were received Mr. Greenslade has taken several more fish, one a culter weighing $2\frac{1}{2}$ lbs., while Mr. Sampson caught another serpenthead, weighing $1\frac{1}{2}$ lb. and many smaller fish.

A GOOD CATCH AT CHINKIANG : A couple or so years ago a party of Shanghai sportsmen, consisting of the late Mr. C. D. Field, Captain J. W. Carle, Captain W. Beatty and Mr. W. Brooke, while at a loose end on a holiday at Chinkiang, decided to indulge in a little fishing. They selected a pond near the Treaty Port, and commenced operations, using ordinary light tackle with paste for bait. To their surprise they began taking fish, apparently some species of carp, possibly Chinese ides or chubs, at a pleasing rate. At first the Chinese owners of the pond were much amused at the proceedings and gave every encouragement ; but, when at the end of an hour some thirty plump fish, weighing about $\frac{1}{2}$ -lb. each had been taken from the pond, their attitude changed and they ordered the foreigners to desist. The accompanying picture shows part of the catch and two of the sportsmen.

A GOOD FISH STORY : Recently in the local press a good fish story was published. This was to the effect that a large marine fish—species not mentioned—was caught by a fisherman in the Oslo Fjord in Norway and upon its being opened a valuable diamond ring was found in its stomach. The ring on examination was declared to be one lost by an American lady on the coast of Florida several years ago and valued at G.\$25,000. It was passed on to the U.S. Consul, who is trying to find and notify the owner. Such an occurrence, though sounding far-fetched, is by no means impossible, when two facts are taken into consideration, namely, that many species of fish will readily seize and swallow any glittering object they may see moving in the water ; and that many species of marine fish are known to undertake tremendous journeys, often spanning half the globe while on their migrations. The tunnies, for instance, do both of these things, as also do swordfishes, tarpon and other large species. Incidentally many smaller species of fish such as mackerel, herrings, pollacks, capelins and spratts also migrate over long distances. A very interesting book on this subject has been written by Alexander Meek, entitled "The Migrations of Fishes."

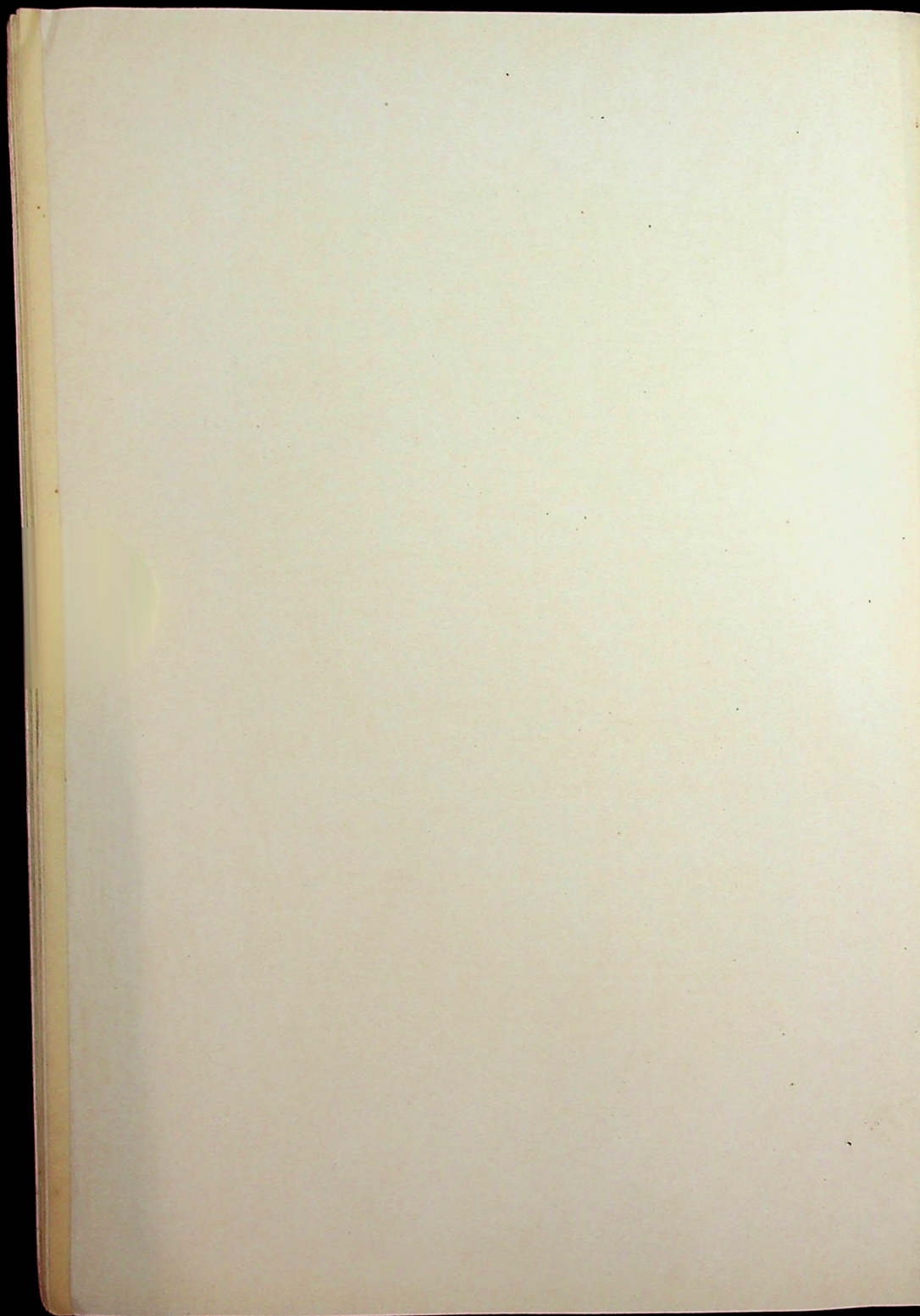
A. DE C. S.

THE KENNEL

THE CHINA KENNEL CLUB : At a recent meeting of the committee of the China Kennel Club it was decided to extend the membership of the club, if sufficient applications are received, on the basis set out below, a Register, Stud Book, etc., to be opened as soon as possible. Will anyone interested please communicate with the Secretary *in writing only*. The views of prospective members will be appreciated.



Mr. H. Schoenherr's Alsation Dog, "Klaus von Warnowtal,"
a Prize-winner and the Sire of many Prize-winners
in Shanghai.



SUGGESTED PURPOSES OF CLUB.

- (a) Registration of China Dogs.
- (b) Exchange and Mart of Dogs.
- (c) A Kennel Club Gazette.
- (d) Organization of Field Trials.
- (e) Organization of Dog Shows.

PROPOSED SUBSCRIPTIONS.

\$25 per annum for full Voting Members, to include free registration and free exhibition of one dog annually and free admission to Shows.

\$10 per annum for Associate Members, to include all privileges as for full Members, except voting powers.

These conditions approximate closely to those of the British Kennel Club, on the general lines of which it is hoped to model the China Kennel Club, although membership naturally will be international. The Committee at present is representative of three nations.

A FINE ALSATIAN: An interesting letter has been received from a Shanghai dog-owner, and as the facts mentioned in it will doubtless prove of interest to other owners of Alsatis and to dog-lovers generally, we publish it here. We welcome correspondence and notes from all dog fanciers and breeders in China and it is hoped that sufficient interest has now been awakened to ensure successful dog-breeding and rearing in this country.

DEAR SIR,—In reply to your letter of the 17th I beg to state that I am an old Subscriber to the Journal and as Dog Fancier greatly interested in the June issue. In this connection it may interest you to know that my Shepherd Dog "Klaus von Warnowtal," who won the 1st prize in the 1924 Show, not competing in the Shows of 1925 and 1926, can show the following record with regard to his offsprings:

1925:	1st	Prize	Puppy	Class:	Baron von Kettler
1924:	1st	"	Dog	"	Hilo von Hawai
"	1st	"	Bitches	"	Hexe
"	1st	"	Puppy	"	Rupert von Hentzau
"	2nd	"	"	"	Laddie

My Dog is the father of all the above five, whilst the dam of the two prize puppies in 1926 is "Lady Patricia," who won 1st prize in 1925 and 3rd prize in 1926.

I am enclosing a photo of my dog and remain,

Yours faithfully,

H. SCHOENHERR.

A GOOD GUN DOG FOR CHINA: With a view to finding a Gundog to meet the peculiar and difficult conditions in China a litter has been bred from Mr. Brian Bates' prize winning Labrador retriever, "Drinkstone Rex" and his prize-winning Irish setter bitch "Ruby of Kiangsu," sister of the champion bitch, 1925, "Patricia of Kiangsu." It is hoped that the progeny will prove to have the retrieving qualities and resistance to ticks and grass-seeds of the sire with the ranging qualities and nose of the dam. Should this litter show any promise further breeding will be undertaken, and Mr. Bates hopes to popularize this breed under the coined name of "Dorsetts." At the time of writing the puppies are two weeks old, are all black, and are doing well.

A. DE C. S.

THE GARDEN

In view of the very general interest displayed in China and the Orient generally in horticulture a "Garden Section" will be included in the *China Journal* from this issue on. We shall be very pleased to receive notes of interest from our readers. China is the home of many of our finest garden flowering plants, and as such is of unusual interest to horticulturalists the world over.

SHANGHAI HORTICULTURAL SOCIETY SHOWS

ANNUAL ROSE SHOW

The annual rose show of this Society was held this year in the garden of Mr. Sydney Barton, His Britannic Majesty's Consul General in Shanghai, and President of the Society, on Saturday, May 15. There was a good display of beautiful blooms, testifying to the energy and interest of the members.

The chief competition was for the gold medal of the National Rose Society of England, which was won by Mrs. C. S. Peacock. This prize is given for the twelve best blooms of six different kinds of roses. The second prize was won by Mrs. Hayim and the third by Mrs. E. E. Pearsons.

The judges were Captain Dyson, Captain Grant, and Judge Peter Grain, the prizes being presented by Mrs. Barton.

Mr. D. MacGregor, Superintendant of Public Parks in Shanghai, had a beautiful display of red roses; while other flowers, such as pansies, were shown.

SPRING FLOWER SHOW

The 51st annual spring flower show of the Society was held on Wednesday, June 2, at the Town Hall, Shanghai, and was generally admitted to be one of the best ever held in this city. A magnificent display of flowering plants, blooms, and ferns emphasized the keenness of Shanghai horticulturalists, both amateur and professional. Begonias, gloxinias, dahlias, sweetpeas, amaryllis, chrysanthemums, fuchsias, canterbury bells, geraniums, hydrangeas, lantanas, lobelias, lilies, nasturtiums, marguerites, salvias, and many other beautiful species were in evidence; as well as many varieties of ferns, Japanese dwarf trees, and a fine array and variety of garden vegetables. Lack of space prevents the inclusion here of the long list of prize-winners; but the Society is heartily to be congratulated on the success of the show and the enthusiasm of its members.

SOCIETIES AND INSTITUTIONS

PEKING INSTITUTE OF FINE ARTS

PHOTOGRAPHIC EXHIBITION.

From April 21 to April 28, there was held at the Peking Institute of Fine Arts a Photographic Exhibition open to amateurs only. There were thirty-four individual exhibitors with a total of three hundred and twenty-four photographs entered. The photographs which covered a wide range of subjects of local interest and of other parts of the world were passed upon by a committee of judges consisting of Messrs. Kung-pah T. King, M. E. Weatherall and H. C. Faxon. All entries were judged on a basis of a combination of technical excellence and artistic merit, the identity of the photographers being unknown to the judges.

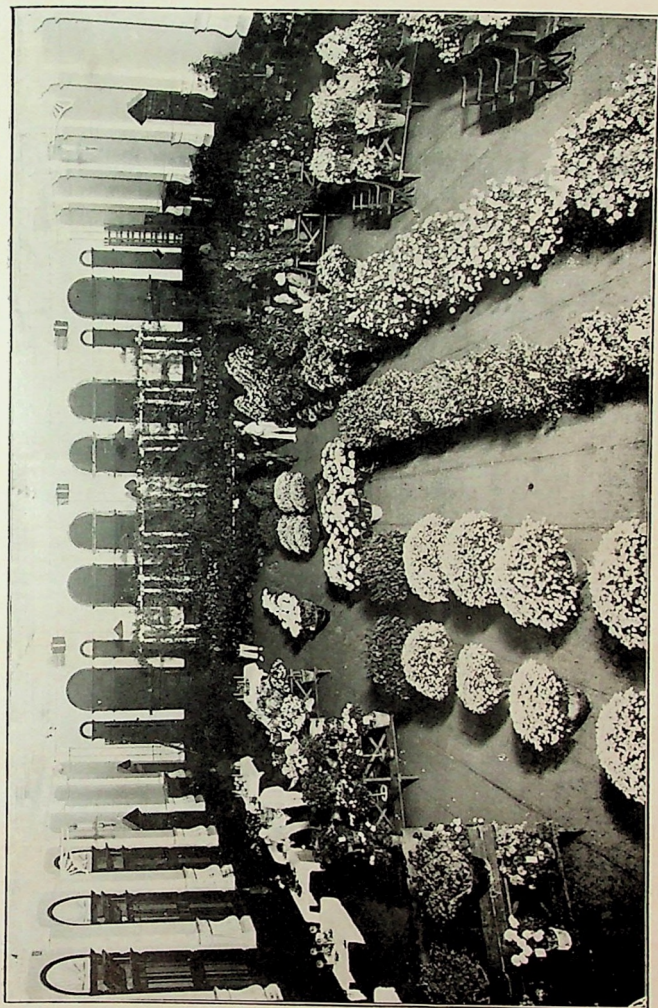
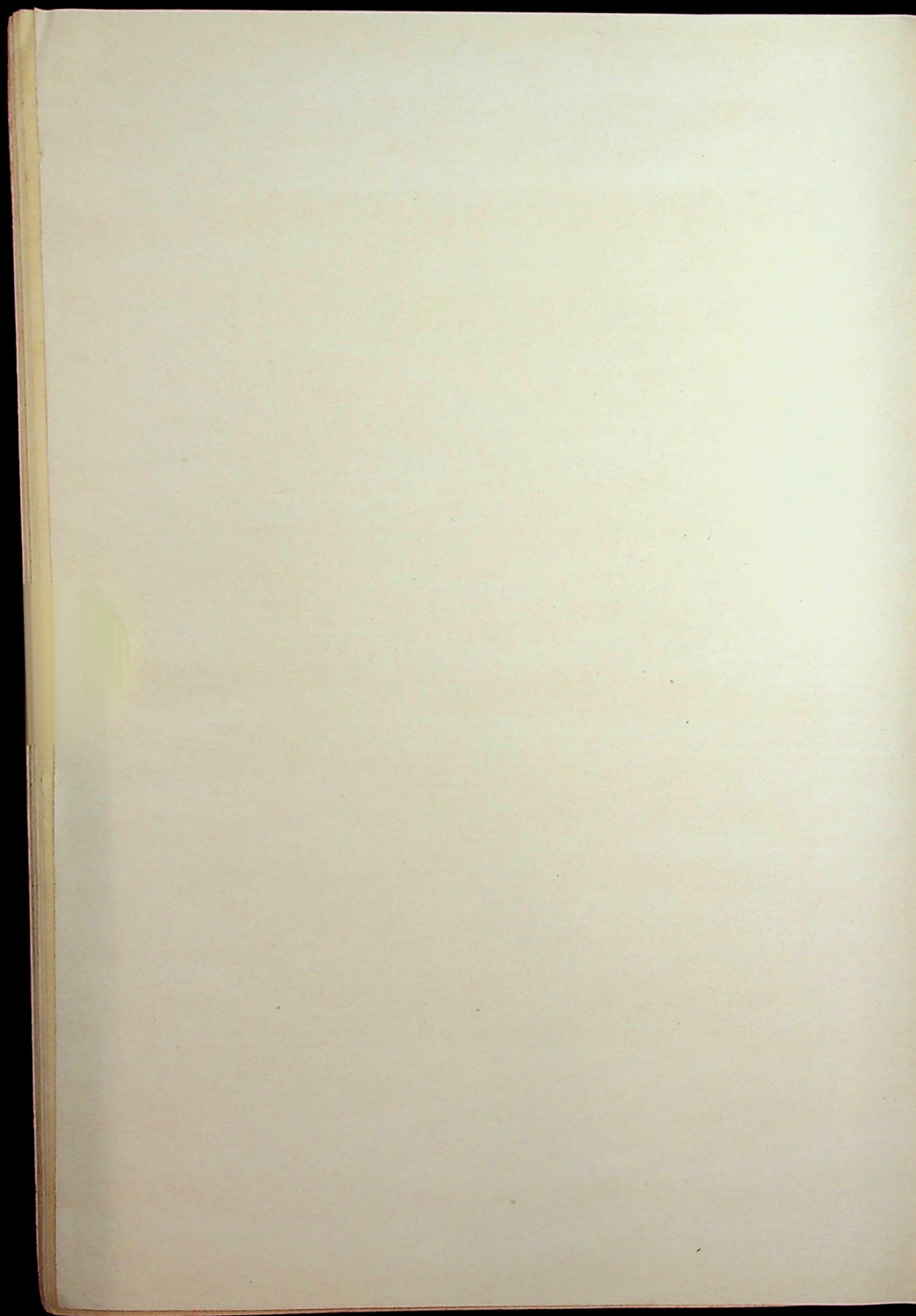


Photo by Ah Fong.

A View from the Balcony of the Annual Spring Flower Show of the Shanghai Horticultural Society, held in the Town Hall, Shanghai, on June 2nd last.



SOCIETIES AND INSTITUTIONS

It was a matter of much interest after the awards had been made to find that with one exception the winners of prizes and honourable mentions were Chinese enthusiasts, members of an amateur photographic society, the Peking Kwang Sher (北京光社). This society was organized in Peking in 1923 by Dr. W. L. Ch'en and three other amateur photographers, with the purpose of encouraging each other and the general public to study and appreciate the beauties of nature by means of photography. From this small beginning the society has now grown to a membership of thirty-five, and has held two public exhibitions in Central Park, Peking, one in the spring of 1924 and the other in the autumn of 1925. The aim of this association is to interest all who are photographers and to help amateurs to learn all branches of photography so that they can carry out artistic effects themselves. Most of the members now have their own dark rooms, and the Peking Kwang Sher is to be congratulated on having achieved so much in a short time.

The Peking Institute of Fine Arts hopes to make the exhibition of photographs an annual affair, and in time it may be possible to open this exhibition to photographers in other parts of China. The reproductions shown here of the prize-winning exhibits will indicate the high quality of the photography of the competitors.

ROYAL ASIATIC SOCIETY, NORTH CHINA BRANCH LECTURE ON TIBET

Taking as his subject "Geographic Control and Human Reactions in Tibet," Mr. J. Huston Edgar, F.R.G.S., F.R.A.I., a missionary of a quarter of a century's standing on the Tibetan border of China, read a highly instructive and interesting paper before the above Society on Wednesday, June 2, at the Society's headquarters on Museum Road, Shanghai.

As the title suggests, the burden of the paper was that the Tibetans, their culture and civilization, are the result of a response on the part of a group or collection of groups of human beings to the harsh physical and climatic conditions that characterize their home in the immense uplands of Central Asia. It was contended that such a hard country as Tibet could not have been the cradle of the human race, but that it must have become inhabited, albeit at a very early date, as "the outcome of some gigantic mistake, astounding accident or dire necessity." The isolation of the Tibetans is emphasized as well as explained in Chinese histories; the great Chinese historian "Sze Ma Chien, writing about the time Caesar landed in England, treats the region as an inconvenient *terra incognita*." The ancestors of the Tibetans first reached this hostile land as fugitives, the strong alone surviving. The very wildness and inhospitality of the country insured isolation, and so the early comers developed mainly along their own lines borrowing little from the outside world. Fear of the great wild and of unseen forces developed a strong religious tendency. The mastery of the weak by the strong brought about a tyrannical officialdom on the one hand and on the other a servility in the nature of the Tibetan, often incompatible with his daring and free wild life. Robbery in many cases became an honoured, or at least a recognized, profession. Women, by reason of their fewness and the hardness of their lives, became as strong, if not stronger, than the men; and polyandry in one form or another prevalent. Marriage became largely endogamous. The Tibetan, headed by the Lama, and through dire necessity, has become a good trader. The yak, an indigenous species of extraordinary powers of endurance, may be considered as one of the most important factors in the development of the Tibetan culture complex. The future of Tibet depends largely upon the ability of her more civilized neighbours to develop her resources. Can China assist Tibet to develop her true resources, which consists mainly of stock raising, and assure her outlets in the way of suitable markets for her products? It appears doubtful, so obsessed is China with the idea of agriculture. If China could do this, great things might be expected of Tibet as a stock producing country. India, too, could help, by providing appreciative markets for her staple products, but could India provide tea, one of the main needs of the Tibetans, in exchange.

The discussion of the above phases and questions were interspersed with many items of valuable information regarding the country and its people, such as climatic

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conditions, topography, customs and culture ; while the original thesis was well sustained and backed by facts and logical deductions. It is not often that a Shanghai audience is given the opportunity of listening to so valuable and interesting a lecture. A hearty vote of thanks was accorded Mr. Edgar at the suggestion of Mr. Sydney Barton, President of the Society, who was in the chair.

THE JAVA INSTITUTE

CONGRESS ON THE PHILOLOGY AND ETHNOGRAPHY OF EAST JAVA AND MADURA

It is announced that the above congress will be held at Sourabaya from September 23 to 26, of the present year. An attractive program has been arranged. This will include lectures by authorities on various subjects such as the Land and People of Madura ; Mandurese Music ; Navigation, past and present, of East Javanese and Madurese people ; and East Javanese Art. Excursions to various districts of interest will also be made ; while performances of famous native plays will be given.

PEKING NATURAL HISTORY SOCIETY

The last regular monthly meeting of the Peking Natural History Society, for 1925-26, was held on May 15, at the Peking Union Medical College, when Dr. R. K. Lim gave a highly interesting lecture on the "Endocrine Organs." The lecture was illustrated by a number of lantern slides showing the effects of under and over development of these organs. Of particular note was the more modern work done on the early development of tadpoles after thyroid feeding, and the effects of the transplantation of glands in the capon. There were other slides pertaining to cretinism, gigantism, goitre, and the secretion of insulin.

The Society is publishing for those interested in nature study two bulletins, one on the birds of North China, by Dr. Wilder, and one on Peitaiho Flowers by Mr. Wicks.

SHANGHAI MEDICAL SOCIETY

The fifth annual general meeting of this society was held in May at the General Hospital, when the following officers were elected for the year 1926. President, Dr. W. S. New, Vice-president, Dr. H. H. Morris, Secretary and Treasurer, Dr. A. Wall. Members of the Council, Drs. Cumming, Jordan, Marsh and Patrick.

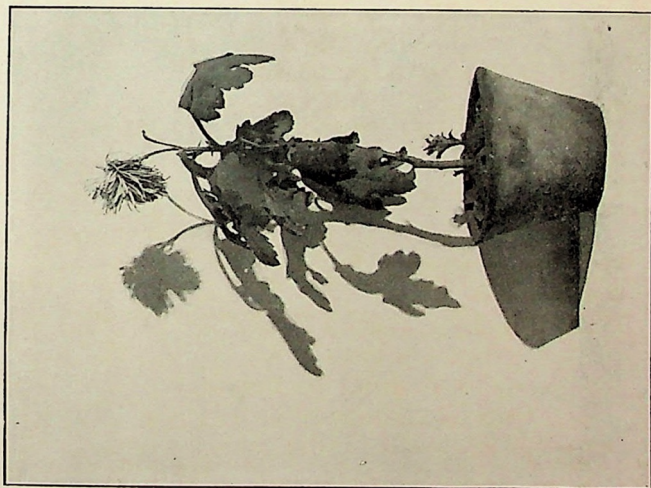
A resolution was proposed by Dr. Polk, and adopted unanimously, rescinding the restrictions hitherto debarring doctors of certain nationalities from eligibility to membership in the Society. The Secretary in his report informed the meeting that nine new members had joined during the past year, meetings had been regularly held at the General Hospital, two being in conjunction with the Shanghai Branches of the China Medical Association and the National Medical Association. One paper had been presented by Dr. Robertson of the Health Department, on the insulin treatment of diabetes.

The accounts of the Society were reported as being in a very satisfactory condition, with a balance of \$612 to its credit.

ENGINEERING SOCIETY

VIBRATION AS A FACTOR IN MODERN LIFE

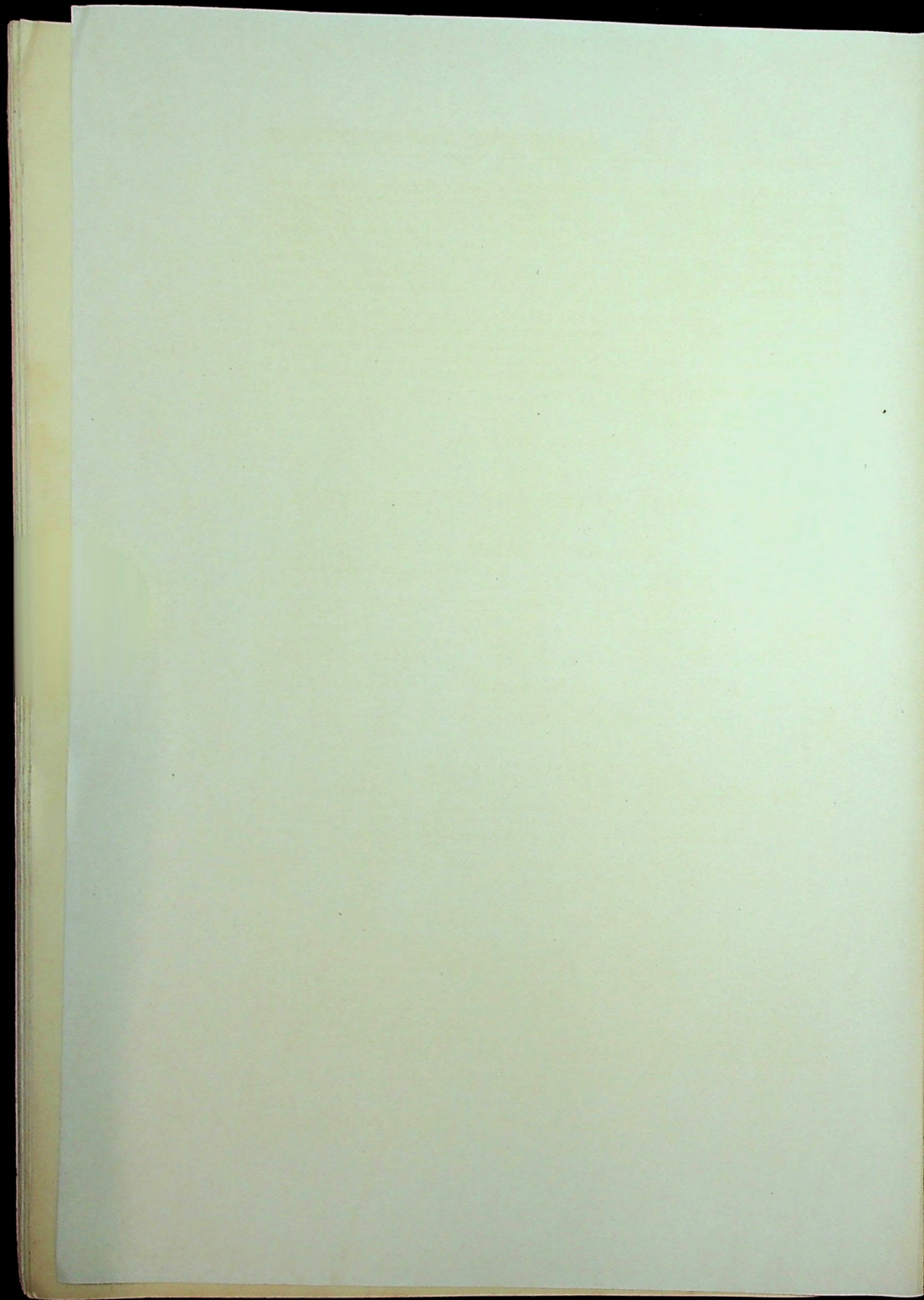
At the May meeting of the Engineering Society, Mr. A. E. R. de Jonge, of the Municipal Electricity Department, presented an able paper on the detection of the causes of vibration and their elimination, and the relation of vibration to our present-day life.



"Still Life," by Dr. W. L. Ch'en, awarded an Honourable Mention in the recent Photography Exhibition of the Peking Institute of Fine Arts



"Portrait of a Boy," by Y. C. Woo, awarded the Prize in the Portrait Class in the Photography Exhibition of the Peking Institute of Fine Arts.



SOCIETIES AND INSTITUTIONS

The lecturer stressed that the detection of vibrations and location of their source were not always quite so simple as might appear. Engineers and physicists, therefore, have devised instruments for the purpose. The stethoscope of the physician is an example, which has been lately modified to meet the needs of the engineer. Inertia vibrators, stroboscopic vibrators, vibrographs and seismographs, all of which directly record vibrations, were also cited. The pallograph and oscillograph were also described, the use of the latter being clearly explained by the instrument itself, loaned for the lecture by Mr. Aldridge of the Municipal Electricity department.

After dealing most interestingly with the transmission of vibrations, the lecturer alluded to their effects not only upon the human nervous system, with consequent adverse results to health, but also upon the deteriorating influence upon materials. Suggestions as to the best methods of reducing vibration to a minimum then followed, these involving such considerations as the perfect balancing of machinery and the use of insulating materials.

EDUCATIONAL NOTES AND INTELLIGENCE

FUH TAN UNIVERSITY

We recently had occasion to congratulate this Institution upon its acquirement of a new biological laboratory. We are the more reluctant, therefore, to comment upon the alleged recent utterances of its Vice-President, who, if he has been quoted correctly, recommends the boycotting of the British in China as the only means of enabling the latter country ultimately to come into her own. This is the more deplorable, coming as it does at a time when the British people have sought to set aside all rancour and to extend, anew, to China the hand of friendship, in the form of remission of the Boxer Indemnity.

Could but certain of our Chinese educationalists realize that school-teaching and politics have nothing in common, they would do far more to serve their country than by such uncalld-for fulminations as are attributed to the Vice-President of Fuh-tan University.

KULING AMERICAN SCHOOL

The usefulness of this school grows apace. In response to many requests, the fourth year of the school course will be devoted to High School subjects on condition that as many as three pupils desire this course. A course in manual training has already been instituted, and a plan is being worked out for the institution of student self-government.

It is proposed to install a new steam heating plant in the school, the contract for which has already been awarded.

UNIVERSITY OF NANKING

We direct attention anew to the valuable service that the College of Agriculture and Forestry of this University is rendering the Chinese people, which service takes the most practical form possible. The field study of the watershed conditions of the Hwai River (which, as will be remembered, was the primary source of the disastrous floods of 1919) is being undertaken with the co-operation of the Sicawei Observatory, Shanghai. The field party is in charge of Mr. W. C. Lowdermilk and is undertaking the establishment of a comprehensive system of meteorological stations in the Hwai watershed. The plan is part of the University's co-operation with the Chinese-Foreign Famine Relief Committee of Shanghai.

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Notable work is likewise being done in the Department of Sericulture which is engaged in the distribution of healthy silkworm eggs to the farmers of the neighbourhood.

SHANGHAI COLLEGE

In June, Shanghai College rounded out the twentieth year of its existence, in which time it has come to occupy the front rank of our local schools. Like the majority of foreign schools in China, instruction on the scientific side preponderates, and its plant for this purpose is second to none.

In point of situation, Shanghai College leads many of its sister institutions, its grouping of architecturally attractive buildings set out in the midst of a picturesque campus being specially pleasing to the eye.

In respect of teaching staff, the college is exceptionally well served. While several heads of department are at present in America pursuing postgraduate courses leading to their doctorates, instruction is in charge of very able assistants. With the grant-in-aid of the China Medical Board, the Biology department has been greatly strengthened in point of staff and equipment. The pre-medical course given at the college is in conformity with the requirement of the P. U. M. C. and is hence of a very high standard.

WEST CHINA UNION UNIVERSITY

Science may be said to have permeated the world when it has become an integral part of higher learning in as remote a spot as Chengtu, Szechuan, the home of West China Union University. With a teaching staff of 52 members, in part Chinese and in part foreign, the University exercises a supervisory relation to the system of Christian education in West China, which comprises more than four hundred elementary and middle schools and enrolls over twenty thousand scholars.

That the teaching of science conduces to the inculcation of a spirit of Christian idealism, is the contention of those in charge of education in West China, and the results of their ceaseless efforts to help the Chinese to help themselves, fully bears this out.

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BOOKS:

The Port of Shanghai (Fourth Edition): Whangpoo Conservancy Board. Love and Duty, by Ho Ro-se: Commercial Press, Ltd.

Bibliography of the Publications from the Laboratories and Clinics of the Peking Union Medical College and Hospital, compiled by Ernest Carroll Faust, M.D.

San Kuo, Vol. II, by C. H. Brewitt-Taylor, Kelly & Walsh, Ltd., Shanghai.

PERIODICALS:

Extreme Asia—Discovery—The Philippine Journal of Science—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 Agricultural 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—The Chinese Recorder.



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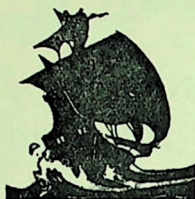
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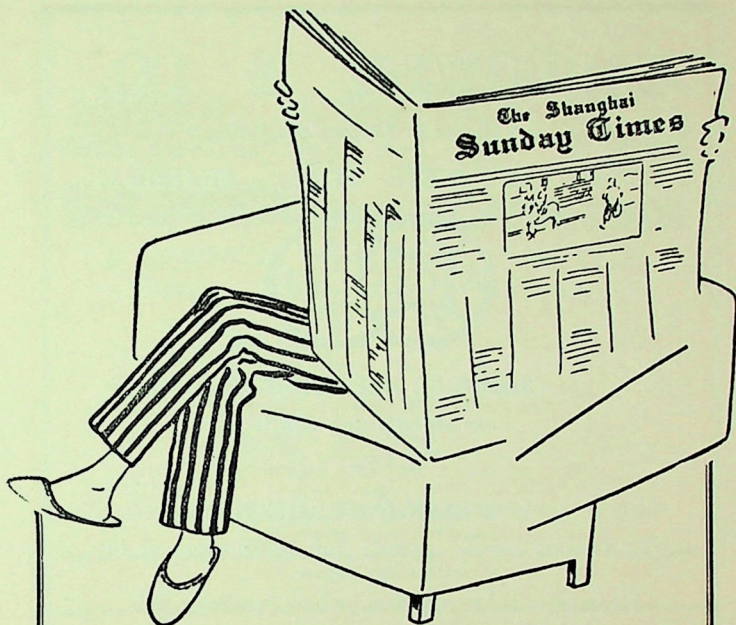
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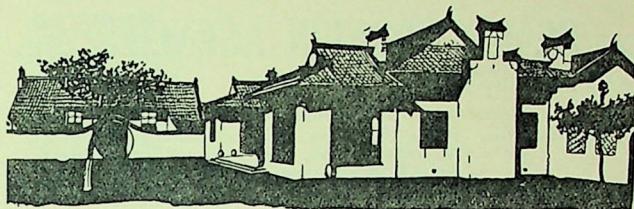
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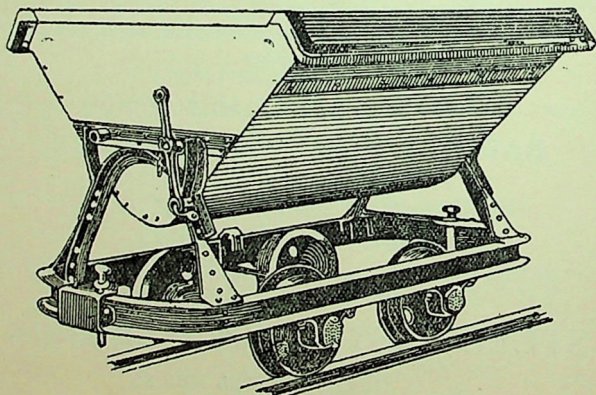
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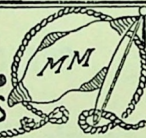
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