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CHINA JOURNAL



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VOL. XII

MARCH 1930

No. 3

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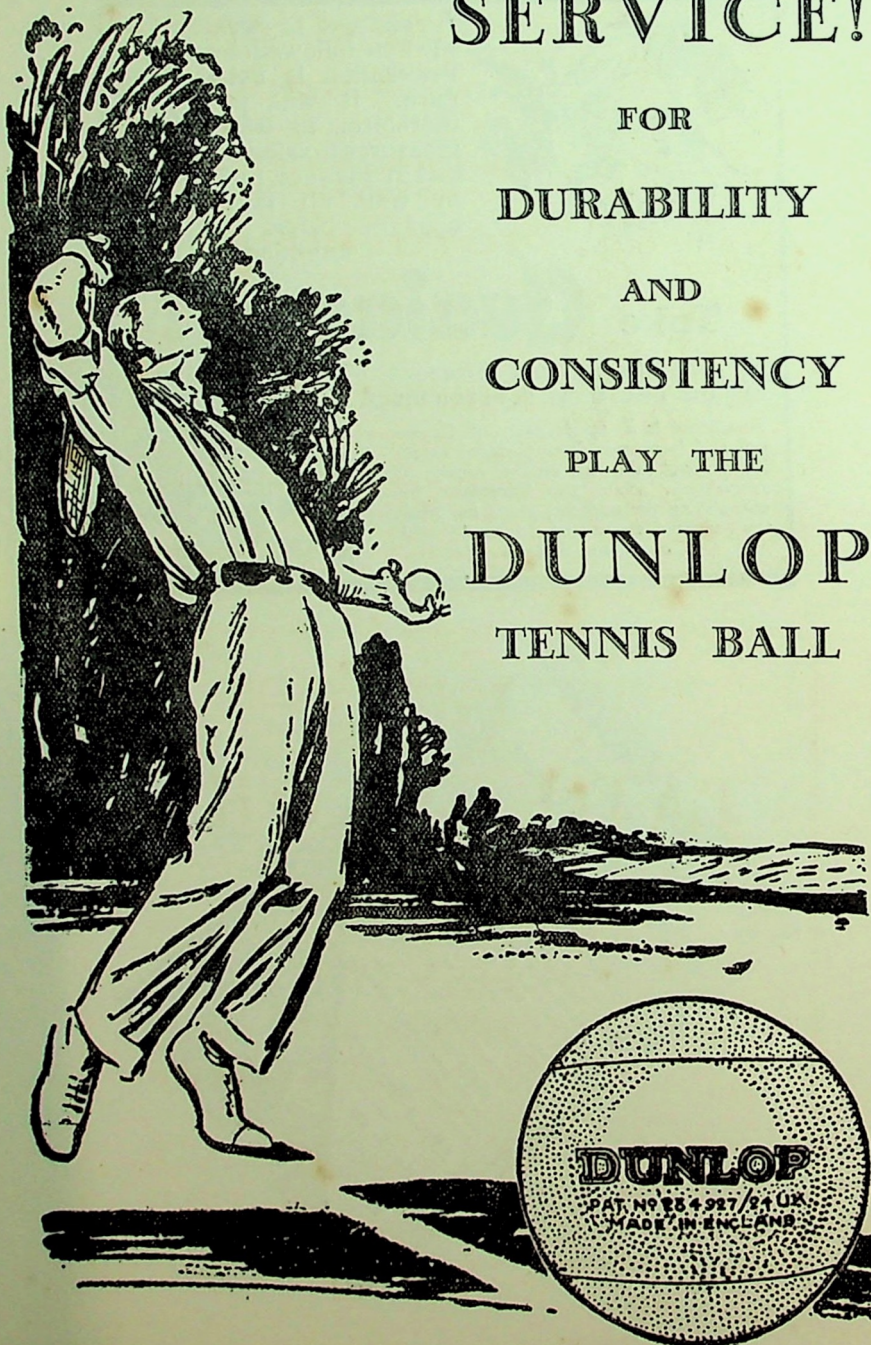
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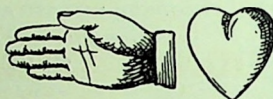
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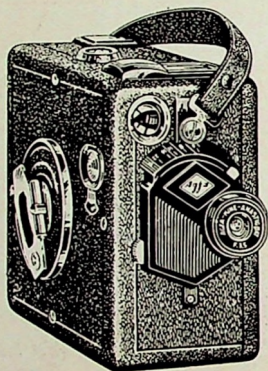
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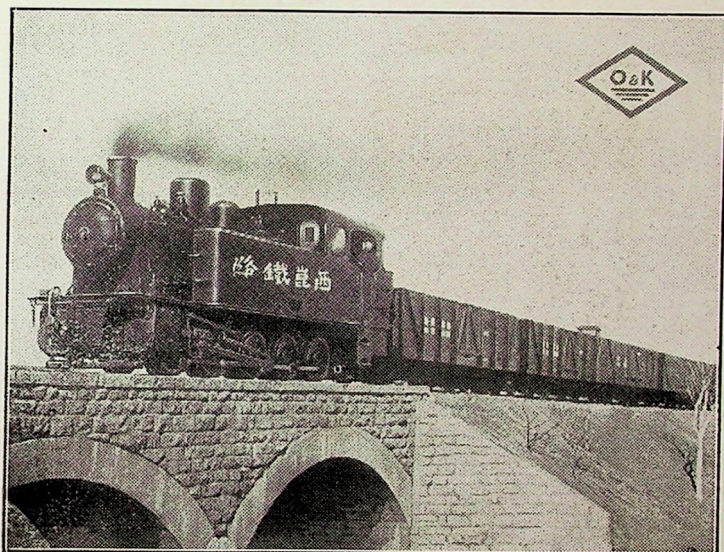
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A decorative glass perfume bottle with a floral pattern and a matching box for Narcisse Bleu perfume. The bottle has a label that reads 'Le Narcisse Bleu Mury'.

"PATRICIA"
expressing the
sweet charms
of native
simplicity.

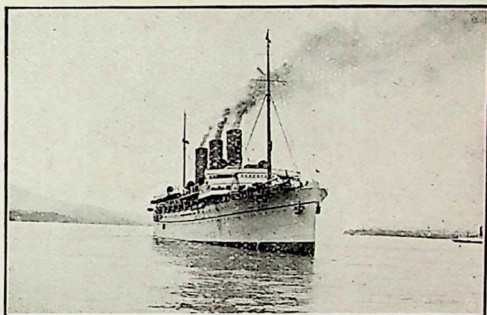
A small, clear glass perfume bottle and its box for Patricia perfume. The bottle has a label that reads 'PATRICIA'.

A dark, round glass perfume bottle and its box for Notturmo perfume. The bottle has a label that reads 'NOTTURNO'.

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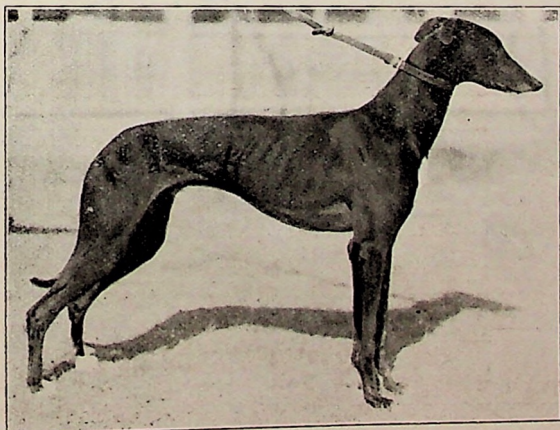
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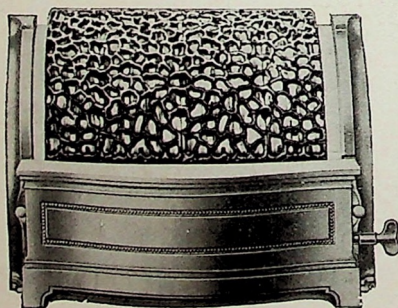
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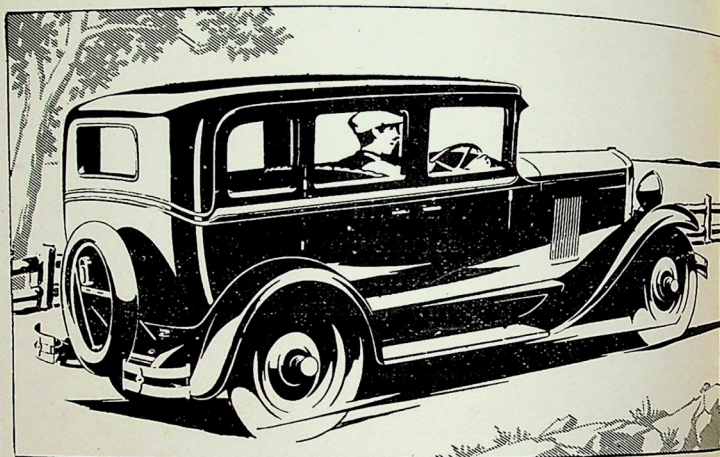
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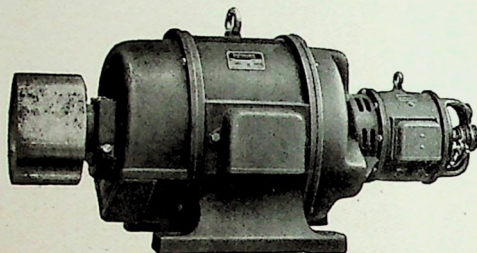
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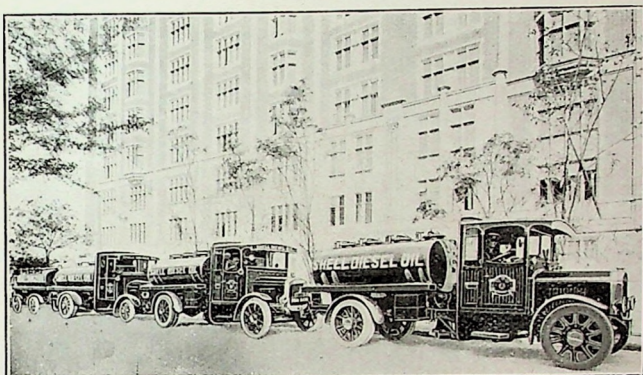
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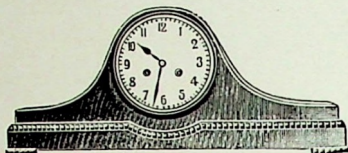
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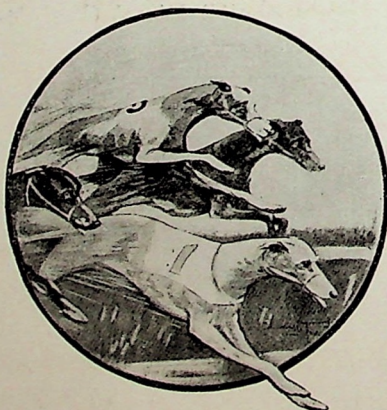
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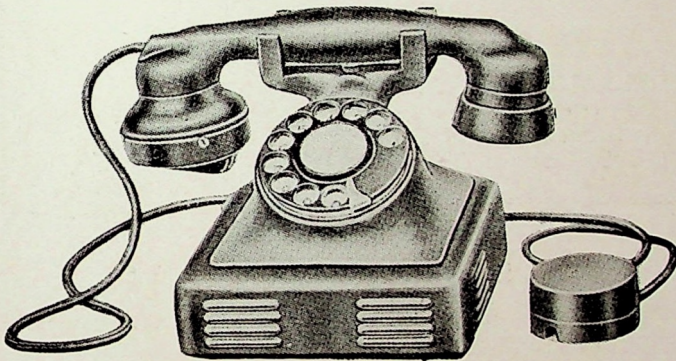
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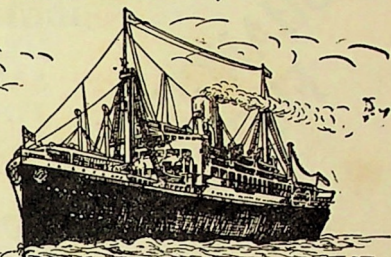
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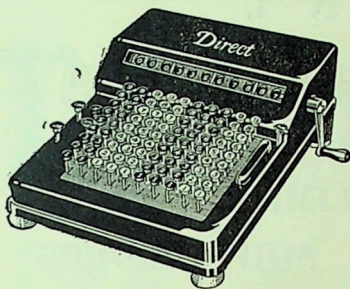
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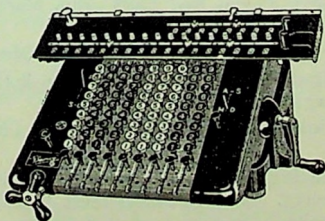


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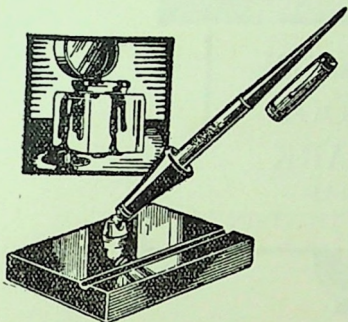
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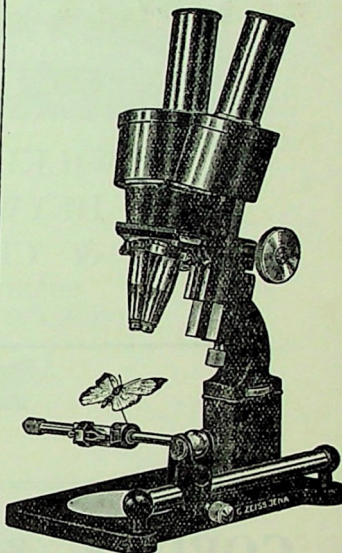
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No. 3

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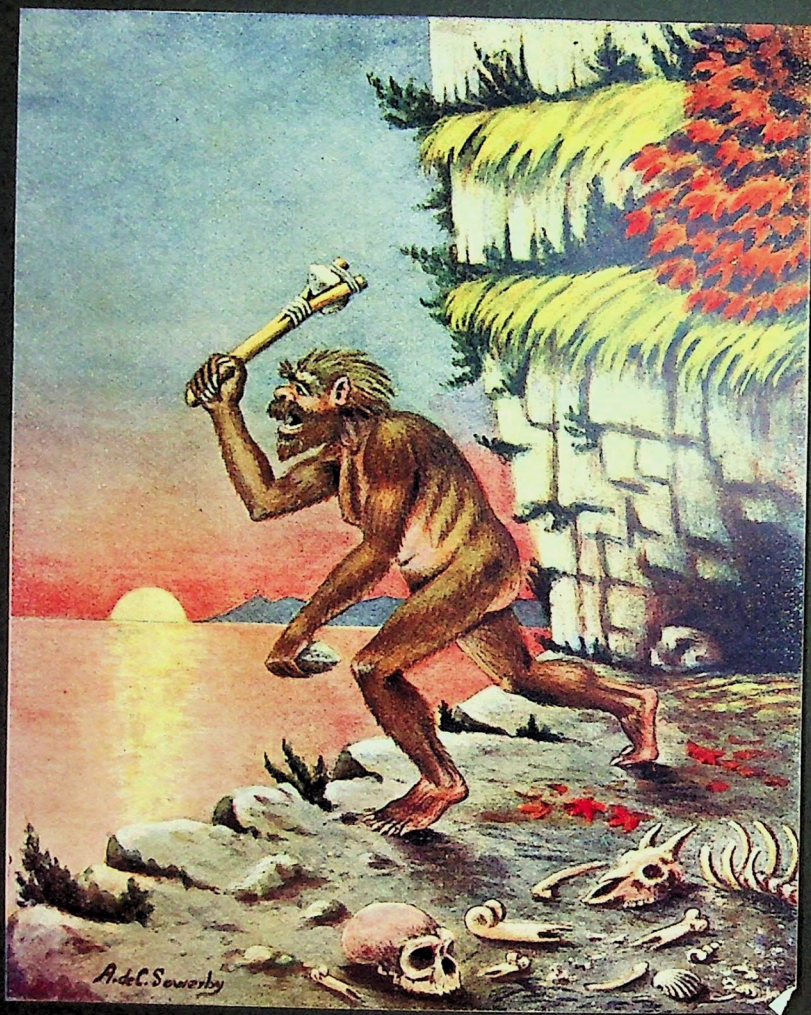
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THE DAWN

A Reconstruction, by the
Artist, of Early Man at
about the Neanderthal
Stage.



VOL. XII

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THE MISSING LINK

BY

ARTHUR DE C. SOWERBY

Ever since Charles Darwin published his epoch marking work, "The Origin of Species," which first gave to the world the theory that man was not a special, distinct and complete creation of the Almighty, but, like all other living things on this earth, a link in an endless chain of beings evolving each from an earlier and more primitive type, scientists have been engaged upon a search for what has been called the "missing link." It has been assumed, entirely erroneously, that Darwin's theory of evolution implied that man must have descended from a monkey, and that, since the gap that now exists between the highest of the apes and the lowest type of man is so great, there must either be or have been some form or forms of creature that bridge this gap. Thus each new discovery of the actual remains of ancient man, or ape-like man, or man-like ape, has been hailed as the missing link in the chain of man's descent.

As a matter of fact the problem of man's ancestry is not quite so simple as to be capable of solution by the discovery of a single form intermediate between present-day man and his very distant cousins the gorilla, chimpanzee and orang-utan. If Darwin's teachings mean anything at all, it is that present day man is the descendant of a whole series of creatures, each a little closer to some generalized primitive type that existed an incalculable number of years ago, and that at intervals along this line of descent we come to places where it forked, giving off as side branches the lines of descent of the anthropoid apes, the monkeys, the lemurs, and so on. If this line of man's descent be followed far enough back it will be found to be joined by the lines of descent of every living

thing on the earth to-day, and of those of the innumerable creatures that have become extinct throughout the ages of the earth's existence. The gorilla, chimpanzee, orang-utang, gibbon, the various monkeys, lemurs and so on that exist on the earth to-day are none of them in the line of present day man's ancestry. Indeed, it is now generally believed that most of the types of prehistoric man that have so far been discovered were not in the direct line of modern man's descent, but represent more or less closely related off-shoots. Thus, in a way, it is rather beside the mark to talk about, let alone search for, a "missing link" in the sense of a creature that is at once the descendant of one of the present day types of anthropoid ape, or even an extinct anthropoid ape, and the ancestor of present day man. Such a creature does not and never did exist, although it may equally positively be asserted that both the anthropoid apes of to-day and man as he now exists on the earth have descended from a common ancestor somewhere back in the dim and distant past.

There is no need, however, to adopt this strict understanding of the term "missing link," for we may use it for each of the many types of creature, whatever they were, that formed links in the chain of our own particular evolution, and may experience that thrill of satisfaction whenever scientists discover the fossil remains of one of these forms that fits into the chain of our descent.

As already stated few of these prehistoric remnants fit into that chain. It is generally conceded that Neolithic man belongs there, but many doubt if the remains of late Palæolithic man so far found can be considered as in the line of present day Europeans, although some believe that the Crô Magnons were the ancestors of what are generally known as the Mongoloid races, others that from them all the modern races of man have sprung. Few believe that early Palæolithic man, as represented in Europe by the Neanderthal race, was in the direct line of modern man, or that the Piltdown man (*Eoanthropus dawsoni*), whose remains were found in England, was anything but an offshoot. The same undoubtedly applies to the well-known Java ape-man (*Pithecanthropus erectus*). On the other hand the Broken Hill man of Rhodesia (*Homo rhodesiensis*) may possibly be in the direct ancestral line of the Negro, while the still earlier Taungs anthropoid (*Australopithecus africanus*) of Bechuanaland, also South African, has not yet definitely been assigned a position, though it may well represent a form that was ancestral to both the apes and man.

We come now to the latest find of all, the "Peking man" (*Sinanthropus pekinensis*), whose skull has recently been secured from a cave at Chou Kou Tien some thirty miles south-west of Peking, causing so much excitement in scientific circles. It is too early to say whether or not this undoubtedly primitive hominid is in the direct ancestral line of present day man, but, all things considered, he very well might be, in which case he would prove to be the first genuine "missing link," using the term in its less strict sense, so far discovered. From what can at present be gathered, he had not developed too far along any special line of his own to preclude his being an ancestor of *Homo sapiens*,

while both his geological age and position, as well as his habitat, are favourable to his being an early progenitor of the latter, or at least a close kin to an ancestor of his.

At the present time there is a general hue and cry on the part of anthropologists and palaeontologists after the fossil remains of ancestral man; while several theories are extant as to where he is likely to be found. One school places Central Asia as the most likely place on the earth where modern man's ancestors developed or evolved from the primitive, tree-inhabiting, ape-like form to the bi-pedal, upright steppe-dweller, placing the actual spot variously in Mongolia and Turkestan. Another school looks to Africa as the ancestral home of man, while there are those who even believe that man originated in the New World. And there we may well leave the subject, awaiting either some discovery that will settle the matter beyond a doubt, or at least a general agreement amongst the scientists whose business it is to unravel such mysteries.

It may be said, however, that of the various finds of human or human-like remains which have been hailed as possible "missing links," those of Piltdown and Trinil have been the most important, and over these has raged a tremendous controversy. The chief trouble with them has been the doubt as to whether the various items of each find belonged to one or to more than one individual, and, if the latter, whether they represented parts of different individuals of the same or different species. In the case of the Piltdown finds there has been a serious divergence of opinion as to whether the jaw belonged to the rest of the very distinctly human cranium fragments or to an extinct chimpanzee, while in the case of the Trinil finds it has been questioned whether the very man-like femur or thigh bone could have belonged to the same individual as possessed the distinctly ape-like cranium. The importance of the Chou Kou Tien find appears to lie, firstly, in the fact that there can be no doubt as to the date of the deposits from which the various items have been unearthed, and, secondly, in the absence of any doubt that the items belonged, if not to one individual, at least to individuals of a single species. Especially interesting, in view of the controversy that has raged in regard to the Piltdown find, is the association of an ape-like jaw with a man-like cranium in "Peking man." The Chou Kou Tien find thus appears to be the most important of its kind so far made, and may well serve to answer many of the questions that have brought about the divergent views mentioned above.

The skull of *Sinanthropus pekinensis* has been described as being of a pre-Neanderthal type, which places it well on the way toward the anthropoid group. He may thus represent the ancestor of both *Homo neanderthalensis* and *Homo sapiens*, or if, as is believed by some authorities, the former was the ancestor of the latter, then we might be almost safe in assuming that "Peking man" is actually our own long lost ancestor.

It will be interesting indeed if China, the land of one of the oldest civilizations extant, should prove to be in very truth the cradle of the human race, and *Sinanthropus pekinensis* the multimillion year old ancestor of *Homo sapiens*, and the real "missing link."

THE CHINESE LUNAR CALENDAR

The 2nd Moon of the Chinese Lunar calendar is, perhaps, the least important of all, for it contains very few dates that can be called festivals, and of the few that do occur, only one is universally observed. This is the Sun Festival, which falls on the 2nd, or March 1, and is the day on which the Lord of Light, the Sun, is worshipped with sacrifices and incense. This festival is remarkable for the fact that the women of the household seem to take the main part in the worship, a part usually strictly reserved for the male members of the family. A kind of griddle cake is prepared and eaten, while certain dishes are the order of the day. This festival is, of course, a relic of sun-worshipping days in the very distant past of the Chinese, who now seem to favour the moon-cult. After the worship of the sun, comes the worship of the earth, which is much more important to an agricultural people.

The 15th day of the 2nd Moon, falling on March 14, is celebrated as the birthday of Lao Tze, the founder of the Taoist religion. His birth has been placed at 604 B.C.

Amongst farmers the 25th day of the 2nd Moon is dedicated to Tien T'sang, the God of the Graneries, who is worshipped accordingly. On this day women are not supposed to sew.

Turning to the solar calendar we find that the festival of *Ching-chê* (驚蟄), which has been translated as "Excited Insects," falls on the 7th of the 2nd Moon, or March 6. It is supposed to be the day when all the insects that have been lying hidden away during the winter make their reappearance to welcome the return of warm weather. As it happens, certain species of termites, or white ants, as well as of true ants have their first "swarm" at about this time of year, with the result that not infrequently on the very day of the "Excited Insects" the air is filled with myriads of flying forms, testifying to the sagacity of the Chinese in the original arrangement of their calendars. Doubtless this phenomenon was noticed by the early Chinese and the date fixed accordingly.

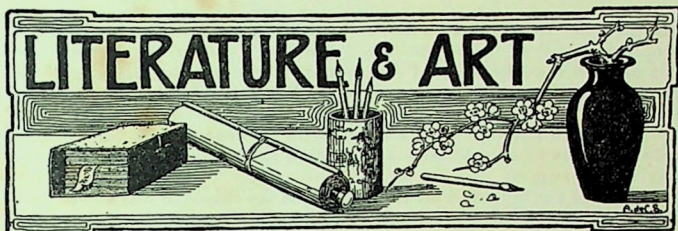
The Vernal Equinox, or *Chun-fên* (分春), falls on the 22nd of the 2nd Moon, or March 21. This is not a festival and little notice, if any, is taken of the date by the Chinese.

A. DE C. S.

A DAWN IN SPRING

The hills appear still wrapt in sweet repose,
Mid lingering vapours that at eve arose :
Above the tree-tops peeps the dawning light,
Then distant towers come slowly into sight.

[Ed. Note : The above is a poetical annotation on a landscape painted by Mr. Tao Leng-yüeh (陶冷月), a well-known modern artist. It has been translated by Mr. D. F. Miao of Soochow University.]



“ART THOU THE CHRIST? REDIVIVUS”

BY

I. V. GILLIS

Not long ago I was glancing over a Taoist work entitled “Li Tai Shên-hsien T'ung Chien” (歷代神仙通鑑), and my attention was attracted to the accompanying picture as having possible interest in connection with the article “Art Thou the Christ?” in Giles’ “Adversaria Sinica.” The picture is from the brush of Tai Hsün (戴峻), a landscape painter of the Ch'ing period.

As one of the arguments in support of his contention that the left-hand figure in the ink-cake figure represents “the Christ,” Giles stresses the subordinate positions and postures of the other two figures, and goes on to say,

“but no Chinese artist could have painted such a picture without infinite risk to his valued skin, nor would such blasphemy have had any chance of being preserved through centuries to the present day.”

In my humble opinion, Tai Hsün has in this case quite plainly placed Confucius in a subordinate position *below* and on the *right-hand* side of Shâkyamuni, and, lest there be any mistake in identification of the three personages, their names have been placed above them. Whether or not the artist lost his head for his temerity in thus demeaning Confucius I am unable to state, but the picture has been preserved, although not “through centuries.”

I have examined the wood-cut in the original Wan-Li (萬曆) edition of the “Fang-shih Mo p'u” (方氏墨譜), and I have compared Tai Hsün's picture with it, and I consider the two to be, to all intents and purposes, identical in *motif*, and the three figures are certainly intended to represent the same personages, even if differently arranged.

In describing the ink-cake picture Giles says—

“—consisting of a figure of Christ, a Nestorian priest kneeling at his feet with one hand upraised in benediction, and another priest standing behind.”

And in order to account for the right-hand figure being so badly out of proportion, Giles resorts to the "kneeling" posture in explanation, but as such a posture would not account for and agree with the "toe-points," he goes on to say that these are "a later addition by the wood-engraver."

I view this wood-cut in a different light, in fact, in a way which I think permits of a reasonable explanation of the figures being so badly out of proportion.

I am of the opinion that the picture on the ink-cake was copied from some picture similar to that of Tai Hsün here illustrated. That is, a picture with all three of the persons seated. Then in copying this picture for the ink-cake, the three figures have been removed from (isolated) the complete composition, which consisted not only of these figures themselves, but also of a background of hills, trees, and rocks. This would account for the unnatural postures of the figures as well as for the lack of proportion in their individual dimensions, the maker simply roughly modifying the bottom of the gowns in an attempt to give them the appearance of a standing posture. Also, this would account for the "toe-points", which would then not have to be explained as being a later addition, but would be represented in the original picture with the figures seated, as can be noted in Tai Hsün's picture.

Although intending, when I started, to limit my criticism to a comparison of the two pictures, nevertheless, while on this subject of Giles' article "Art Thou the Christ?", I feel constrained to draw attention to what I believe to be a mistake on Giles' part. I refer to part of his "linguistic" argument in which he refers to the pitch-pipes, and quotes from Mêng K'ang's (孟康) commentary on the "History of the Earlier Han Dynasty."

In considering the quotation in question, the fact must not be lost sight of that the phraseology employed by Mêng K'ang is that peculiar (in some degree) to Chinese commentaries, and the quotation must be so read, that is, with this important point kept in mind.

For convenience of explanation and reference I shall split up the quotation as follows: (a) 黃鐘, (b) 子律也, (c) 子, (d) 數一, (e) 泰極, (f) 元氣, (g) 含三爲一, (h) 是以一數變而爲三也.

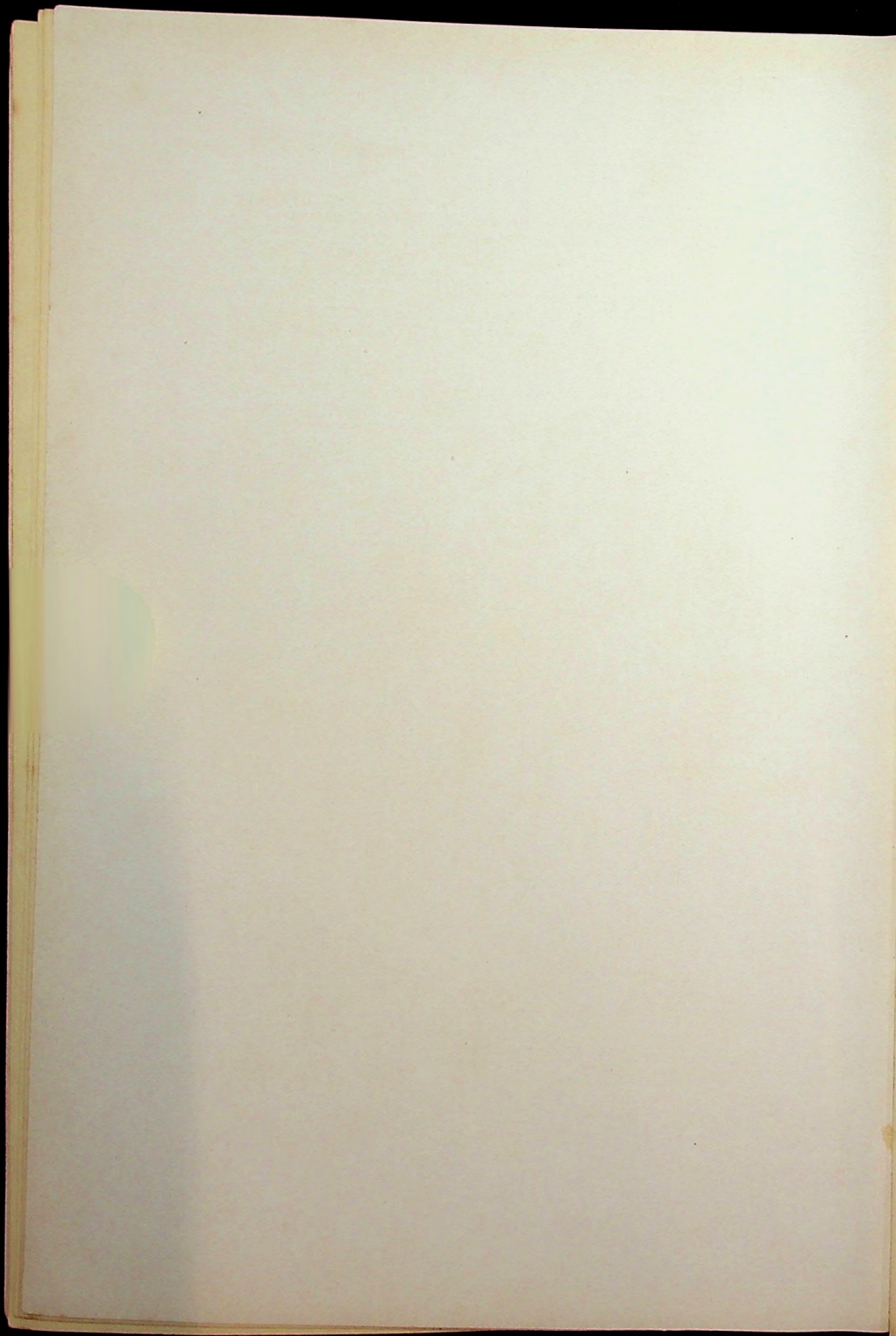
Giles translates "The 'Yellow Bell' is the *tzü* pitch-pipe. The number belonging to *tzü* is one." I do not take the character 子 to be here used in a terminological sense, but in a numerical ordinal sense, and the commentary so explains it: (c)-(d). The name of the tube was *Huang-chung* (黃鐘); the name of the note this tube produced was *kung* (宮); and it was the number-one (first) of the series of pitch-pipes.

For Giles' translation I would substitute "The 'Yellow Bell' is the name of the first of the series of pitch-pipes. The character *tzü* is to be read as meaning 'number-one' or 'first'."

The expression in the *Lü Li Chih* is "*T'ai-chi han san wei i*" (太極函三爲一), and this Mêng K'ang explains in the terms set forth above: (e) to (h). He first explains *T'ai-chi* as conveying the same meaning as, or being equivalent to, *Yüan-ch'i*, the two being different terms for



A Wood-cut of a Picture by Tai Hsün.



practically the same thing or state: (e) -(f). Next, he explains the meaning of *han san wei i*, as used in connection with the pitch-pipes.

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To sum up, it seems to me that the intent of the commentator was to compare the *Huang-kung* with the *T'ai-chi* in their relationship

And in order to account for the right-hand figure being so badly out of proportion, Giles resorts to the "kneeling" posture in explanation, but as such a posture would not account for and agree with the "toe-points," he goes on to say that these are "a later addition by the wood-engraver."

I view this wood-cut in a different light, in fact, in a way which I think permits of a reasonable explanation of the figures being so badly out of proportion.

I am of the opinion that the picture on the ink-cake was copied from some picture similar to that of Tai Hsün here illustrated. That is, a picture with all three of the persons seated. Then in copying this picture for the ink-cake, the three figures have been removed from (isolated) the complete composition, which consisted not only of these figures themselves, but also of a background of hills, trees, and rocks. This would account for the unnatural postures of the figures as well as for the lack of proportion in their individual dimensions, the maker simply roughly modifying the bottom of the gowns in an attempt to give them the appearance of a standing posture. Also, this would account for the "toe-points", which would then not have to be explained as being a later addition, but would be represented in the original picture with the figures seated, as can be noted in Tai Hsün's picture.

Although intending, when I started, to limit my criticism to a comparison of the two pictures, nevertheless, while on this subject of Giles' article "Art Thou the Christ?", I feel constrained to draw attention to what I believe to be a mistake on Giles' part. I refer to part of his "linguistic" argument in which he refers to the pitch-pipes, and quotes from Mêng K'ang's (孟康) commentary on the "History of the Earlier Han Dynasty."

In considering the quotation in question, the fact must not be lost sight of that the phraseology employed by Mêng K'ang is that peculiar (in some degree) to Chinese commentaries, and the quotation must be so read, that is, with this important point kept in mind.

For convenience of explanation and reference I shall split up the quotation as follows: (a) 黃鐘, (b) 子律也, (c) 子, (d) 數一, (e) 泰極, (f) 元氣, (g) 含三爲一, (h) 是以一數變而爲三也.

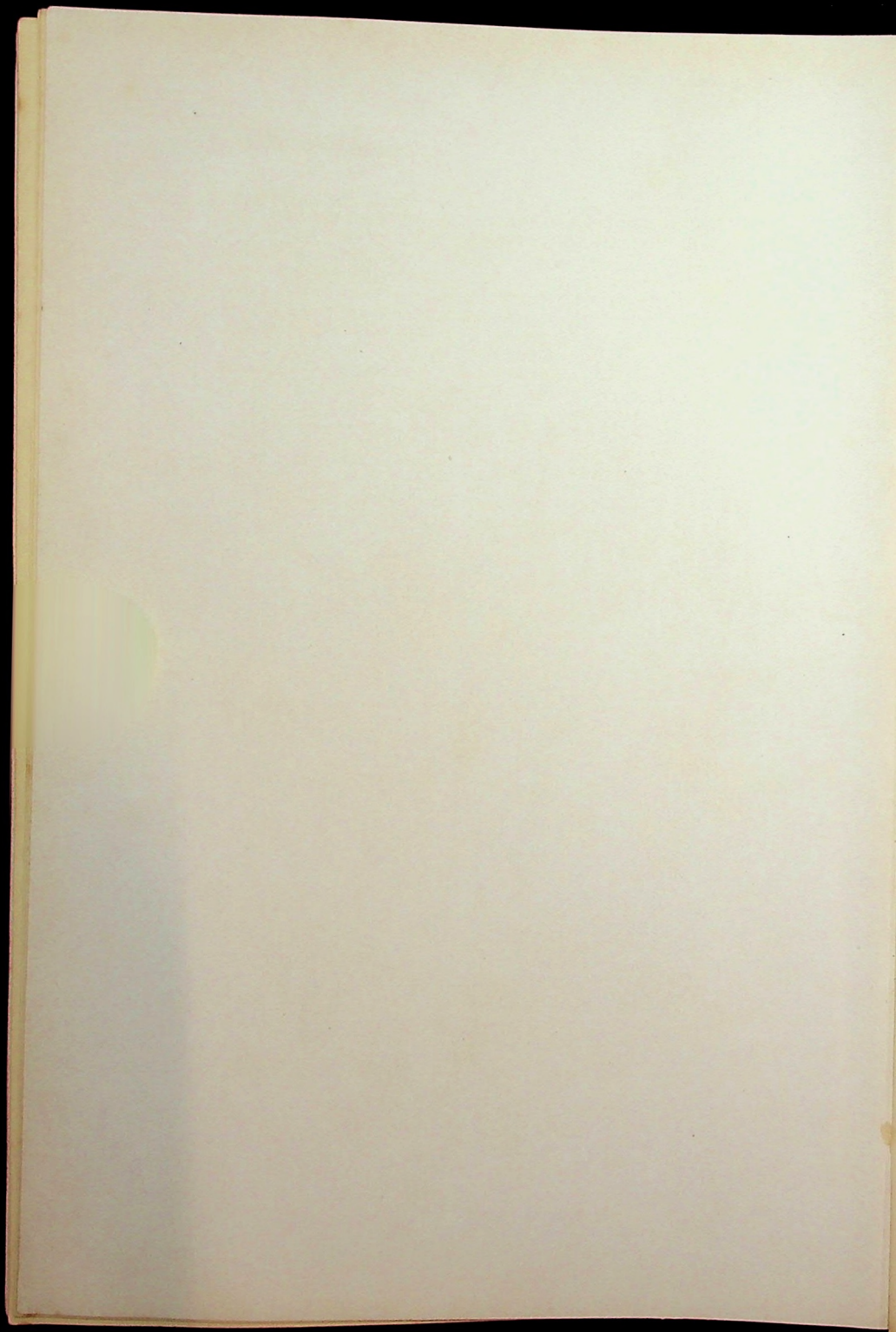
Giles translates "The 'Yellow Bell' is the *tzü* pitch-pipe. The number belonging to *tzü* is one." I do not take the character 子 to be here used in a terminological sense, but in a numerical ordinal sense, and the commentary so explains it: (c)-(d). The name of the tube was *Huang-chung* (黃鐘); the name of the note this tube produced was *kung* (宮); and it was the number-one (first) of the series of pitch-pipes.

For Giles' translation I would substitute "The 'Yellow Bell' is the name of the first of the series of pitch-pipes. The character *tzü* is to be read as meaning 'number-one' or 'first'."

The expression in the *Lü Li Chih* is "*T'ai-chi han san wei i*" (太極函三爲一), and this Mêng K'ang explains in the terms set forth above: (e) to (h). He first explains *T'ai-chi* as conveying the same meaning as, or being equivalent to, *Yüan-ch'i*, the two being different terms for



A Wood-cut of a Picture by Tai Hsün.



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To sum up, it seems to me that the intent of the commentator was to compare the *Huang-kung* with the *T'ai-chi* in their relationship

(as origins) to their respective "off-spring" as engendered by them, the *chi* (徵) and *yü* (羽) musical notes, and the *liang i* (兩儀), or *êrh ch'i* (二氣), the *yin* (陰) and the *yang* (陽) principles.

However, all of the above seems to me to be beside the question and not pertinent to the discussion of the ink-cake picture under consideration, for in the case of the pitch-pipes quotation there is clearly a division into a primary origin and two secondary results, whereas the picture indicates (to my view) equality in the relationship of the three figures.

As an example of Giles' view of the use of *han* (函) I would quote from the "Fu Chên" (賦珍) as follows, 太極未判天地人三才函於其中爲之渾沌, and in this case all three entities are taken as being on a basis of equality.

Now, Giles (having "mounted the tribune") says, "... the word *han* is not commonly used—one might almost say not used at all—in this sense." "In fact, no sense is to be got out of 函 *han* 'contain', unless the subject thereof be Christ."

In the work entitled "San Yüan Yen Shou Ts'an Tsan Shu" (三元延壽參贊書) there will be found a short section headed 函三爲一圖歌, *Han san wei i t'u ko*, and a casual glance over the text (see illustration) is all that is needed to make it clear that the heading must be read *Han san-wei i t'u*, and not *Han san wei i t'u*. In this case if it is not the picture that contains (embraces) the three ideas, then what is it that does contain them?

As to Giles' "It would thus be an aptly chosen character to express the embodiment in *One Christ of the Three Persons of the Trinity*" (my italics), it seems pertinent to inquire why the Chinese (or anyone else for that matter) should select a picture of the Christ to represent the Trinity, Father, Son, and Holy Ghost (Holy Spirit, according to the Americans), when Jesus Christ himself is one of the three. Romans VIII 14-17: "For as many as are led by the Spirit of God, these are the sons of God. The Spirit himself beareth witness with our spirit, that we are children of God: and if children, then heirs; heirs of God, and joint-heirs with Christ." Here you have the Trinity well defined.

Moreover, in Christian art the Trinity is usually symbolized by a figure of the Father seated on a throne, the head surrounded with a triangular nimbus, or surmounted with a triple crown; Christ with the cross in front; and the Holy Spirit, in the form of a dove, resting on the cross. Certainly there is no resemblance between this description of the usual representation of the Trinity, and the picture on the ink-cake under consideration.

Taking it all in all, I am of the opinion that Giles is quite wrong in his view of this picture, and that Laufer and the London *Times* critic are correct in their view that it represents Confucius, Shâkyamuni, and Lao-tzû. Compare also the statement made by J. C. Ferguson in "Chinese Painting" p 141, and the picture "The Three Religions" which presents three standing figures, Confucius, Buddha and Lao-tzû.

Note 1: A word or two on the use of the character *han* (函) in mathematics. I refer more particularly to the expression *han-shu* (函數), a function. This use,

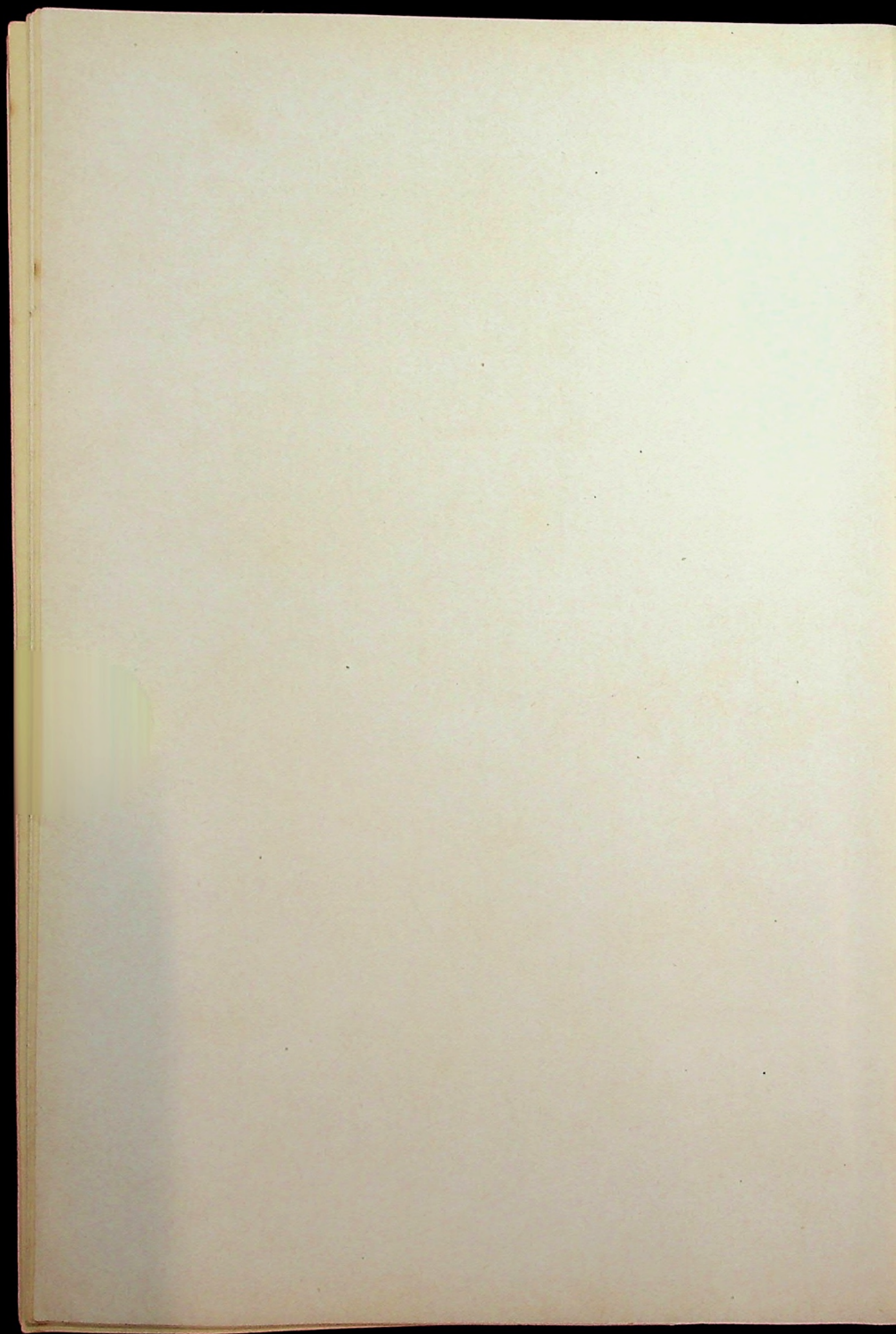
ART THOU THE CHRIST?

The publication, in my "Introduction to the History of Chinese Pictorial Art," 1905, of a certain woodcut here reproduced, has given rise to some discussion as to the subject intended by the artist. By the great unwashed of China's millions this subject has been generally accepted as a kind of pictorial harmony of their three leading Gospels, Confucianism, Taoism, and Buddhism,—such being the order of precedence authorised in A.D. 574 by Imperial Edict,—the three figures being those of the founders, Confucius, Lao Tzu, and Buddha.



The legend attached to the picture—

南 三 為
Hou san wei



although not quite identical with its use in the expression under consideration, is somewhat similar as far as the idea of *contain* is covered by *han*.

Note 2: In the illustration taken from the "*San Yüan Yen Shou Ts'an Tsan Shu*," it will be noted that the character for *han* (漢) is incorrectly written *chi* (祗). However, in the index of this work the correct form of the character is given. I call attention to this in case some reader might assume that 祗 was erroneously written for 漢.

EDITORIAL COMMENTS

THE ANCIENT CAPITAL OF YEN

One of the exploratory expeditions of the National University, Peking, was conducted by Professor Ma Hêng¹ during November of last year. Its object was to make a preliminary survey of the site of the capital of the ancient principality of Yen² (Yen tu)³ in the environs of the present city of I Hsien,⁴ near the site of the Western Tombs. The territory of this principality covered the northern half of the present province of Ho-pei (Chihli). It was known that the site of the Yen capital was located south-east of the present city of I Hsien, and Professor Ma with his associates had little trouble in finding the exact location. They were able to trace the foundations of the city wall and also found more than thirty elevated sites. Some of these were about a hundred feet square and twenty feet high. They are supposed to have been the sites of palaces. Broken tiles and pottery vessels were unearthed. There were also distinct traces of the great conflagration when this capital was destroyed by the victorious Ch'ins. Some of these elevated sites are now covered with temples and others are cultivated by neighbouring farmers, a T'ang Dynasty tablet and an ikon of the same period showing the use to which the site had been devoted at that time. A detailed survey has been made during the winter months, and it is expected that excavations will commence this spring as soon as weather conditions permit.

This site is removed a distance of seventy-five miles from the city whose name is now preserved in that of Yenching University. Yenching means "the capital of Yen." The name was first given to the city which stood on the present location of Peking during the Liao Dynasty, A.D. 907-1119, and continued to be used during the Chin Dynasty, A.D. 1115-1234. Yenching was only an honorific name chosen on account of the fact that Yen was the early name of the district in which the dynasty decided to locate its capital. "Ching" was not a term used for capital in feudal times; the word "tu" was the one employed in this meaning.

By a comparison of the Shih Chi,⁵ Chi Fu T'ung Chih,⁶ and Li Tai Ti Li Yen Ko Piao⁷ I have selected a few historical statements concerning the State of Yen and its capital cities. Yen was spoken of as Northern Yen at the beginning of the Chou Dynasty when Shao Kung was appointed

1. 馬衡

2. 燕

3. 燕都

4. 易縣

5. 史記

6. 畿輔通志

7. 歷代地理沿革表

as its first Feudal Prince. It was called Northern Yen because there was another State of Yen located in the present district of Wei-hui¹ in Honan Province. That was called Southern Yen. The capital of Northern Yen was at Chi,² the old site of the city of Peking, just to the south-west of the present city. This location is to be distinguished from the present city of Chi Hsien,³ which was formerly called Wu-chung Hsien.⁴ In addition to its capital at Chi, the Northern Yen had two secondary capitals, one at Liang-hsiang,⁵ the present Liang-hsiang Hsien. This was the Chung Tu.⁶ The third capital, Hsia Tu,⁷ was at I,⁸ the present district of I Hsien.

There is little information concerning this State of Northern Yen down to the time of the Warring States. Then it became one of the seven Great Powers with a territory consisting of the present provinces of Ho-pei (Chihli) and Liao-ning (Fengtien) and the northern part of Korea.

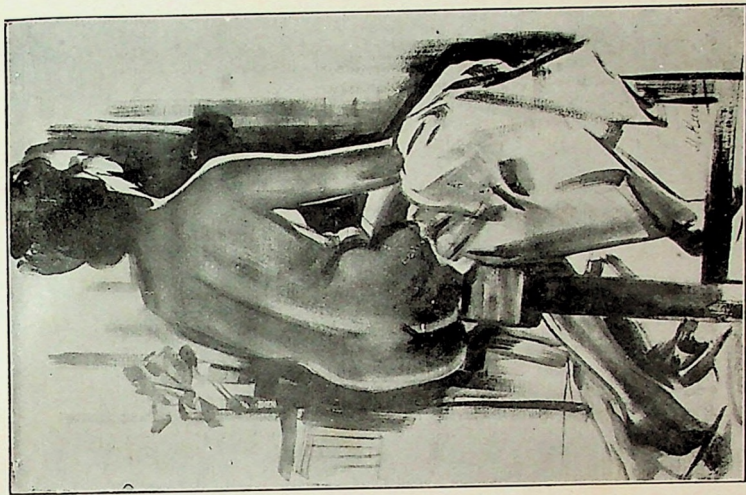
Although I ranked third among the three capitals of Yen, it became the centre of activities during the reign of Chao Wang,⁹ B.C. 312-279. After more than two hundred years of peaceful friendly relations between the Kingdoms of Yen and Ch'i, war broke out resulting in a bad defeat for Yen. Many attempts were made to retrieve the waning fortunes of Yen. An open-air platform called *Huang Chin T'ai*¹⁰ was erected where the King received in audience talented men from other States whom he invited to assist him with their advice. Among the persons that came to him, the three most noted were Kuo Wei,¹¹ Yo I¹² and Chü Hsin,¹³ for whom magnificent mansions were specially constructed. The wise advice of these men brought temporary prosperity to the Kingdom, so that in the 28th year of Chao Wang it was possible to send a punitive force against the State of Ch'i under the command of Yo I, which did immeasurable damage and humiliation to that State. In fact, it was only through the ability of T'ien Tan¹⁴ in holding the city of Chi-mo¹⁵ that the State of Ch'i was saved from being completely destroyed.

During the reign of the last King of the State of Yen, named Hsi,¹⁶ when the prowess of the State of Ch'in became more and more menacing to the safety of the other States, this district of I again became the centre of activities. This time the moving spirit was the Heir Apparent Tan,¹⁷ who had around him Kao Tsan-li,¹⁸ Chin K'o¹⁹ and Fan Wu-ch'i,²⁰ a general of the State of Ch'in. This general started a rebellion against his Prince Chêng,²¹ who was later to become the First Emperor. In the 28th year of the reign of King Hsi, B.C. 227, the forces of the State of Ch'in, after having captured the Kings of the States of Han and Chao, moved up towards Yen as far as the I River.²² The troops of Ch'in were so powerful that Yen could not think of meeting them with any hope of success, so that they planned to assassinate Prince Chêng. In order to

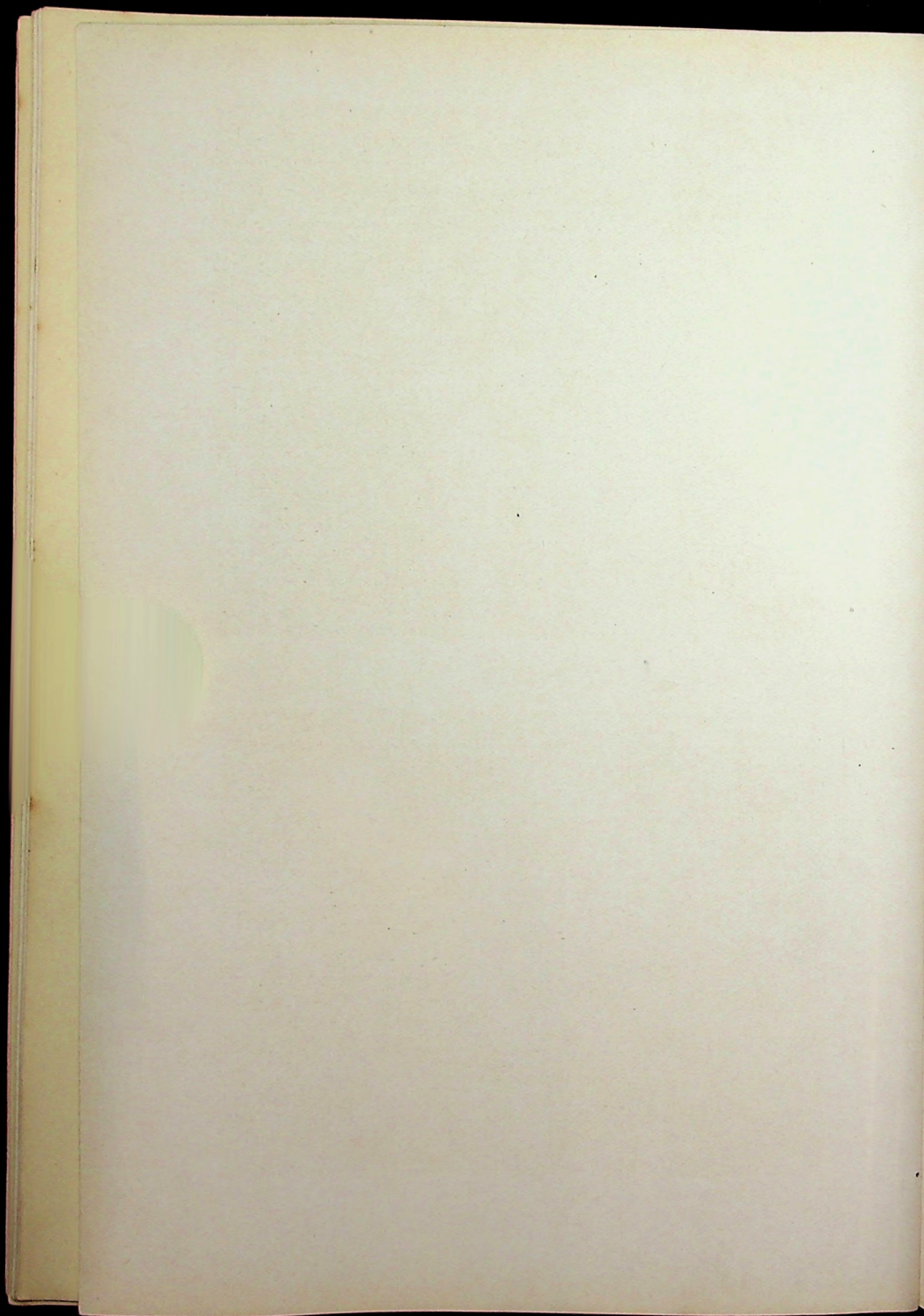
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|---------|----------|---------|--------|---------|
| 1. 衛輝 | 2. 薊 | 3. 薊縣 | 4. 無終縣 | 5. 真鄉 |
| 6. 中都 | 7. 下都 | 8. 易 | 9. 昭王 | 10. 黃金臺 |
| 11. 郭隗 | 12. 樂毅 | 13. 劇辛 | 14. 田單 | 15. 即墨 |
| 16. 燕王喜 | 17. 燕太子丹 | 18. 高漸離 | 19. 荊軻 | |
| 20. 樊於期 | 21. 秦王政 | 22. 易水 | | |



Mrs. Henry Burkhardt of Shanghai.
Pastel by M. A. Kitchigin.



A Study of the Nude. From the Sanguine
by M. A. Kitchigin.

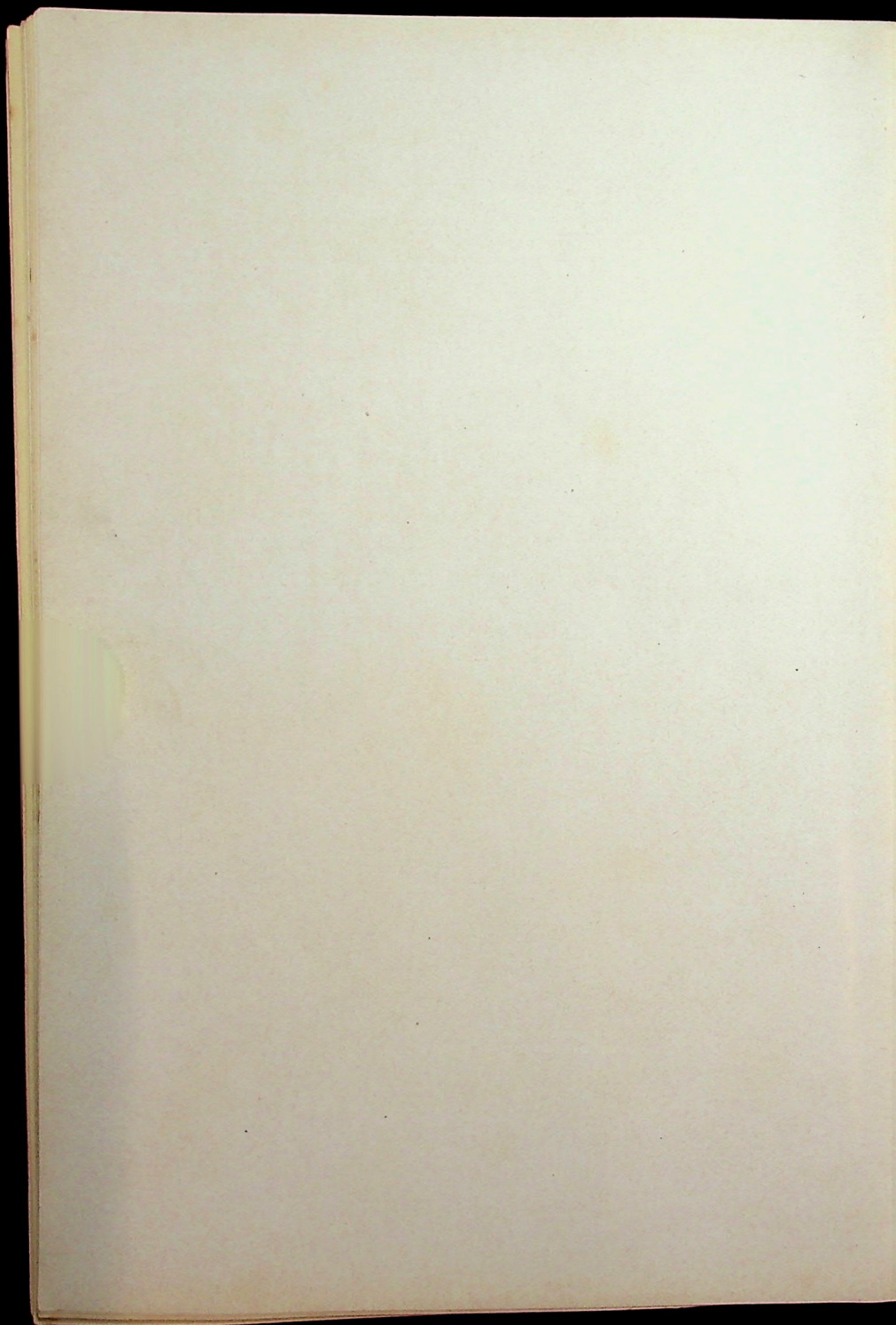




Portrait of Mrs. A. M. Kotenev from the Oil Painting by M. A. Kitchigin.



The Old Monastery at Talaikuan, Shantung. From the Oil Painting by M. A. Kitchigin.



EDITORIAL COMMENTS

carry out this plan, Chin K'o was sent to Ch'in on a pretended mission negotiating for peace. He took with him a map of Tu K'ang,¹ a place in the present district of Cho-chou,² which he said the State of Yen would present to Ch'in, and also the head of Fan Wu-ch'i, whom Prince Ch'eng hated and whom Chin K'o had persuaded to commit suicide. His hope was to make Prince Ch'eng believe that he really came with peaceful intentions and thus to be willing to grant him an audience. His scheme succeeded and when the map of Tu K'ang was unrolled, Chin K'o drew a dagger from the map and attacked the Prince, but by a hair's breadth missed him. War then broke out and the next year all of the three capitals were taken by the Ch'ins.

During the Han Dynasty the name of I was changed to Ku An Hsien³ and during the Chin to Ku An.⁴ During the Sui Dynasty it was again called I-chou.⁵ It is now known as I Hsien. According to the Ta Ch'ing I T'ung Chih,⁶ both the city of the State of Yen and the Han Dynasty city are located on sites to the south-east of the present city. This was confirmed by the expedition of Professor Ma. It is to be noted that the present Ku An Hsien⁷ was called Fang Ch'eng⁸ during the time of Yen, and that the present name was first given to it during the Sui Dynasty.

JOHN C. FERGUSON.

- | | | | | |
|--------------|----------|----------|--------|--------|
| 1. 鄆 亢 | 2. 涿 州 | 3. 故 安 縣 | 4. 固 安 | 5. 易 州 |
| 6. 大 清 一 統 志 | 7. 固 安 縣 | 8. 方 城 | | |

ART NOTES

PREHISTORIC ART: One of the most interesting phases of the great subject of prehistoric man is his art. While it is impossible to know just when and where this expression of man's dawning intelligence first made its appearance, it is safe to say that it was at a very remote period, tens, possibly even hundreds, of thousands of years ago, for the comparatively advanced state of perfection of the earliest known works of art, which date from Palaeolithic times, indicate that there must have been a very long period of evolution antedating these. Aurignacian man, who appeared in Europe in the Palaeolithic Age and immediately followed Neanderthal man, was an artist of no mean order, as evidenced by his stone, ivory and bone carvings and his remarkably realistic polychrome drawings on the walls of caves. These, apparently, are the earliest known works of art in existence to-day. The carvings consist of figures of both animals and the human form, and while the latter are, to our modern minds, grotesque in the extreme, being mainly representations of extremely fat women in the nude, yet they show an appreciation of form that cannot be denied. The drawings, almost exclusively of animals of the chase, such as mammoths, rhinoceroses, bisons, horses, deer, bears, wild boars, chamois and so on, are extremely life-like and accurate, better, in fact, than many a modern artist's representations of animal life. They were executed in charcoal and variously coloured earths on the walls and roofs of deep caves in various parts of Europe, and have remained in a marvellous state of preservation to the present day. Strangely enough, it is these realistic drawings that are the oldest examples of prehistoric art. Later artistic efforts were not nearly as accurate. Apparently man's tendency to conventionalize began to assert itself, and later prehistoric art was all in the direction of crude decorative designs and symbols, the beginning of writing. Only in Africa does the accurate representation of animal forms appear to have survived into later prehistoric times, some fine examples having been discovered in various parts of that continent in recent years, and attributable to the Bushman.

The Eskimos appear always to have been extremely artistic, in prehistoric times having already developed an advanced technique in both decorative and realistic carving in ivory and bone, as evidenced by the recent finds made by Mr. Henry B. Collins, Jr. in St. Lawrence and the Punuc Islands in the Bering Straits, and on the Yukon River in Alaska. As a matter of fact a figurine of a nude woman from Punuc Island, a reproduction of which is given in Mr. Collins' paper on "Prehistoric Art of the Alaskan Eskimo," shows a remarkable likeness to certain of the well known figurines found in Europe and belonging to Palaeolithic times.

One almost wonders whether the art of Palaeolithic man was not the work of two groups, the drawings on cave walls representing the work of a race that was ancestral to the Bushmen of to-day, while the carvings represent that of a race ancestral to the present day Eskimos. If this is so then the Crô Magnons must have been the carvers and the Grimaldi race the drawers.

Reproductions of the carvings and drawings of the Palaeolithic period may be seen in any of the many books on prehistoric man in Europe.

A. DE C. S.

MR. KITCHIGIN'S EXHIBITION: Some years have passed since Shanghai had a professional art exhibition of the quality of that of Mr. A. M. Kitchigin, of the Imperial School of Painting, Sculpture and Architecture, and the Stroganov School of Fine Arts, both of Moscow. For about sixteen days this display was exhibited in the hall of the Royal Asiatic Society, Shanghai, and not only on the occasion of the *vernissage*, on February 8, but throughout the duration of the exhibition, there was a very large and appreciative attendance. The well known severity of the two schools in which he studied, is evidenced in many of the one hundred and seventy pictures which the artist showed. At times this verges on harshness, chiefly due to the very direct methods he employs, an almost brutal recognition of the essential facts of his subject and an unsparing accuracy in his drawing. For this reason, occasionally we noticed paintings which failed to appeal to us, contrarily enough, because of a quality of sheer efficiency, a quality which seems to detract somewhat from the graciousness which is more often expected from the more prominent European schools. A great deal of this is due to the artist's methods, which are just as direct as the pictures indicate, and a palette which is absolutely "hot" with colour. For this reason many of his Chinese landscapes fail to appeal to the writer, particularly when he uses lighting effects which are almost theatrical in their quality. But when he deals with marine subjects, his treatment of atmospheres, the quick seizure of passing vagaries of light and their sympathetic treatment in good colour, secures pictures which it is a real enjoyment to see.

One pleasing feature of the whole display of pictures was the absence of that Russian mannerism, on which we commented, in another connection, in the issue of January. Taken away from purely Russian subjects, Mr. Kitchigin indicates an international character in his work, particularly in the absence of that *noirâtre* quality, which, in the eyes of some, detracts from the work of so many of his countrymen. He is very much of a colourist and a good one at that, as witnessed by some remarkably able junk studies, than which we have rarely seen a better in Shanghai. To be perfectly frank, however, we do not like his work in sanguine, for it seems a trifle unsympathetic, because of the technical accuracy which endows it with an almost photographic quality, not altogether pleasing.

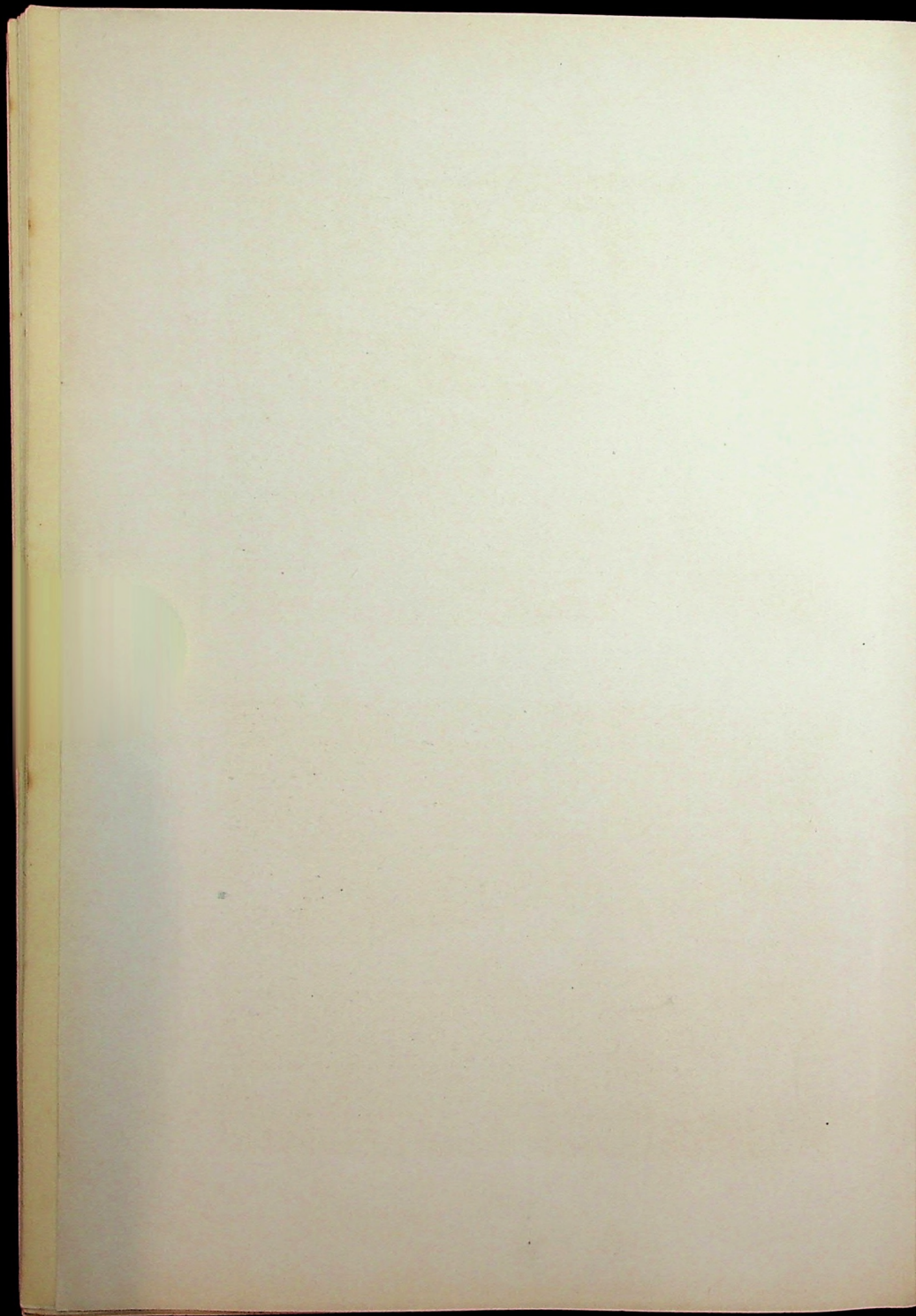
In portraiture, he is probably the best who has visited Shanghai, since Ribera was here some ten years ago. There is in this branch of his work a sureness of treatment, and a good handling of colour values which makes his work stand out as something exceptional locally. The amount of light he manages to put into his shadows gives a rich glow to his work which adds greatly to its charm. Thus, in the portraits of various Shanghai men, he has wrought pictures very much above ordinary standards, though possibly some of his sitters might have looked for more sympathetic treatment. That he can be sympathetic, however, is amply proved by the two portraits in pastel of Mrs. Sapojnikoff, and Mrs. Burkhardt, and the oil painting of Mrs. Sokolsky. There is considerable difference in the treatment of the three, particularly in the pastels, but they indicate that Kitchigin has all the manner of a good society portraitist with all the necessary elegances, and the half-length pastel of Mrs. Burkhardt is a delightful example of the sophisticated handling

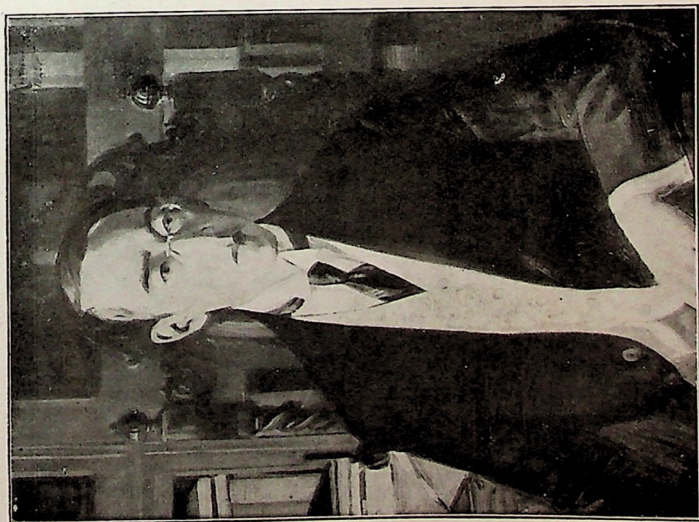


Old Chinese Villagers. From the Oil Painting by
M. A. Kitchigin.

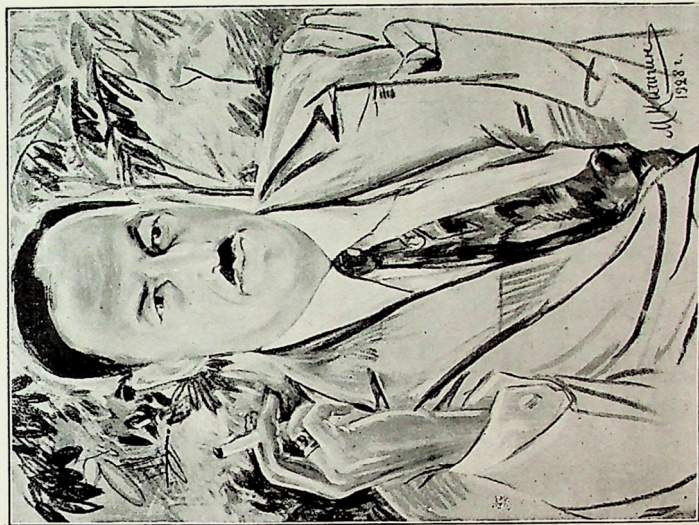


A Chinese Man. From the Sanguine by M. A.
Kitchigin.

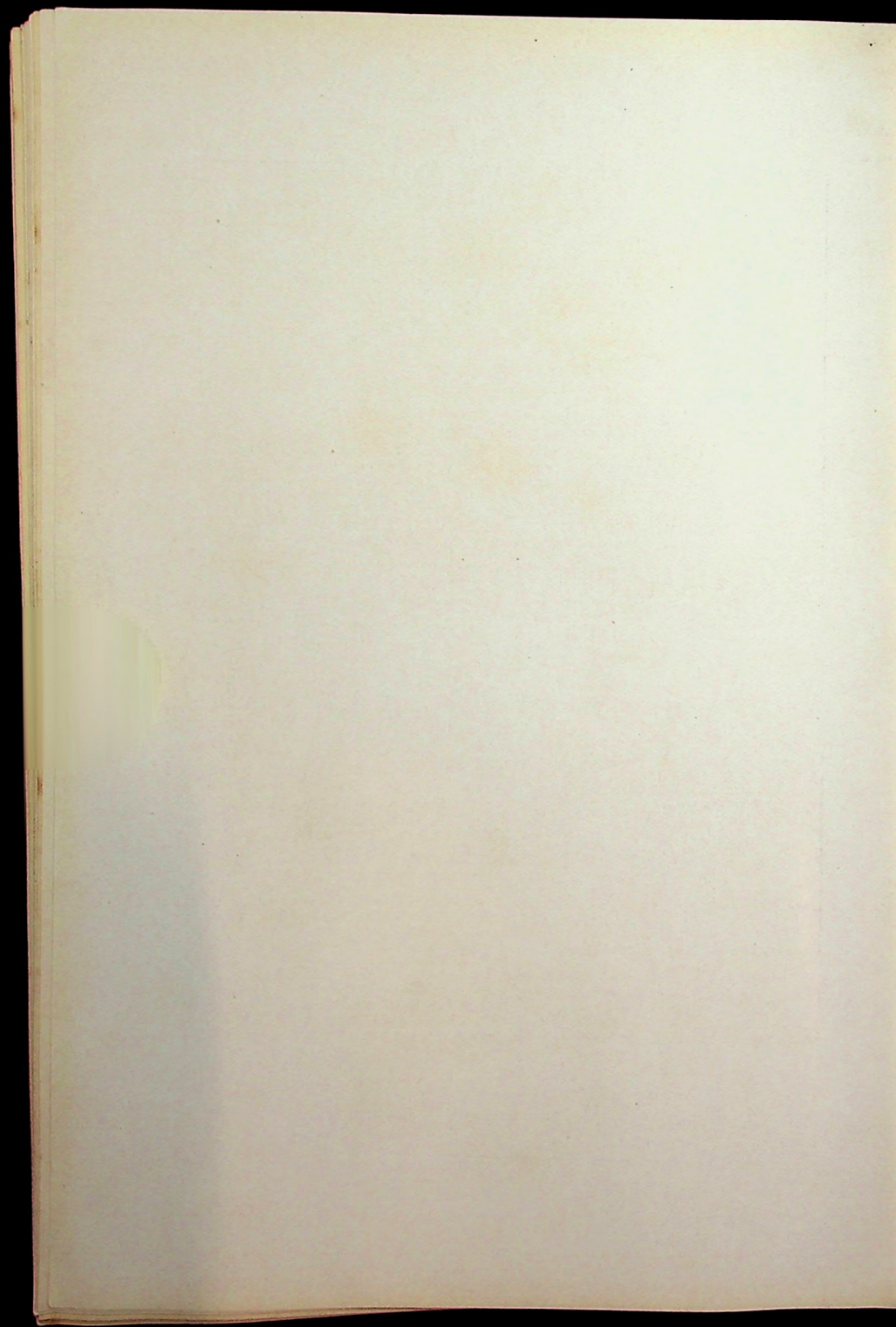




Mr. Alexander Ting of Shanghai. From the Oil
Colour Painting by M. A. Kitchigin.



Mr. A. M. Kotenev of Shanghai. From the Oil
Colour Painting by M. A. Kitchigin.



of the medium, chiefly betrayed by the sheer simplicity with which he obtains his effects.

The "Graphics" are not unlike caviar: they are an acquired taste, necessitating an appreciation of medieval qualities in a Byzantine treatment. They are not uninteresting, but take a little getting used to.

It will be seen, therefore, that, taken as a whole, the exhibition was somewhat uneven. That does not, however, detract from the fact that Kitchigin is an artist of considerable ability, great efficiency and in many instances no little charm.

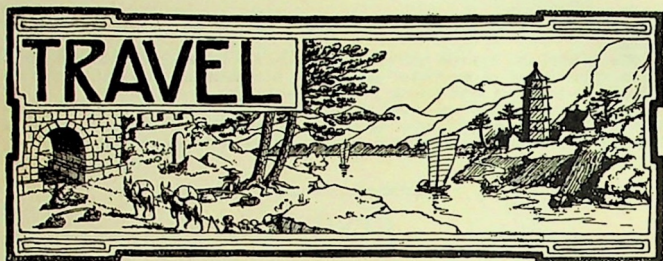
R. T. P. G.

REVIEWS

SINISM: A study of the Evolution of the Chinese World-view, by H. G. Creel: The Open Court Publishing Co., Chicago. G.\$2.00.

What the writer of this fascinating book calls the "World-view" of the Chinese people is a matter of the utmost interest and importance to the world to-day, for there can be no doubt that the "China question" is one of the outstanding problems calling for solution if world peace and prosperity are to be maintained. We all know now about Confucianism, Taoism and Buddhism, the three great religions of China, but do we know what the Chinese really think and believe and feel? What is the real, everyday, working philosophy of the Chinese? This is the question that Mr. H. G. Creel sets out to answer, coining the term "Sinism." In his own words Sinism "is used to denote a peculiarly Chinese world-view, which, although it has been in constant evolution, is traceable as a psychological culture-centre through all the millenia of Chinese history of which we have any clear knowledge." It is a good term, and fills a very definite lacuna in our vocabulary. And now, what is this peculiar and distinct world-view, this Sinism of the Chinese? Fully to appreciate it, it is necessary to read the book through, but it may be summed up briefly as a philosophy of human procedure calling for a strict adherence to a certain well defined conduct of life on the part of each member of the community, which itself is an integral part of a cosmos where law, order and harmony are the essential and important factors. It arose out of the very early system of small agricultural communities, mainly consisting of large family groups, wherein, it will be readily understood, each member had his or her part to perform, and in which disharmony could not be tolerated. It inevitably produced a pronounced provincialism. The welfare of such communities depended upon the orderly processes of nature: heaven and earth must unite in harmony to provide the wherewithal for their support, and man must do nothing to anger the elements or upset the harmony in nature. When the idea of kingship arose, the King, and later the Emperor, was the direct intermediary between heaven and earth on the one hand and man on the other. In other words the ruler, as well as the ruled, must follow the "Way" or the *Tao*, and if he failed, calamities would fall on the people, and sooner or later he would be deposed and another set up in his place. Had the Chinese been a warring, raiding people like their neighbours the Tartars in the north, the Europeans or the North American Indians, such a philosophy or world-view could never have been developed. The earth was the source of the livelihood of the proto-Chinese, the heavens sent the warmth and moisture that called forth the earth's produce, therefore heaven and earth were the essential deities that they worshipped, and the true harmony and rightness of nature was the essential road to follow. Out of that fundamental concept the whole philosophy of the Chinese regarding the world and existence were developed. Confucius, Mencius, Hsün Tze and Lao Tze, although differing each in his approach, all maintained the fundamental truth of this concept, and Buddhism, when it came, had to fit in with it before it could become a religion of the Chinese people. Man's relation to the members of his family, to the clan, to the state and to heaven and earth, how he fits in with the cosmic harmony, that is the thing that is of fundamental importance.

A. DE C. S.



IN THE STEPPES OF BARGA

BY

TSAO LIEN EN

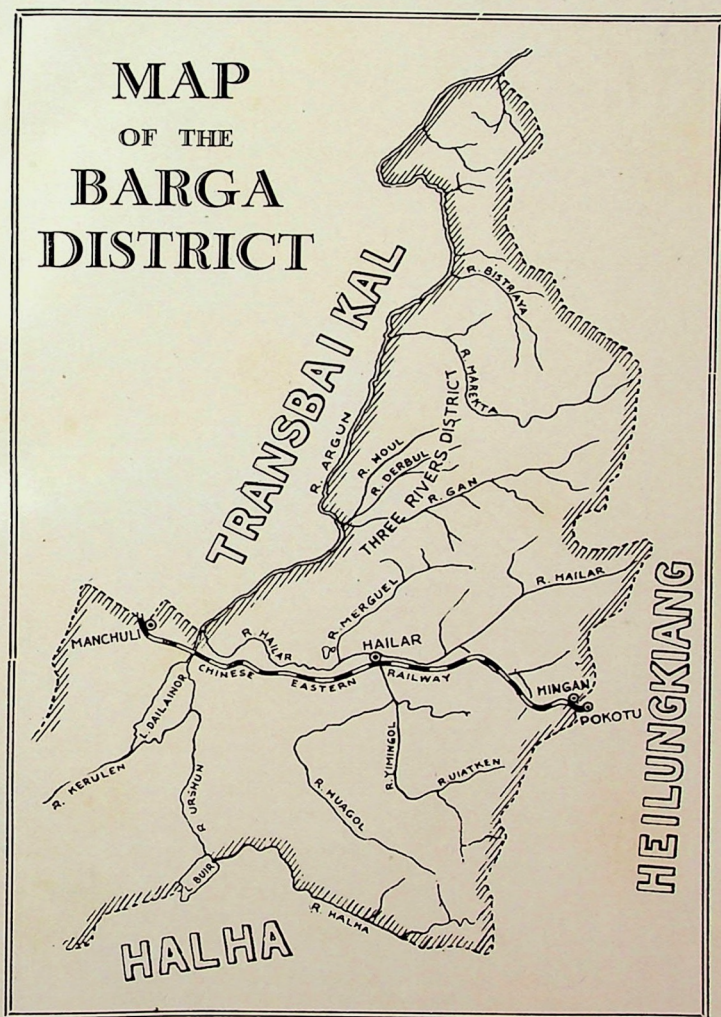
Situated in the north-western corner of Manchuria on the borders of Transbaikial Province of Soviet Russia and Mongolia, the territory of Barga, which is part of Heilungkiang Province, has long been a subject of dispute between Chinese authorities and Mongolian chieftains. The Chinese, however, still retain control over the district according to the boundary line laid down in the Nerchinsk Treaty signed in 1689 with Tsarist Russia. On many occasions the Mongolians resident in Barga have proclaimed independence, and during the recent Sino-Soviet controversy over the Chinese Eastern Railway, when Soviet troops entered Chinese territory from Manchuli, Mongolians again took possession of Hailar, the capital of Barga, but retreated when the dispute was settled.

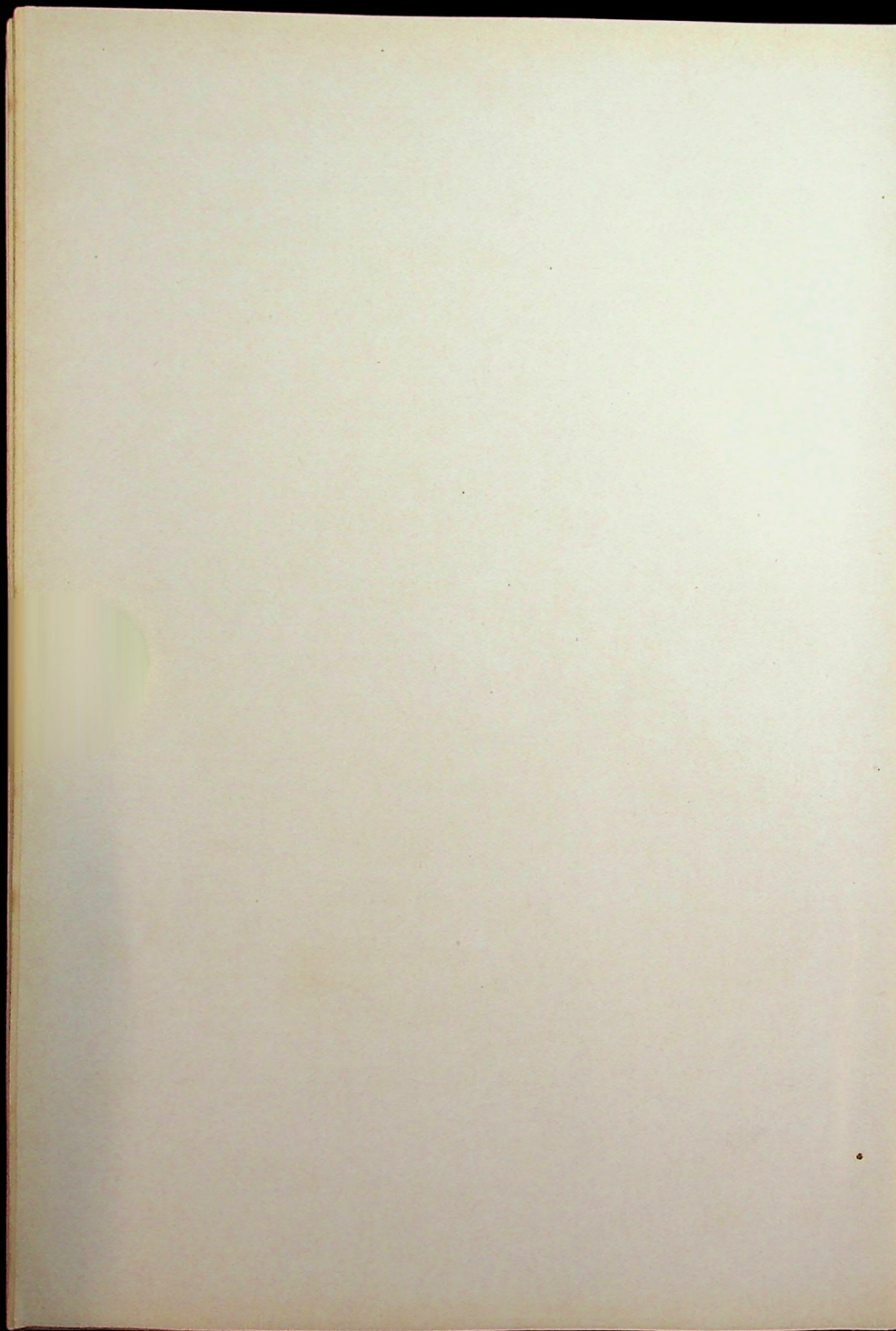
The area of Barga is estimated at 155,599 square kilometres, the boundary line in the southwest between Manchuria and Mongolia being in dispute. The Mongolians in Barga claim that the border line coincides with the Halha River, but the Halha authorities say that it runs eight kilometres north-east of the Halha River. The Chinese border along the Argun River is guarded by Chinese troops, but Mongolian guards are stationed on the south-western border of Barga.

The territory of Barga is a tableland, the northern part of which resembles Heilungkiang Province, the ranges of the Hingan Mountains spreading westward towards the Argun River, but the central and the southern parts differ markedly from Manchuria. Proper in that they consist of steppe land with long grass and small bushes. The longitudinal profile of the Chinese Eastern Railway cutting the territory in the middle gives a general relief picture of Barga. The average altitude of the ranges in Barga is 640 metres above sea level.

There are altogether ten rivers flowing through the length and breadth of the territory. The Halha River, originating in the Great Hingan Mountains, empties into Lake Buir. Its length is from 320 to 370

MAP
OF THE
BARGA
DISTRICT





kilometres. The Urshun River flows from Lake Buir to the Dalainor, and measures 210 kilometres. The Haila River also originates from the Great Hingan Mountains, bending northward at the Sino-Soviet frontier, whence it is known as the Argun River, a part of which is navigable by small vessels. The Gan River, which has its sources in the Hingan Mountains, discharges into the Argun River, a number of tributaries branching off in its upper reaches. The length of this river is 300 kilometres. The Derbul River runs parallel to the Gan River meeting the latter at its estuary. It measures 120 kilometres in length. The Houl River, stretching over a distance of 100 kilometres, intersects the Derbul River in the vicinity of the Argun River. The territory gravitating to the last named three rivers is known as the Three River District, where a number of White Russians from Transbaikal Province have built their villages. They were forced to come to China during the revolution of 1917 in search of peaceful lands for farming and rearing cattle. During the Sino-Soviet dispute the communist troops invaded the Three River District, setting fire to some of the villages, stealing the grain and merchandise stored there, killing and perpetrating outrageous crimes for which the terrorists are so famous. The Kellary River also gravitates to the Argun River. The Marekta River, about 100 to 130 kilometres long, comes from a high range in the Hingan Mountains, flowing westward to the Argun River. The Bistraya River is 400 kilometres long, flowing through a rich timber region in the northern part of Barga. During the years 1910 and 1911 much timber was rafted on this river to the Argun River. The Yimingol River in South Barga is perhaps the most important watercourse to the economic life of the territory. It flows northward for a distance of 500 kilometres through Hailar, on which timber rafts belonging to the Vorontsoff Brothers' concessions are floated in large numbers every year. The Kerulen River, measuring 1,000 kilometres in length, has its sources in the inner recesses of Halha, Mongolia, and empties into Dailainor, its length in Barga being only 200 kilometres.

The flora and fauna of Barga differ in many respects from those of North Manchuria, but resemble those of the Transbaikal Province of Russia. Barga may be divided into two sections in regard to flora and fauna, the steppe section and the mountain section. In the mountain section in the north-east of Barga larch trees predominate in the forests, which are estimated at 70 per cent. of the entire forest wealth. The height of the larch is about 30 metres and the diameter is about 1 metre. White and black birches, poplars, and wild apple trees form the other 30 per cent. of the Barga timber. Pine tree groves can be seen in the district of Hailar and in South Barga, covering the slopes of sandy dunes. No pine, however, is traceable to the north of the Chinese Eastern Railway. In the steppes of Barga medicinal herbs also grow in abundance among a variety of grasses which are rich and nutritious to cattle and horses. Among the wild flowers that grow in the territory are the lily-of-the-valley, the peony, the iris and a many others. In the spring the steppes of Barga present a picturesque scene: in the summer the green colour of the landscape fades into crisp yellow, and in the winter the entire territory is laden with snow.

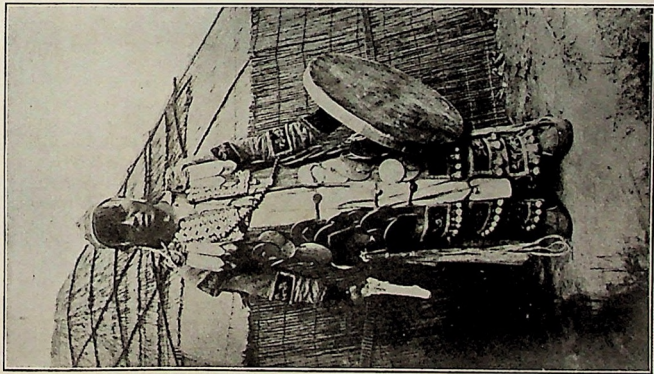
The animals that abound in the mountains include bear, lynx, wolf, fox, moose, wapiti, reindeer, roedeer, wild goat, musk deer, wild boar and other wild beasts. A picturesque variety of game birds inhabit the region, including black cock, capercailzie, pheasants and partridges, while the rivers and lakes, especially the Dailainor and the Buirnor and the Urshun River, are full of different kinds of fish, especially trout and hucho, a large salmon-like species.

In the steppe country antelopes and bustards are numerous, as well as marmots, or *tarrabagan*, ground squirrels and hares. Wild sheep also occur in certain areas.

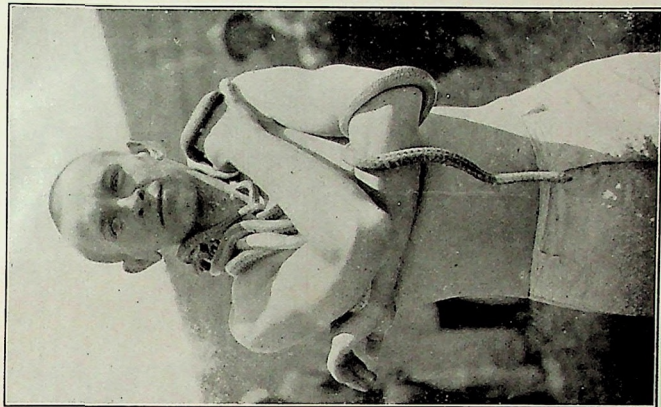
The history of Barga dates back to 1779 B.C. From the earliest times the territory has been the bone of contention between rival Mongol tribesmen and the scene of many wars. Historical landmarks and traces of early civilization had long been destroyed by conquering legions, who came with their nomadic followers. And for this reason a systematic record of the history of Barga is not at present available, except fragmentary accounts of Chinese and Mongol legends, from which may be gleaned the hoary past of this almost sparsely populated territory. Chinese tales tell of historical events that transpired in regions between China Proper and Mongolia. One legend tells that in the sixteenth century before Christ a Chinese prince, Gun Liu by name, left his royal domain to rove in the steppes of Mongolia. Owing to repeated raids by the Mongols the Chinese built the famous Great Wall during the Tsing Dynasty, when three kingdoms were formed outside the Great Wall: Dun Hu, including Barga in the east; Shuan Nu* in Central Mongolia; and Uaitchi in the west of the Ordos. Of these kingdoms Shuan Nu was the strongest, ruled by Modo-shang-ewi, who conquered the other two kingdoms and formed the Empire of Shuan. After the conquest the territory of Dun Hu was divided into two parts, Barga being one of them. Later under Emperor Wu-ti (140-86 B.C.) a detachment of troops was sent to conquer the Shuan Nu for making repeated disturbances. The detachment led by Wai-tsin fought the Shuan Nu at the Kerulen River. This detachment was the first Chinese armed force in Barga.

During the reign of the Emperor Huang Ti (147-168 A.D.) the Shuan Nu were conquered by the tribe of Sian-bai, the latter dividing the territory into three parts, the eastern with Barga included, the middle, and the western. The Sian-bai, being a warlike tribe, conquered not only the Shuan Nu but also China, and formed their own dynasty of Toba. One of the kings of this dynasty extended the territory of Toba by annexing a part of Transbaikial Province. The Emperor Sui Ang, whilst looking for a suitable place to build his capital, came across a large lake about one hundred li in circumference. Finding the place marshy and damp, he moved further on, and ultimately died of fatigue. Another Emperor, named Ling Siang, was advised by a mysterious "sainted man" to move southward, where he conquered the Shuan Nu and then invaded China. It is said that the Wei Dynasty was formed by him.

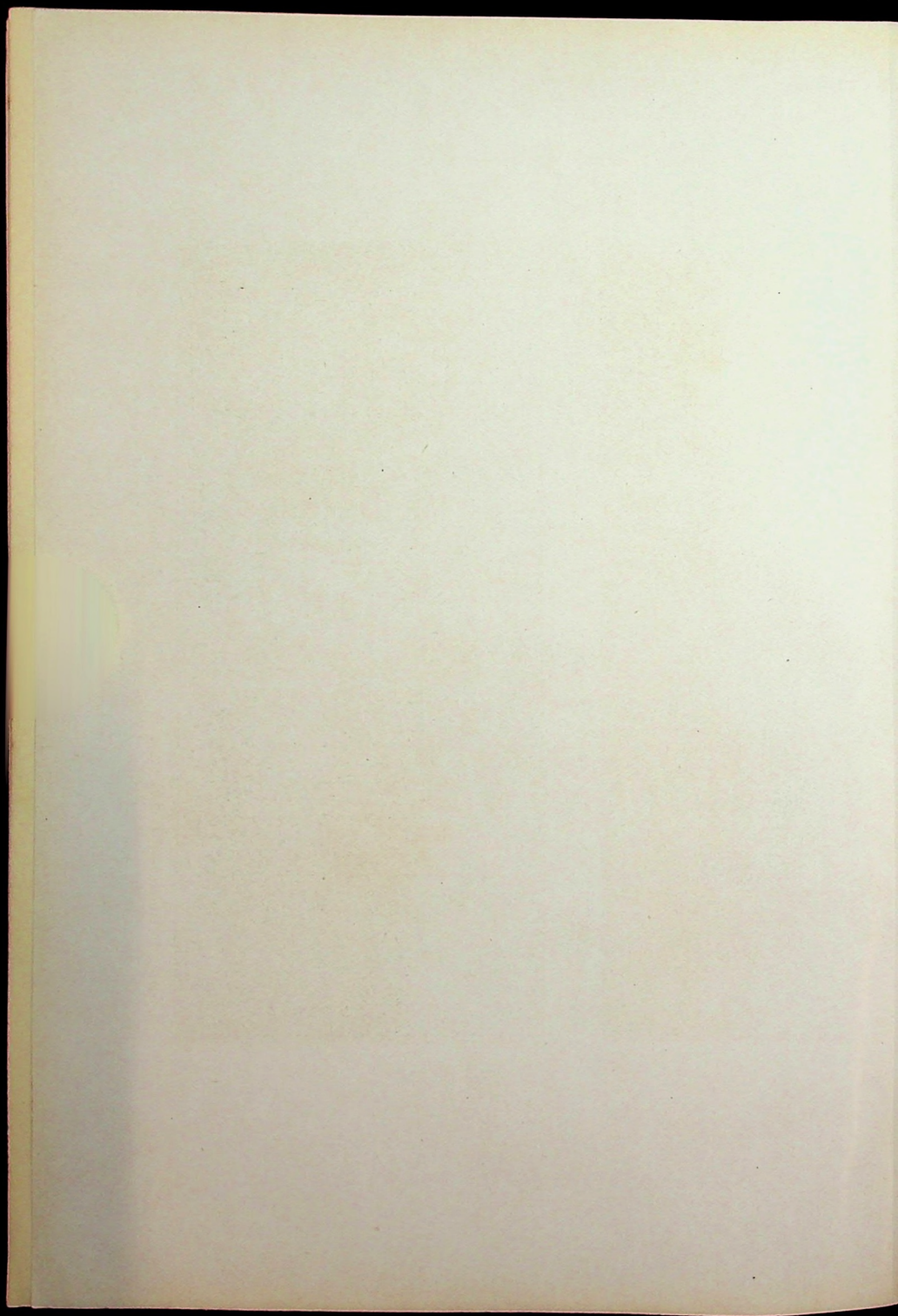
* Hsung Nu or Huns.

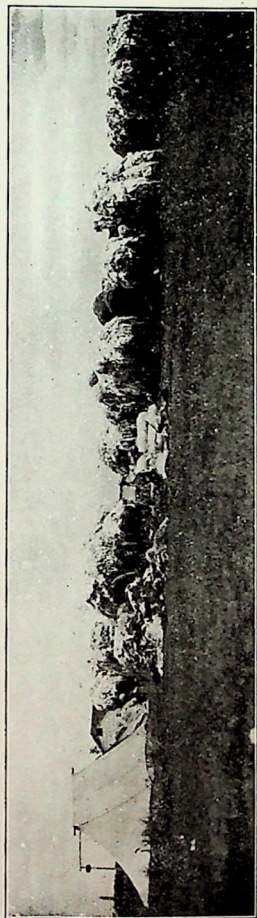


A Shamanist Priest in his Sacred Vesture, with a Sheepskin Drum and Human Bone in his Hands.

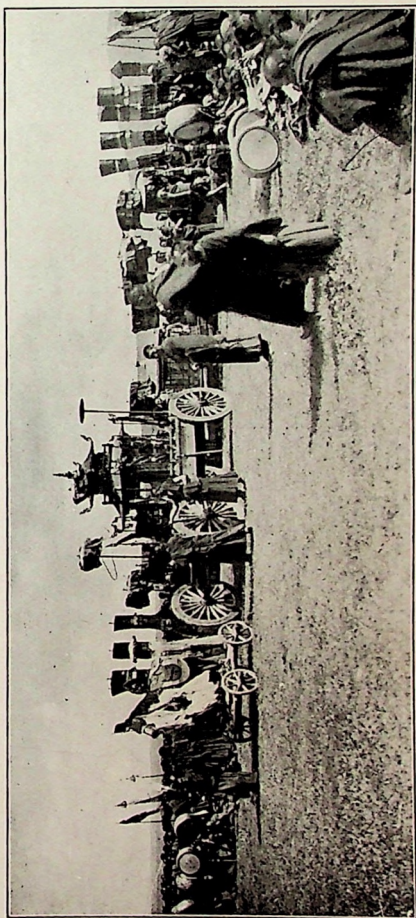


A Russian Tartar with Sacred Snakes of a species that is very common in the Halun-erh Shan.





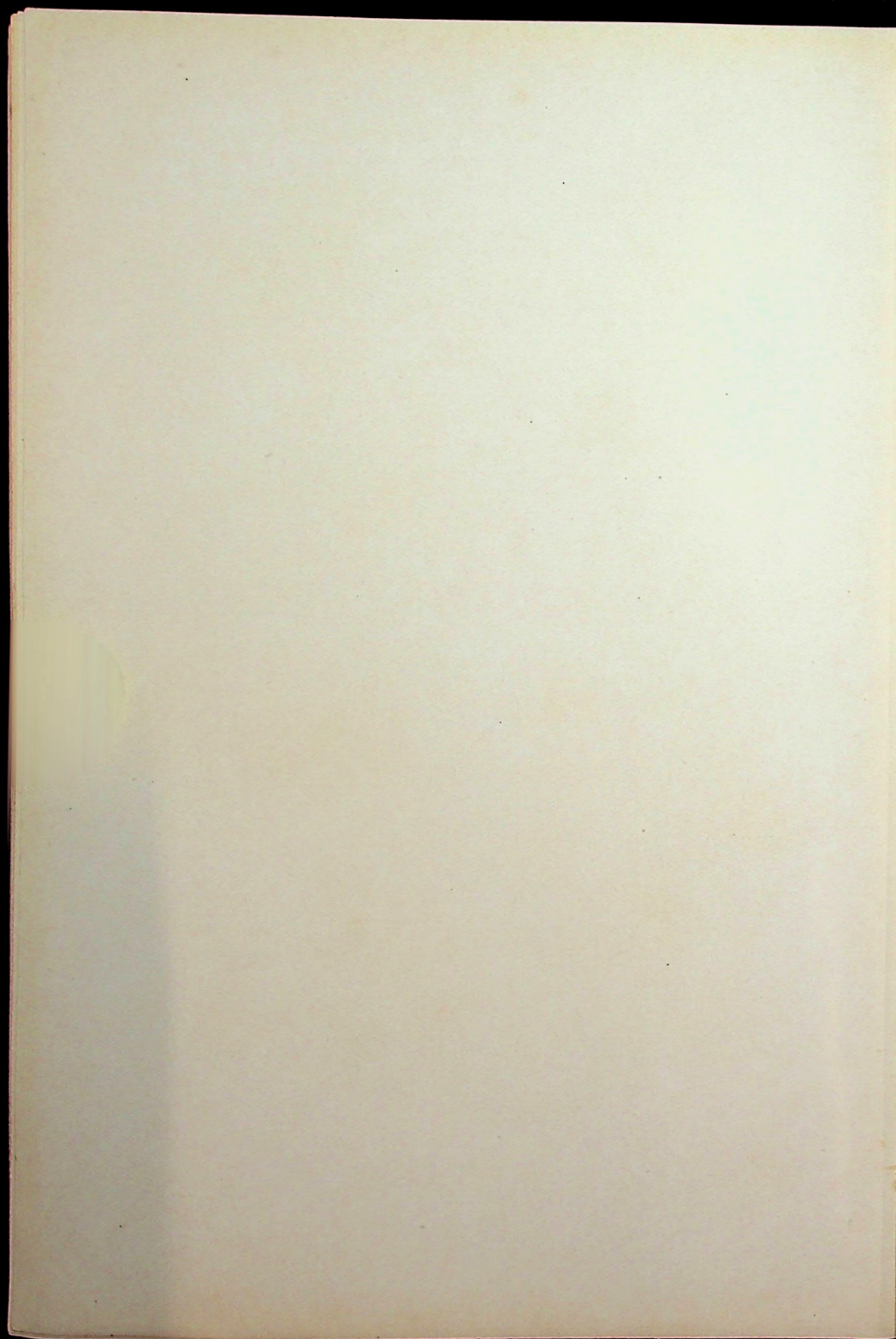
Cartloads of Sheep's Wool on the Barga Steppes being transported to the Railway.



A Lama Procession at a Religious Festival on the Barga Steppes. The Mairi God, a Horse, heads the Procession on a small four-wheeled Wagon.

A procession of Mongolian Lamas
Horse on the small Wagon leading

stival in the Barga District. The
the Mairi God of Lama Temples.



In the fourth century A.D. in the neighbourhood of Barga there appeared a strong tribal people known as the Ki-tans, who conquered all other Mongolian tribes. In the seventh century Barga became a part of their vast domain, and in the tenth century the Ki-tans conquered North China and established the Liao Dynasty (907-1119 A.D.). Afterwards the Ki-tans were conquered by the Nui-zshens, a people identified as the early Manchus, who formed the Chin Dynasty which existed till 1234 A.D. When the last stronghold of the Chin Dynasty was taken by the Mongols, the Yuan Dynasty was formed. The latter dynasty was succeeded by the Ming Dynasty, when the Chinese once more drove out the Mongols.

At the beginning of the seventeenth century the Manchu tribes were united under the remarkable warrior, Nurhachi, who fought the Chinese and drove the Mings out of Manchuria. Documents found in the Russian Orthodox church in Peking show that the territory of Barga, the basin of the Argun River, Transbaikai Province, and the district along to the Amur River were all included in the dominion of the Manchu Emperor. Later the Manchus conquered China.

In 1551 the Cossacks of Russia crossed the Ural Mountains and conquered the Mongols in Siberia. Later in the seventeenth century the Cossacks, after founding the cities of Irkutsk, Nerchinsk and others, entered the valleys of Argun, Shilka and Amur Rivers and the Barga territory. A part of the Mongol tribesmen fled to China, while others surrendered to the Russians. In 1667, a leading Mongol prince, Gaudimur by name, who was also overlord of Barga and the eastern part of Transbaikai Province came to Nerchinsk and offered to be a vassal of the Tsar. As vassalage in the olden days was demonstrated by the offer and receipt of tribute, the Russian Governor at Nerchinsk commissioned Nikifor Chernigovsky to receive gifts and contributions.

The acceptance of tributes by the Russians aroused the ire of the Court at Peking, whereupon the Emperor despatched a strong army to Barga and Siberia. In the summer of 1686 the fort and city of Albazin was besieged by Chinese troops and over 700 Cossacks were taken captives. This was an early conquest of China over Russia, as a result of which the Treaty of Nerchinsk, outlining the boundary line between the two countries was signed. Since the conclusion of this treaty Barga has been a hotbed of international rivalries among Chinese, Mongols and Russians, the latter two often joining hands. On two occasions the Mongols in Barga under their leader, the Amban, proclaimed independence, but the Chinese authorities of Heilungkiang Province succeeded in asserting their right over the territory. During the Sino-Soviet dispute over the Chinese Eastern Railway, the Mongols, instigated by the Soviets, once more attempted to seize control over the territory.

A few memorials from prehistoric times have been bequeathed to posterity, which shed interesting sidelights on the progress of mankind and of Barga itself. Implements of the Stone Age have been found near Lake Tsagan in the vicinity of Hailar. A dwelling of prehistoric man was found in the district near the Rivers Yado and Sando, tributary to the Yimingol River. In the valley of the Derbul River the

ligious Festival in the Barga District. The session is the Maidari God of Lama Temples.

A procession of Mongoli Horse on the small Wag

Russian immigrants once unearthed a stone mortar and pounder, which are also considered as belonging to the Stone Age. On the rocks of the Argun River near the estuary of the River Bistraya were discovered images of human forms, carved on the stone surface. In 1925 in the neighbourhood of the Kuli Village a cast-iron plough share was excavated by local explorers, and near the Kunkoul Village a bronze vase with three legs was found.

An interesting landmark of Barga is the Ghengis Khan wall,* which is said once to have stretched over the whole distance from the Pacific Coast to the heart of Central Asia, where it disappeared in the interior of Persia and Afganistan. At present only little rows of mounds about one and half metre in height are seen in and around Hailar and in remote parts of Barga. These mounds consist chiefly of earth, extending at some places as much as thirty miles or more in length. Ancient strongholds of the Mongols, built to resemble the Great Wall of China, evidently to defend themselves from the invasions of Russian Cossacks, have for the most part disappeared with the passage of time. It is claimed by Russian archaeologists that the wall of Ghengis Khan spread once through the provinces of Amur, North Manchuria, and across the Amur and Argun Rivers through Transbaikal, west Mongolia, Afganistan and Persia. Sites of demolished strongholds are still to day to be found about every thirty kilometres along the remnants of the wall.

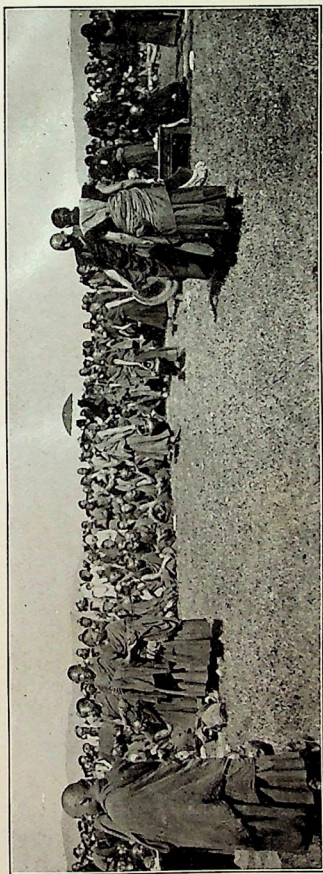
Interesting stories are told about the Ghengis Khan wall. One legend has it that the wall was built by a Mongol prince for his daughter to travel beneath its shade, for a wise man had said that she would die in sunshine. Another tradition says that the wall was built by Prince Gau-timur in the seventeenth century A.D., who afterwards surrendered his Kingdom to the Cossacks. Professor Baronoff, an authority on Barga and Mongolia, whose writings abound in many volumes, says that the wall was the ancient frontier line of the Kingdom of Toba of the Tungus Kings, about one thousand years before the birth of Ghengis Khan. The Russians name this wall the road of Kropotkin, because the latter headed an expedition of scientific research work along the wall between 1815 and 1864. Ancient bricks, stone slabs and statues were excavated under its ruins by the Russians, who removed them to Novo-Tsuruhaitu, a village in Transbaikal, to adorn their churches.

Other landmarks of Barga include four stone dwellings, a stone cave, the ruins of a church near Halha, the Ganjour Monastery and a burial ground of Mongolian military leaders.

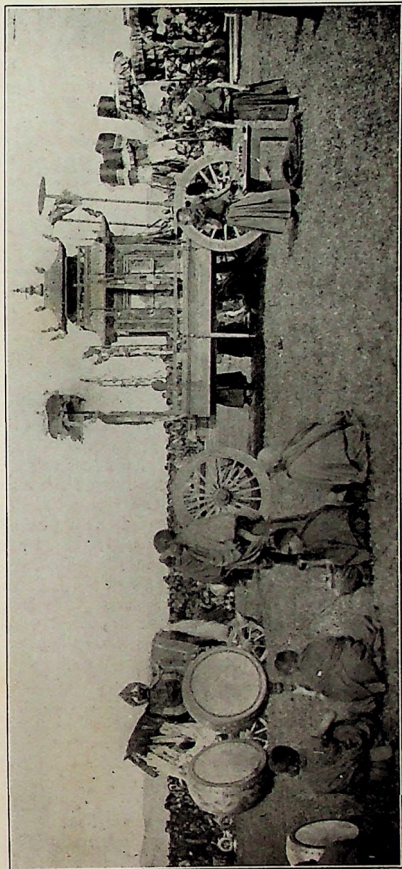
The climate of Barga is largely influenced by the Gobi Desert, the Hingan Ranges and its forests, and the large number of rivers and swamps.

The population of Barga may be divided into settled and nomadic peoples, the former consisting of Chinese and Russians, while the latter are all Mongols. The settled people live chiefly along the Chinese Eastern Railway, in the valleys of the Argun, Gan, Derbul, Houli, Hailar, Merguel and Chin-ho Rivers. The steppe territory of Hulunpuir is occupied by

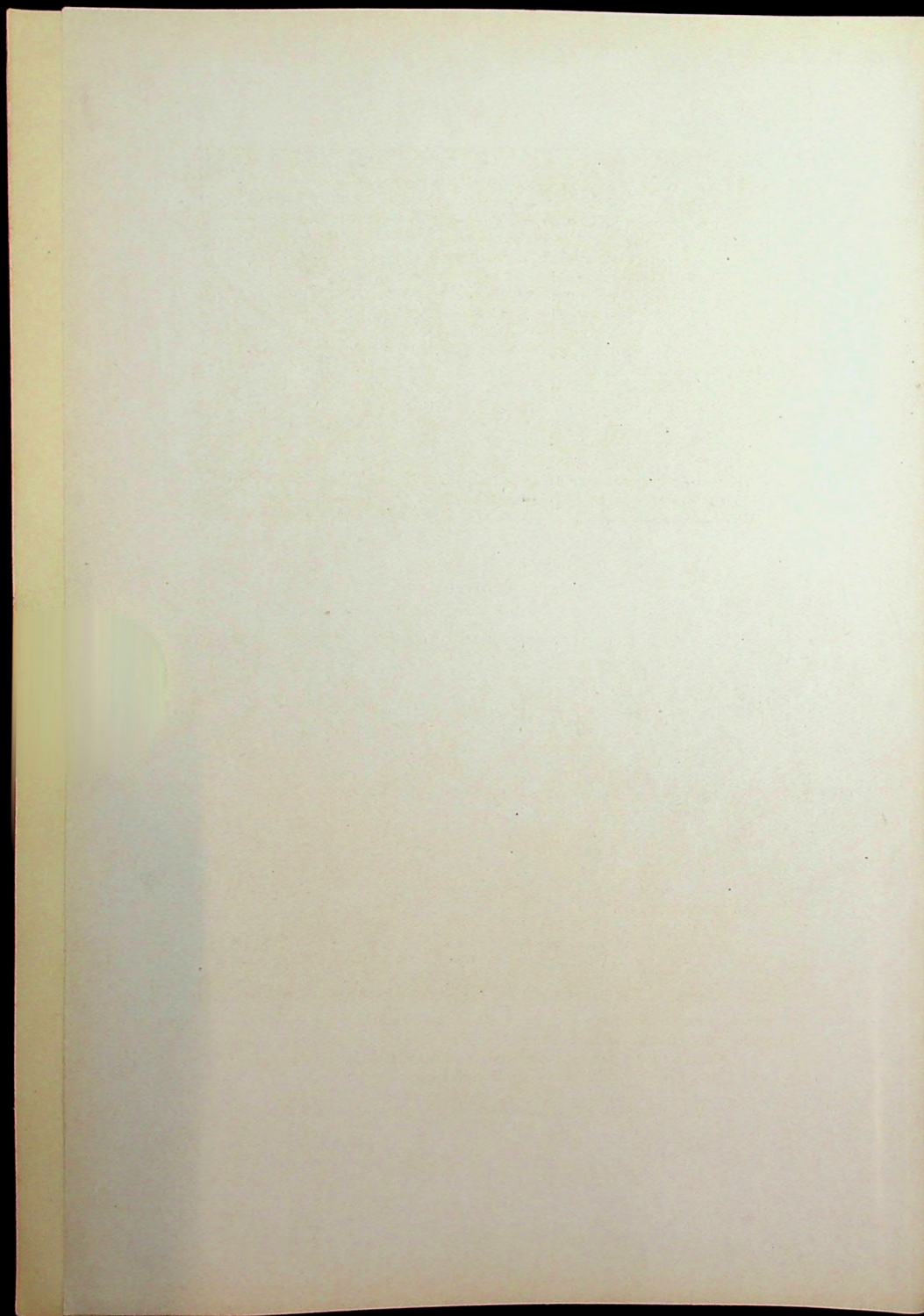
*The birth place of Ghengis Khan lies somewhere either in or close to the Barga district between the Kerulen and Onon Rivers.—Ed.



A gathering of Mongols and Buriats in the Barga District, North-west Manchuria.



A procession of Mongolian Lamas at a Religious Festival in the Barga District. The Horse on the small Wagon leading the Procession is the Maidari God of Lama Temples.

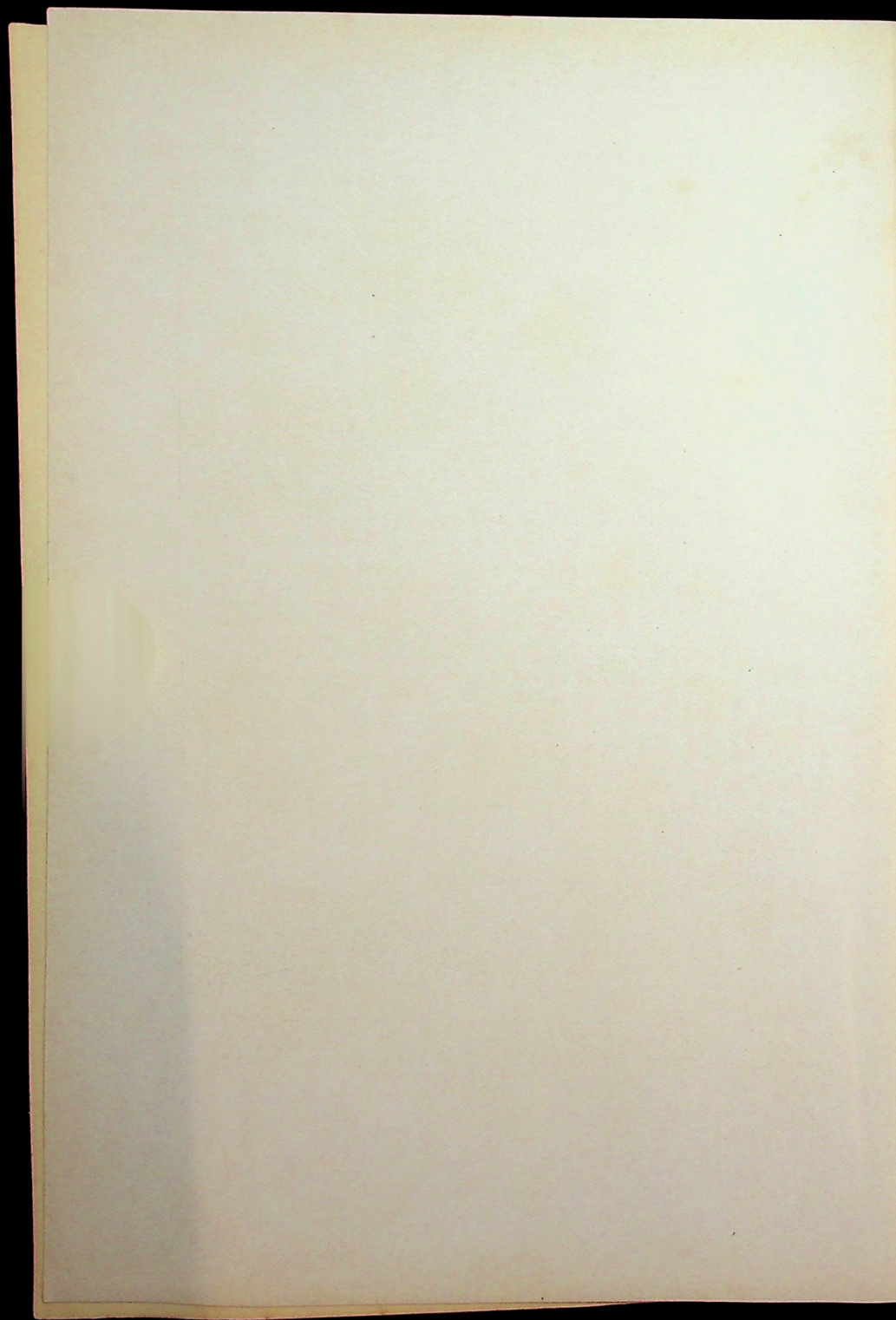




Soviet Agents preaching Bolshevism to the Mongols in the Barga District, North-west Manchuria.



A Russian and a Mongol striking a Bargain by holding each other's Fingers under cover of their Sleeves. The Prices of Live Stock are never spoken, always being indicated by the Fingers, so that other Merchants shall not hear.



IN THE STEPPES OF BARGA

Mongolian tribesmen. The woodlands of the Hingan Ranges, from the southern border of Barga to the river of Bistraya, are populated by the Orotchons, a special Mongol tribe of hunters and fishers. The wooded region north of the Bistraya River is peopled by the Yakuts, another Mongol tribe.

According to the estimate made by V. A. Kormazoff the population of Barga is distributed as follows:

Settled Population

Chinese	..	..	..	..	..	..	17,177
Russians	..	..	..	..	..	..	22,658
Others..	..	..	..	..	..	..	269

Cattle Raising Nomadic Population

Mongolians	..	..	..	..	..	..	27,662
Buryats and Tungus of Transbaikai	..	..	..	..	..	..	3,110

Hunting (Nomadic) Population

Orotchons	..	..	..	..	..	..	895
Yakuts	..	..	..	..	..	..	250

Total	..	..	..	..	..	..	72,021
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The nomadic population of Barga may be divided into two groups, the Tungus and the Mongolians. The Solons and the Tungus are of Transbaikai origin. The Tchaptchins, the New-Mongolian-Buryats, the Olots, the Dahurs and the Transbaikai Buryats form the Mongolian group. The Mongolians in Barga are called Barguts by the Halha Mongolians, because they do not believe in Buddhism. Barguts is the Mongolian word for Barbarians, hence Barga means the domicile of the barbarians. Barga was first populated in the year 1732, when Emperor Yung Chen of China ordered the evacuation of the Solons, the Olots, the Tchaptchins and the Dahurs from Tsitsihar. In the following three years Mongol-Buryats also came from Halha.

The Solons originated from the ancient tribe of Tungus, then known as the Sushens, who were the forefathers of the Manchus. At first they gathered in the Tsitsihar district, but after the Mongol evacuation in the Ching Dynasty, they scattered all over Hulunpuir, roaming north of the railway line and in regions bordering the Argun River. In South Barga they are found in the valleys of Huagol River. Animal breeding and hunting are their chief occupations. The Solons are a warlike tribe, short in stature but taller than the average Mongolians in Barga, with black hair, big mouth, thick lips, wide forehead and comparatively more regular features than the rest of the roving population. In religious belief nearly all the Solons are Shamanists and not Lamaists.

The Tchaptchins came from Halha in Mongolia to roam in the Hingan Ranges and the fertile valleys of the Nonni River. At present they are limited to the north-western part of Barga, where they are engaged in cattle-raising only. They are comparatively more wealthy than other tribal peoples. The New-Mongol-Buryat also came from Halha, but during a later period. They are found in south-western Barga around

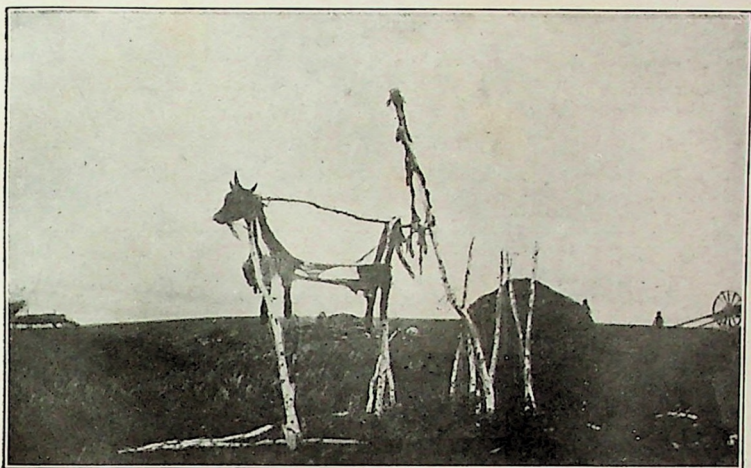
the Dailainor and Buirnor and the valleys of the Urshun River. The Olots migrated to Barga in the seventeenth century during the wars of Mongolian princes from Kobdo, a town in West Mongolia. The Olots are a fair race, having blue eyes and light hair. They are essentially Lamaists. During recent times, especially in the Russian Revolution, the Buryats and Tungus came from the Transbaikial and drove away the Olots, who, being a weaker race, are nearing extinction.

The Dahurs are considered the aborigines of Heilungkiang Province, engaged previously in hunting, but at present in gardening, cattle-raising and agricultural undertakings. In 1732 they were banished from Tsitsihar by the Chinese authorities, and have since inhabited the steppes of Barga. They are found now in the neighbourhood of Hailar and Charamtai. The Dahurs and the Tungus have the same language, many words and phrases being taken from the Chinese and Mongolian languages. The Buryats and the Tungus of Transbaikial appeared in Barga in 1919, during the revolution in Russia. When they first came to Barga they roamed along the Gan and the Merguel Rivers and in South Barga along the Shinhai and Uiatken Rivers. Seeing the large numbers of these peoples coming, the Mongolian authorities with Chinese consent allotted the land of the Olots for their habitat. The Buryats and Tungus are mostly Lamaists, a very small percentage belonging to the Orthodox Church.

The settled population in Barga is found along the Chinese Eastern Railway, along the Argun River in the Three River Districts, and in the valleys of the Merguel, Hailar and Shinhai Rivers. With the construction of the Chinese Eastern Railway about a third of a century ago the Chinese and Russian railway workers began to settle down in the railway zone and afterwards spread to fertile regions along the rivers also. It is noteworthy that among the settled population 54 per cent. are Russians, 45 per cent. Chinese and 1 per cent foreigners. The Russian population consists of early railway workers, remnant soldiers of the Russo-Japanese War and *émigrés* who came during the Russian Revolution. About two-thirds of the Chinese population are merchants, one third being police and railway guards. A small number of Mongolians attached to the Mongolian administrative organizations are found at Hailar.

The Orotchons are a hunting race in Barga, the name deriving from a Manchurian word *Orotcho*, meaning a deer-raiser. They belong to the same race as the Solons, but were distinguished in the early days by the Manchus for refusing to join the Imperial Army. The hunting ground of the Orotchons was at first in the northern ranges of the Hingan mountains, when they used reindeer for hunting; but later, with the death of their reindeer through an epidemic, they were forced to hunt only in the Central and Southern ranges of the Hingan Mountains, from which they could quickly retire to the grassy steppes to feed their horses and dogs. They are more primitive than all other races in Barga, without any civil organizations of their own, but are governed directly by the Mongols. Short in stature, with flat head, big cheek bones, narrow slanting eyes and thin legs, an Orotchon is a scion of some primitive race.

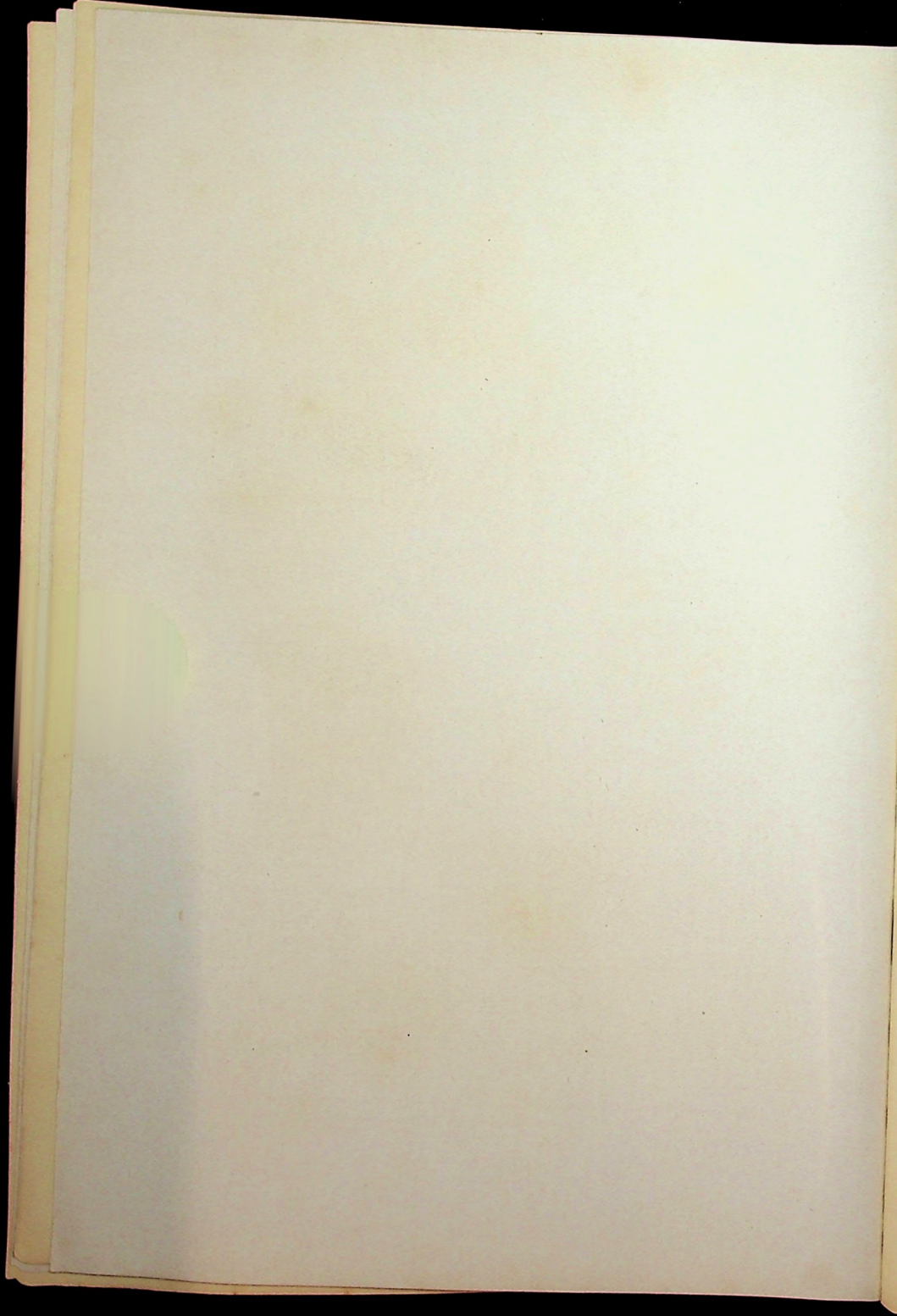
The Yakuts who are different from the Orotchons in appearance, religion and language came from Yakut Province of Siberian Russia.



The Camlanya, a Shamanist Sacrifice in the Barga District. When the Ritual is over, the Flesh of the sacrificial Ox is eaten by the Participants, while the Head, Skin and Intestines are hung on Poles out on the open Steppe.



A Lamaist Shrine at Halun-erh Shan in the Barga District, Northwest Manchuria.



IN THE STEPPES OF BARGA

Most of the Yakuts came to Barga in the early days, though some followed the Koltchak Army to Manchuria, when the Tsarist forces were driven out of Siberia by the communists during the civil war. They are a hunting race and their religion is that of the Orthodox Greek Church.

The territory of Barga is governed jointly by the Chinese Taoyin and the Mongolian Amban. The Chinese authorities divide the territory into four main divisions: Hulunhsien, Lubinhsien, Hsuweihsien, and Tsiganhsien. The civil administration of Barga is in the hands of the Chinese Taoyin, who is the chief Governor of the district and concurrently the Commissioner for Foreign Affairs, with a *yamen* at Hailar. Under him there are four chiefs of each division. The Taoyin is under direct subordination to the Heilungkiang Governor at Tsitsihar.

The position of the Amban was at first also filled by Chinese. In 1732 during the Ching Dynasty a Chinese was appointed as Amban to look after Mongolian affairs. In 1880 the post was filled by a Mongolian, but in 1908 this office was cancelled by Imperial decree, and the Mongolians came under direct control of the Taoyin. When the Chinese Republic was established in 1911, uniting all the five races in China into one nation, the office of the Amban in Barga was re-opened for the Mongolians. Since then the Mongolians have elected their own Ambans. The Mongolian Amban is assisted by the Yutin and Tsotin, who head two departments, one functioning as an administrative and judicial organ, the other as a financial organ.

The Mongolian authorities divide Barga into eighteen Hoshuns, which are grouped under six main divisions. The six divisions include two districts in Old Barga and two districts in New Barga, the Olotsky or Buryatsky Hoshun, and the Orotchonsky Hoshun.

TRAVEL AND EXPLORATION NOTES

MORE SKELETONS OF THE EARLIEST AMERICANS FOUND: A *United Press* message of February 9 in the *North-China Daily News* tells of the discovery of human remains near Point Barrow in Alaska by an expedition inaugurated by the University of Pennsylvania and headed by Mr. Alfred Hopson. These finds, it is declared by Mr. Alden Mason, Curator of the American Section of the University Museum, throw light on the descent of man. The remains are those of an early man who crossed from Asia to America along a narrow strip of land bridging the Bering Sea at that time. He declares that marked difference from the Eskimo is observed in these remains, indicating that they are from a remote age. They are of the Thule type of culture. We presume he means that there are marked differences from the modern Eskimo in these remains, for, if they belong to the Thule culture, they must have been Eskimo, since the Thule is an Eskimo culture. Recently it has been shown that the Thule culture of the east of North America almost certainly originated in Alaska. According to the message, all the bodies that were found were buried in skins of polar bears, deer and moose, and since they were frozen, the bodies were in an excellent state of preservation. The discovery, it is claimed, is linked with other recent finds, including the skull of the "Peking man" and similar scientific booty in Asia, which tend to confirm the view that Asia may be considered the cradle of the human race. In the present

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instance scientists believe that they have stumbled upon fresh evidence to confirm the theory that prehistoric man went from Asia to the other continents by land connections which subsequently sank into the sea.

The director of the expedition considers that all the characteristics of the bodies from Point Barrow tend to link these remains with those of early Siberian man.

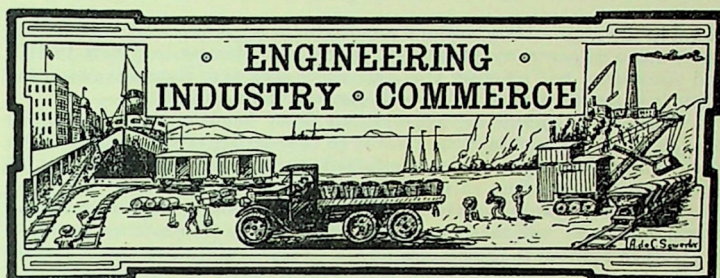
RECENT STONE AGE DISCOVERIES IN CZECHOSLOVAKIA: The intense interest now being taken in explorations which have for their object relics of the Stone Age is evidenced by the work of a Joint Expedition of the University of Pennsylvania Museum and the Peabody Museum of Harvard University in Czechoslovakia during 1929. It was announced last December by Dr. Horace F. Jayne, director of the former institution, that Mr. Vladimer J. Fewkes, research associate of the museum, who had just returned from Europe after serving as director of the joint expedition, had reported the discovery and examination of nineteen archaeological sites in Czechoslovakia, nearly every one of which had yielded something of significance. The period covered by the excavations ranged from the Neolithic through the Bronze to what is locally known in Bohemia as the "Roman" period, say from before 3000 B.C. to the third century A.D. In the three Neolithic sites worked upon, three graves and part of a settlement were uncovered, yielding quantities of pottery, bone awls, chisels, stone knives, clay spindle whorls and loom weights used in making textiles. Ash-pits with stone slabs for heating and pebbles for cooking were also found.

Of Bronze Age graves eight were examined. These had limestone slab casings, and in them were found skeletons, bronze and pottery furniture, urns and other vessels and metal objects.

The later period sites also yielded interesting results, one a settlement of the Silesian culture of about 900 B.C. The basal supports of pile-built houses were found.

SAXON SKELETONS FOUND IN ENGLAND: The discovery of more than forty skeletons on the Hog's Back, near Guildford, Surrey, has revealed evidences of a large Saxon settlement having existed there. When the discovery was first made it was thought that the site of a former gibbet had been unearthed, but further digging resulted in finds of great interest, including a perfectly preserved drinking glass and a spearhead and ferrule, from which the British Museum was able to place the date of burial as between 600 and 650 A.D. Some of the skeletons are of very big men, being as much as 6-ft. 2-in. long, which means they were very much taller in life. They appeared to have been buried anyhow and great care was necessary in removing the soil. When Colonel North, who is in charge of the operations, opened the last grave, he found the skeletons facing all ways and very much broken up. It was at the side of a warrior in this grave that the spear head and glass were found. The former is 13 inches long and the butt 8 inches long, and is of a type used at the time when the Saxons were becoming Christianized. The glass vessel is a foot long and tapers from the top, which is six inches across. Around the upper part are incised rings, and the lower is fluted with raised edges.

ANCIENT SWEDISH PLACES OF REFUGE: Amongst the rich finds of antiquities and rune stones in Oestergoetland, the discoveries in which province have aroused such interest, is an inscription on the face of a rock, which is the only surviving legal document of those times, indeed, a juridical record of considerable importance. The inscription relates how a man, named Gunnar, managed to escape to a sacrificial grove after committing manslaughter, and according to law and religion was held inviolable and not to be reached by the processes of justice. From this sanctuary he opened negotiations with the relatives of the man he had killed and succeeded in reaching a decision as to the amount of damages which should be paid to make amends for his crime. The agreement was legally confirmed and inscribed on the face of the rock by the keeper of the grove, who thereunto signed his name.



THE PROPOSED PORT OF HULUTAO

As considerable interest has been roused in engineering circles over a recent report of the letting of a contract by the Chinese Government to the Netherlands Harbour Works Company to construct a modern harbour for all sizes of marine vessels at Hulutao in Lienshan Bay, Fengtien Province, South Manchuria, at a cost of G.\$6,400,000, to be completed in 1935, a few details concerning the project and its history will not be out of place.

As a small fishing village, Hulutao, which means Pumpkin Island, has long been in existence, but it was not till 1910 that it first came into prominence as the possible site of a large modern harbour.

It was as long ago as 1908 that the Imperial Government of China commissioned Mr. W. R. Hughes, a British engineer of considerable experience in China, to explore the South Manchurian coast and select a place for a Chinese, ice-free port that would provide a Chinese controlled outlet for Manchuria and Eastern Mongolia. After due investigation he selected Hulutao as the most suitable place, and in 1910 started construction work. This had proceeded for but a single year when the outbreak of the Revolution in the autumn of 1911 necessitated the closing down of the operations and the abandonment of the project, but not before a million dollars had been spent on it, and a seawall, breakwater, buildings and a branch railway from the Peking-Mukden line had been built.

Subsequent to this no attempt was made to continue the project till about 1919, when the Peking Government decided to resume work on the harbour where it was left off eight years before. A Bureau for the Development of the Port of Hulutao was created with Chao Shih Chih, son of Chao Erh Hsun, at its head, while a new foreign engineer was ordered to make a survey of the project and the work already done, Mr. Hughes having died in the interim since the cessation of work.

As a result of the favourable report of this engineer, it was decided to proceed with the project, and an attempt was made to interest American capital through Dr. Paul S. Reinsch, the United States Minister to

China in Peking. After various negotiations an agreement was drawn up to form a company which should be half Chinese and half British and American, but whether this agreement was ever signed is not clear, while it is certain that nothing ever came of the negotiations.

Since then, however, negotiations have continued with various groups which have at last culminated in the signing of the contract with the Dutch company already mentioned, the money for the project to come from the earnings of the Peking-Mukden Railway.

What the opening of Hulutao Harbour to ocean going steamers and world commerce will mean may be understood by an examination of its position in relation to the hinterland, and a study of the economic position of Manchuria, Eastern Mongolia and neighbouring North China.

Hulutao lies right at the apex of the Liaotung Gulf, a bight in the Pe-chi-li Gulf, and is about two-thirds of the way between Newchwang and the well-known port of Chinwangtao, being about 110 miles from the latter in a northerly direction. It is fairly close to the Peking-Mukden Railway, from which it is easily reached by a branch line of seven and a half miles. It is 184 miles from Mukden, which means that produce passing through that centre will find a shorter route to the sea by proceeding along the Peking-Mukden Railway to this port than by proceeding to Dairen. Newchwang has declined to a port of practically no importance as a result of the development of Dairen and the facts that it is ice-bound for four months of the year and is only accessible to vessels of comparatively light draft. This has meant that practically the whole of the enormous produce from Manchuria, particularly of beans and bean products, has perforce had to go to Dairen for export abroad, which has given the South Manchurian Railway what amounts to a monopoly in the carrying trade, and the Japanese almost a monopoly of the soya bean export business.

The opening of Hulutao Harbour will make it possible to ship enormous quantities of beans from Northern Manchuria entirely by Chinese controlled railways, thereby greatly reducing the cost of transport and at the same time opening up enormous areas for bean growing, which were impracticable before owing to the lack of, or high cost of, transport.

Not only so, but it will become practicable to open up and develop very important coal fields that lie to the north of the harbour, while the vast resources of Eastern Mongolia and North-western Manchuria in wool and hides will be tapped by the railways connecting with the port of Hulutao.

This means inevitably a great increase in the earning power of these railways and especially of the Peking-Mukden line, for which reason there appears to be little justification in any objections being raised as to using the proceeds from the latter railway for the project. This money should be looked upon as being used to develop the railway's earning capacity, so that the loans on this railway that stand in arrears would have a better prospect of being paid.

Of course, the opening of the Hulutao Harbour will mean competition for Dairen, but we very much doubt, considering the way

THE PROPOSED PORT OF HULUTAO

Manchuria is developing, whether there is not ample room for both ports, each working to capacity, while we must not forget the saying that competition is the soul of trade.

The natural features of the harbour are a promontory running eastward from the mainland for about five miles, with deep water, about six fathoms, on its south side. Here ocean going steamers will be able to come alongside wharves and discharge their cargoes. They will be protected from the bitter winter winds from the north by the hills on the promontory, while a breakwater, which has been partially constructed will protect them from the open gulf to the south. Many concrete buildings have already been constructed. There is a wide stretch of tidal flat to the west of the harbour which can be reclaimed for building purposes. Everything appears favourable for the development of a very important port, and the project may well be considered as the most valuable piece of development work undertaken in China for a considerable time. It spells prosperity for a very large area in the northern part of the Chinese Republic, and we sincerely hope that nothing will happen to interfere with its completion or to hold it up as it has been for the twenty-two years since its original inception.

ENGINEERING AND INDUSTRIAL NOTES

COMPLETION OF HANKOW-CANTON RAILWAY: Work has already been started to complete the gap between the northern and southern sections of the Canton-Hankow Railway, the section between Shaokwan and Lochang being started on first. It is estimated that this portion can be completed at a cost of \$4,600,000, and that if there is no interruption this section will be completed in about thirteen months. With this done, there will only remain that portion of the line between Lochang and Chuchow to be taken in hand to complete the laying of the whole line and make it possible to go from north to south by railway. The construction of the Shao-Lo section will be divided into three parts, the first two comprising the work on tunnels, bridges and road-bed, the third part being the laying of the rails. The work of the first two sections will absorb \$3,300,000, to be spent before the end of the current year, while the balance of the work, which will take until March 31, will cost something like \$1,360,000. The proposition has, it is understood, been submitted to Mr. Sun Fo, the Minister for Railways, and has had his approval.

RESULT OF THE SILVER SLUMP: An interesting report, if true, from Nanking is to the effect that in view of the serious losses sustained by Chinese merchants and industrialists the Ministries of Finance, Industry and Commerce and

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Labour have drawn up a set of proposed remedial measures which will be enforced as soon as they are approved by the Administrative Yuan, to which they are to be submitted. The most singular proposal of the lot is that Chinese import merchants should suspend their businesses for the time being, and that the importation of silver ingots should be limited, or, if necessary, prohibited. These two recommendations are accompanied by the usual exhortation that a market for native goods should be established and encouraged. In view of what we pointed out in our leading article in last month's issue, the proposals do not appear to be of the wisest, particularly in such an instance where China needs to do everything she possibly can for her economic rehabilitation.

LONG DISTANCE TELEPHONE: The Nanking-Wuhu long distance telephone was formally inaugurated on January 28 under the auspices of the Ministry of Communications. The installation was recently completed by the telegraph administration of the Ministry, and satisfactory tests were carried out before the opening of the service.

SOCONY'S NEW CANDLE PLANT: The Standard Oil Company opened their new candle factory at Pootung during the last few days of the old year, the plant having been constructed to the designs of Mr. E. H. Staber and the Operating Division of the oil company. It includes many new departures necessary to an efficient manufacturing of candles. The most important is the establishment of the mixing tanks on the ground floor and the pumping of the stock to the moulding machines on the top floor, thereby doing away with the old practice of using the gravitational flow from a tank in the top of the building to the moulding machines below, this necessitating too much of a burden on the structure because of the weight of the tanks. A centralized source of steam for melting the wax has been provided, instead of the employment of individual units as was formerly the case in the company's installations at Tientsin and Hankow. Temperatures of waxes and stearine are controlled by thermostatic valves and the use of well water will permit the operation of the factory all the year round, as compared with much shorter operating periods in the above-mentioned ports. The construction of the new plant is most up-to-date throughout, a maximum of light and air being provided. The installation of machinery and equipment was under the supervision of Mr. E. Lang, of the factory in Hankow, who will be superintendent in the new structure at Pootung.

WUHU-SUANGCHEN HSIEN NARROW GAUGE RAILWAY: A preliminary survey has been completed for the construction of a narrow gauge railway between Wuhu and Suangchen Hsien, a distance of 130 li, by the Anhui Provincial Construction Bureau. Hitherto communication between the two places has been only by way of the Tsingkokiang, but owing to the steepness of the region the river has been found too shallow for traffic, and launches can only be used during the months of May, June, July and August. For the rest of the year only light draft junks can be used. A bus line was attempted, but, owing to financial limitations, it was only able to carry passengers and was of no assistance in the problem of transporting freight. Though the line will be 130 li long, only 60 li will have to be laid, for the remainder of the route passes over a line about 70 li long, laid many years ago by a coalmine company for the transportation of coal and so on to Wuhu. Bridges throughout the entire length of the line are to be built of wood, which the responsible authorities consider to be good enough for a ten years' life.

BETTER OUTLOOK FOR SILK: Taking the period of June 1, 1929, to January 25, 1930, as compared with a similar period for the preceding year, figures recently published show that the export of Chinese silk increased over thirteen thousand bales. Silk exported to Europe and Africa showed a falling off of over

ENGINEERING AND INDUSTRIAL NOTES

five thousand and one thousand respectively, while those to the United States more than doubled. The figures are as follow:—

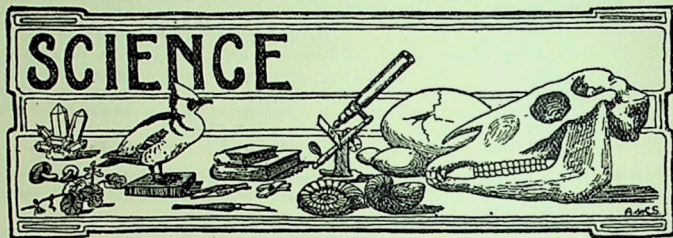
Destination	Bales Shipped June-Jan. 1930	Bales Shipped June-Jan. 1929
Europe	30,932	36,400
Africa	12,742	13,587
United States	38,252	18,904
Total	81,926	68,882

A further increase in the exports to the United States is anticipated in view of the keen competition for freight between the shipping companies which has brought down rates considerably.

SHANGHAI BUILDINGS: New building permits granted by the appropriate departments for the International Settlement, the French Concession and the Municipality of Greater Shanghai during the month of January totalled no fewer than 1,882, or an increase of over seven hundred as compared with the same period of last year. The International Settlement issued 603, an increase of 226, the French Concession issued 397, an increase of 264, and the Chinese city 882, an improvement of 215. Chinese residences naturally provided the greater porportion of the permits issued, but the numbers also included a hotel building, a theatre and the Lester Hospital for Chinese.

DEPARTURE OF MR. J. J. MANTELL: Mr. J. J. Mantell, who was appointed railway adviser to the Nanking Government, has completed his survey of the Chinese railway undertakings, and, since his departure for Manila, on February 5, certain extracts of his reports have been published in the foreign press. Mr. Mantell has found much to criticise in his reports, but he does not put forward such a deplorable picture of existing state of affairs as was originally expected. At the time of writing it was not known whether Mr. Mantell would return to Shanghai before he went home *via* Europe.

ANALYSIS OF ANTIMONY REGULUS: An interesting paper on antimony, entitled "Method of the Analytical Determination of Antimony and Aresenic in Antimony Regulus," which was read before the World Engineering Congress held last October at Tokyo by Mr. S. J. F. Jensen, has come to hand. In it Mr. Jensen stated that the stipulation now made that antimony regulus should contain at least 99 per cent. of antimony and not more than 0.3 per cent. of arsenic had rendered necessary reliable and efficient methods of analysis. The determination of impurities in the regulus and the evaluation of the antimony by difference was not to be recommended. The procedure was long, costly, and not always absolutely accurate. The author then described in detail a method by which the regulus was dissolved and the antimony and arsenic separated. The two elements were subsequently estimated either by a gravimetric or by a volumetric method. The adoption of a standard method, such as that described, was urged in order to obviate possible discrepancies between analyses.



ASIA AND THE EVOLUTION OF MAN

BY

A. W. GRABAU

The cradle of the human race is very generally placed upon the Asiatic continent, though the precise locality where man originated is still a matter of dispute. Moreover, there are those who would find the centre of his origin in some other continent, and, among those selected for this honour, Africa stands pre-eminent. But unless we consider that the human race is of polyphyletic origin, and that the negroid type originated in Africa, while other types originated in other continents, we must concede that Asia has a much more valid claim to be considered the parent continent of man. This is indicated, not only by the remarkable development of its physical characters, but also by the recent discoveries of early man that have been made in it.

We will first trace in outline the later development of the Asiatic continent, and see how it bears on the problem of the origin of the human race, and after that discuss the progress of occupancy of the continent by early man. We must start in the "Age of Mammals," that is, the Tertiary or Cenozoic era, for though man belongs primarily to the Quaternary or Psychozoic era, his roots lie deeply buried in the Tertiary rocks, where we must look for his beginnings. The Tertiary age is divided into a number of periods, the duration of each one of which is to be measured by hundreds of thousands of years, and the last of which came to an end about one million years ago, when the curtain rose on the Psychozoic era, to discover man already present on the world stage, where the drama of human evolution was in progress. In descending order, these later periods of the earth's history are as follows from the youngest to the oldest:

Quaternary	{	Holocene or Recent ; Neolithic and modern man
or		Pleistocene or Glacial ; Palæolithic man
Psychozoic Age of Man		Polycene (Lower Quaternary) ; Eolithic man.

Tertiary or Cenozoic Age of Mammals.	{	Pliocene	} New Tertiary
		Miocene	
	{	Birth of Himalayas	} Older Tertiary
		Oligocene	
		Eocene	
		Palæocene	

The line of demarcation between the Older and the Newer Tertiary, that is, between the Oligocene and the Miocene, is very pronounced, because at the close of the Older Tertiary, world-wide revolutions took place which resulted in the formation of most of the great mountain ranges that characterize the continent of Eurasia to-day. We may mention the Alps, Carpathians, Caucasus, and, most important for our study, the Himalaya.

Before the Himalaya mountains arose, the region where they now stand was one of subsidence and sedimentation. In other words, it was a geosyncline, in which were deposited the sediments which were derived from an old upland that lay to the south, that is, in the region where to-day lies the great Indo-Gangetic plain of North India. While this geosyncline was occupied by an arm of the sea, at frequent intervals during the early periods, it had become completely drained of its waters by the end of Eocene time, when that region formed a broad level plain, not unlike the great China plain of to-day. Try to visualize such a plain, broad, level, flat, with rivers lazily meandering through it towards their distant outlets to the sea. On the south, the low upland rises, more or less extensively wooded and swept by moisture-bearing winds, which came from the oceans on the south. Though we have no direct evidence to indicate the character of the plain, which at that time preceded the present mountain systems, we can, nevertheless, infer that it probably was more or less strongly wooded, and the same thing is probably true of the low plain, which was the Tibet of that period, a marginal plain on the north of the Himalayan geosyncline. That none of these regions had characteristics which would form a barrier to the animals which lived at that period is shown by the fact that the largest of these, the hornless rhinoceros, *Baluchitherium*, roamed freely across the whole of Asia in Oligocene time, for its bones have been found in Baluchistan, a region now shut off from other parts of Asia by the continuance of the Himalayan mountains. Had those mountains existed when *Baluchitherium* was alive, that animal would have been confined to Southern Asia, for it was totally unfitted to cross mountain barriers of even moderate elevation. But *Baluchitherium* was not confined to Southern Asia. It roamed far and wide across the whole of Pal-Asia, which is the name given to the predecessor of modern Asia in the Tertiary and Mesozoic eras. Its bones have been found on the Tobal River in Western Siberia, and in the sandstones of Mongolia, and even in some parts of Western China. It was the giant beast of the Oligocene forests and plains, and as it browsed on leaves and shoots of trees, the region over which it wandered must, to some extent at least, have been forest covered. That this animal did not enter Europe was due to the fact that Pal-Asia was

separated from Pal-Europe by an impassable marine barrier, the ancient straits of Turgai.

Among the contemporaries of the *Baluchitherium* were the early Tertiary anthropoid apes, those highly specialized sub-human types which were destined to become the ancestors of man. Like their modern representatives, the giant anthropoids, members of a collateral evolutionary line, they, too, were forest dwellers and more at home in trees than on the ground. And these ancient forests served not only to shelter them and provide them with dwelling places, but also gave them food and provided them with every necessity of life. It needs little imagination to picture these animals as contentedly living in the forests of that day, satisfied to find their food and rear their families with little or no interference from others of their kind, since food no doubt was plentiful, and with little danger from other forest dwellers, since their dwellings were above the ground among the branches of the trees. These branches also served them in their wanderings, for while the forest trees grew close together, they could easily swing from branch to branch by the use of their powerful arms, and with the aid of their grasping feet they rarely found it necessary to descend upon the ground, where progress of necessity was slow for most of them, for they were poor pedestrians.

Into the midst of this wide-flung garden of a happy Eden, entered the disharmonious forces, which produced the great Himalayan range by the folding of the strata that underlay the great plains that formed the surface of the Himalayan geosyncline. Slowly they rose under the irresistible forces of compression, which brought the north and south into closer juxtaposition, bent and crumpled the strata as they rose, broke and forced them to slide across one another, and in this process sent shock after shock through the trembling Earth to the terror and dismay of its inhabitants, who had not before experienced the effects of such great earth disturbances. And when the movement at last slowed down there stood the new-born Himalayan Range, transecting the former garden that was Pal-Asia and dividing the happy hunting ground of the baluchithere and the anthropoids into a northern portion that comprised Tibet and China proper, with Mongolia and Siberia on the north, while to the south the Indian peninsula remained, not much the worse for the great change that separated it from the rest of Asia. With this exception, that now the ancient upland, which had furnished the sediments which were folded into the Himalayan Mountains, had sunk to become in turn the site of the deposition of sediments which new rivers brought from the new-formed Himalayan Mountains on the north. It had become, in other words, the Sivalik geosyncline of the later Tertiaries and the Indo-Gangetic geosyncline of the present day.

Baluchitherium did not survive this change, but the anthropoids which remained in India found little reason to alter their mode of life. Indeed, there was every incentive to continue their arboreal existence, since the conditions for the growth of forests became more favourable over this region than they had ever been before. This was due to the fact that the moisture-bearing winds, sweeping in from the warm southern seas, met the new formed barrier of the Himalaya which forced them to

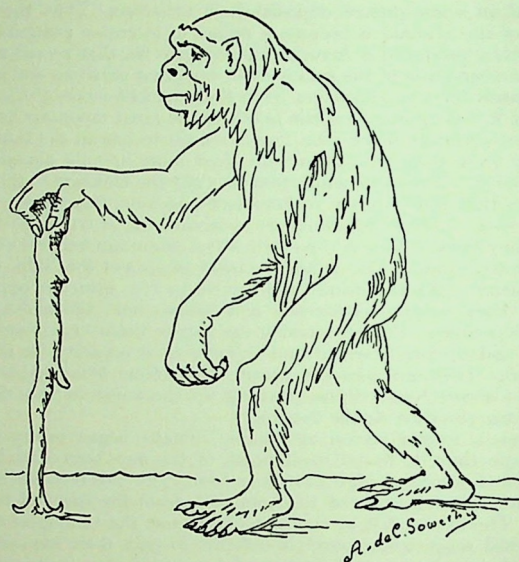
rise and in consequence deposit their moisture. Thus the southern border of the Himalaya became a region of intensive precipitation, and this in turn produced a luxuriant forest growth, that served as a home for the descendants of the survivors of the great partition and gave them little reason for a modification from their ancient mode of life.

But it was different on the north of the great mountain barrier, and the forest dwellers there soon found reason to bewail the fate that cut them off from communication with their more happily placed brethren on the south. The same winds that brought the moisture to the southern slopes so that forests grew in luxuriance became, on crossing the Himalayas, winds greedy for moisture, withdrawing it from the land over which they blew. This is the effect which mountain barriers everywhere have upon winds. The windward side is always the side of heavy precipitation. As the winds are forced to rise into the upper cooler regions, they become condensed and cannot hold the moisture which they held before. But on crossing the barrier these winds descend, they expand and become warmed and thereby their capacity for moisture is increased. They are like the winter winds from Mongolia, cold winds that blow across North China, drawing up the moisture from the ground and setting the dust devils dancing.

Tibet, a former region of equable climate, began to dry up when, in Miocene time, it found itself north of the new born Himalayas. It did not then stand as high as it does to-day, for this final elevation is of later date. But it suffered then, as now, from the effect of the drying winds. The first result of the desiccation was the sinking of the water table, until most trees found it difficult to gain their requisite supply of ground water because their roots did not reach deeply enough. Then the trees began to die and the forests dwindled, and the forest dwellers witnessed the destruction of their forest homes and the diminution of their food supply. As the sheltering trees disappeared, these animals were forced more and more into the open, where many strange and new conditions confronted them. Instead of an aboreal life where hands and feet alike were used in swinging from branch to branch, they were compelled to walk, and their feet, formerly adapted for grasping, underwent slow modifications. Walking like other quadrupeds was not for them, for their arms had long become accustomed to other uses, and so an upright bi-pedal locomotion was forced on these creatures, the difficulty of which they mitigated by supporting themselves by the use of broken branches. Thus came into existence the first walking sticks.

No doubt all the weaker individuals, those with less ability to withstand the difficulties of their new environment and to adapt themselves to it, died. They were weeded out because they were the less responsive ones to the call for the development of latent powers. This was natural selection, and, after the weaklings had been destroyed, the survivors were able to go forward and make the most of the new conditions which confronted them.

It is a well-known fact that dry climates are also regions of great temperature changes, for in the rarefied air, free from much water vapour,



"THE FIRST WALKING STICK."

A hypothetical reconstruction by A. de C. Sowerby of man's ancestor at the period soon after the human and anthropoid ape lines of descent parted.

the accumulated heat of the day will radiate and the nights will be intensely cold.

We can picture these creatures, accustomed to an equable clime, protected by the forests, now huddling together for warmth and suffering intensely from the temperature changes. Once again the weaker were eliminated, the stronger seeking shelter under over-hanging rock ledges or in caverns, if such were to be found, until the great discovery which made living in the open a possibility.

In the happy days when these pre-humans still lived in the forests their greatest terror was the forest fire, for forest fires frequently resulted when trees were struck by lightning, but when the forest ceased to serve as their home, such fires were no longer of immediate concern to them. Indeed, the blazing dead trees formed a spectacle which these creatures could contemplate with equanimity from a distance and which might even tempt the bolder to investigate at closer hand. And, inevitably, on approaching the burning forest, the grateful warmth of the fire would

at once strike the shivering creature, and this discovery would lead the shrewder to view the phenomenon of fire from a new angle. Unable to induce his shivering but more timid mate and off-spring to approach, the boldest of the group would seize a burning stick and carry it to where the huddled family sat terrified. At once they, too, would feel the grateful warmth and note the relative harmlessness of the individual brand, and they would hasten to throw more sticks together to keep the blaze from dying down. In some such manner came into existence the first camp fire. Prometheus was unbound. Primitive man had made a servant of a former enemy. Round the camp fire, now jealously kept burning, gathered the clan. Outsiders were unwelcome, as the radius of its influence was limited, and, for further protection against outsiders, the clan was organized and leaders selected, and this was the beginning of primitive communities.

In their daily forage for their ever-decreasing food supply, the males of this pre-human clan roamed far and wide across the desolate plains and plateaux. Each bore a stout walking stick, which on occasion could be used as a war club, when males of other clans contended for the food. For necessity compelled these creatures to become enemies and rivals for the scanty food supply, where formerly, when food was plentiful, their ancestors lived in amicable relationship. Since that day, rivalry for the goods that the earth supplies has remained the chief cause of war among clans, communities and nations.

Growing aridity had other effects upon the land than the destruction of the vegetation. The soil, no longer bound together by the roots of plants, became the sport of the winds that season by season increased in violence. From every exposed place the soil was blown away and the underlying rock was uncovered. Diurnal changes of temperature, especially in desert regions, effect the shattering of the rock, and gradually the solid ledges become surfaces of broken fragments. Across such surfaces plodded the weary seekers after food, leaning heavily upon their primitive walking sticks. These from much use had begun to split, and here and there a broken rock fragment had become wedged into the split end of the stick. Now enemies hove in sight, and the wary plodders prepared to give them battle. Vigorously they used their sticks to strike and thrust, and behold, again and again, such thrusts drew blood, to the amazement of both attackers and attacked. And when the enemy was routed, examination of the blood-stained weapon disclosed the chip of flint wedged into the bottom of the split stick. A new weapon had been invented and aeoliths, the primitive natural stone chips, came into use. And soon the primitive warrior learned to modify these fragments by chipping that they might better be secured to the stick which now had gained new values.

By this time, the increasing rigour of the climate had no doubt caused these proto-humans to wander northward across the inhospitable Tibetan plateau, where a broad fertile valley had come into existence during the period of stress which formed the Himalayan barrier. This was the modern Tarim Basin in Sinkiang Province, a desert to-day, but in late Tertiary and early Quaternary time a region of abundant

streams, as is shown by the deposits of stratified clay, which underlie the modern desert sands. And here late Tertiary man found a new and more congenial home, and when these strata are exploited, no doubt his bones will be found preserved in many an ancient layer of clay.

It was from this new found home in Western China that early man set out upon his wanderings. Eastward he came along the route which before him many a Pliocene animal had followed, and which in much later days formed the caravan route of man in the commercial age. And along with many animals he reached East China early in Polycene time, as we know from the fact that his skull, his jaw bone and his teeth were preserved in the Choukoutien cave, twenty-five miles south-west of Peking.

Westward, too, he migrated, across the Eurasiatic continent, and, as the North Sea did not then exist, he came to what to-day is England, and there his remains have been found in Piltdown in Sussex. *Eoanthropus dawsoni*, the Piltdown man of England, was a contemporary and close relative of *Sinanthropus pekinensis*, the Peking man of North China. Both were descendants of more primitive ancestors, who, it appears, first settled in the Tarim Basin. Perhaps the Java ape-man, *Pithecanthropus erectus*, was also a descendant of these ancestors of Peking man and Piltdown man, but, if so, he early wandered east and south and in southern Cathaysia, found physical conditions so easy and requiring so little exertion to maintain a livelihood that there was no inducement to endeavour and hence no stimulant to further development. So *Pithecanthropus*, though the contemporary of the Piltdown and the Peking men, remained more primitive than they, because their environment had the stimulating effect which results in progressive evolution at an accelerated rate.

Of course, it is also possible that *Pithecanthropus* represents an independent evolution from simian ancestors that remained on the south of the great Himalayan barrier, and that evolution toward a human type was slow because the stimulus of the environment was slight. In any event *Pithecanthropus* can probably not be regarded as in the direct line of ancestry of the modern human race.

But early man was not destined to continue his evolution unhindered on the Asiatic continent, for great changes were in progress in the physical evolution of the earth, and these made themselves felt at the opening of the Middle Quaternary or Pleistocene period. Whether it was due to a displacement of the earth on its axis, that brought the North Pole into South Greenland, or whether some other cause can be found that explains the phenomena equally well, the fact remains that accumulations of ice began to form around that region as a centre and to spread in all directions. On the Asiatic side, this polar ice-cap only reached the northern border of the continent, but on the opposite side of the earth, in Europe and America, it covered large areas of present-day land, extending in some cases down to the 40th parallel or even lower. Scandinavia, most of Great Britain, North Germany and many other regions were buried under ice, and Pleistocene man was driven into the ice-free regions of South Europe. Here during the colder intervals, he found

shelter in the caves, but during the warm inter-glacial periods he occupied the river plains and lived in the open.

Pleistocene man is known to us as the man of the "Old Stone Age," that is, Palaeolithic man. He had learned to make more suitable stone implements by chipping the natural stone, or what is technically called dressing them, and slowly he developed the art of making highly effective implements of various kinds. He may have been driven to this by finding, when he had wandered northward into the Tarim depression, that the stones which the rivers brought from the Kwenlun Mountains were all well rounded, as such stream pebbles usually are. An accidental fracture, when such a pebble was thrown against a larger boulder, would have given him the idea of chipping out the desired implements, and after much trial he would probably learn to pick out those stones that by chipping and by flaking made the best tools.

The cultural stages of Palaeolithic man are classified, on the basis of the implements he made, into a number of divisions, the names of which are taken from localities in Southern Europe where these stages were first found. Of the men themselves, we know almost as much as we know of their cultures, as their skeletons have been found in great number in many localities of Southern Europe. There are two outstanding types, Neanderthal man, who lived in the early Palaeolithic, and Cro-magnon man, who lived in the later Palaeolithic along with other types (Grimaldi, Brunn, Chancelad and Furfoo-Grenelle). Neanderthal man was distinct enough from modern man to be designated *Homo neanderthalensis*, but Cro-magnon man was like ourselves, a *Homo sapiens*.

The abundance of actual remains of Neanderthal man in the caves and ancient burial grounds of Southern Europe is in striking contrast with the scarcity of his remains in Eastern Asia. So far only a single tooth has been found at the base of the loess deposit in the Ordos, and of Cro-magnon man no Asiatic remains are known.

There is no evidence that the cultural stages of Palaeolithic man found in Europe present a continuous developmental series. On the contrary, they seem to indicate a succession of invasions, migrants from a distant centre of distribution, each migratory group bringing with it a new culture, which, in the interim between migrations, had been developed in the ancestral home. And all indications point to Central Asia as the probable site of this ancestral home, that region which in Polycene time sent its migrants east and west to Peking and to Piltown.

How came it, then, that in Pleistocene time, when man had advanced into the Palaeolithic stage, he ceased to come east, while still continuing his migrations to the west? There can be no question that migration into China had almost ceased at the opening of Pleistocene time, or at least had been reduced to a minimum, for, despite much search, the remains of Palaeolithic man and the remains of his culture are hardly known from China. In addition to the single tooth mentioned above, the implements of a single culture stage have been found at the base of the loess by Péres Licent and Teilhard de Chardin in the Ordos and in a few localities along the Yellow River by Teilhard and Young. Some questionable ones have also been found by Nelson in Mongolia. They

represent the Mousterian stage, the last of the culture stages of Neanderthal man, though this is adduced purely from the nature of the artifacts themselves, which are of the type characteristic of that stage in Europe. But there is no evidence that this culture stage in Asia was contemporary with the one so designated in South Europe, for it may have been developed in Asia long before it was brought to Europe.

In attempting to answer the question "Why was Palaeolithic man so rare in China when he was so abundant in Europe and when the centre of distribution was nearer the former than the latter region?" we must first, I think, take cognizance of the loess. Loess is a characteristic Chinese deposit. It is a peculiar yellow earth composed of very fine particles, deposited so as to leave no evidence of bedding, and compact enough so that it will form vertical cliffs wherever it is transected by stream channels or by roadways which centuries of travel have lowered into narrow canyons.

Most authorities are agreed that the loess is composed of wind-borne material, and that its development in China began and ended with the glacial occupancy of West Europe and America. Where did this material come from? Representing as it does the final products of rock decay, it constitutes only a fraction of the bulk of the original rock from which it was derived. We have learned that rocks, which by decomposition produce materials like the loess, also produce large quantities of quartz sand, and that at the time of such production the clays, which form the loess, and the sand are intimately commingled. To separate them requires the activity of certain natural agents, most potent of which is the wind, for wind will carry away the fine material and leave the sand behind.

The loess of China seems to be a deposit of such fine material, the product of rock disintegration separated from the sand and carried to China by the winds. If that is so, then somewhere we should find pure sands which have been freed from the finer material by wind, and this sand should show characteristics impressed upon it by its origin as a wind blown sand.

Such a sand deposit we find in Western China, in Sinkiang Province and elsewhere. The Tarim Basin, which lies between the Kwenlun Mountains on the south and the Tianshan ranges on the north, forms a forbidding desert, which is bounded along its northern border by the Tarim River. This river, fed by intermittent streams from the two mountain ranges, terminates at the eastern end of the basin in the salt lake of Lop Nor. Here evaporation disposes of the water, leaving deposits of salt, which the streams have brought from the mountains, where these salts were liberated by the decomposition of ancient marine rocks which carried fossil or connate sea water imprisoned in their pores. This desert known as the Takla-Maken desert is throughout a sand dune desert, with dunes reaching heights of a hundred metres or more. These dunes, according to Sven Hedin, rest on stratified clays, which represent deposit of a pluvial period which preceded the present desert period. It is quite within the range of probability that the sands which now form the dunes were originally deposited as river sediments over much of the basin, and,

if so, the material was not pure sand but a mixture of sand and fine rock-flour and clay, such as is characteristic of normal river deposits, and it is also apparent that at the time these deposits were formed, the region was not a desert but one of a more pluvial climate.

To change such a region into a desert requires the long-continued activity of drying winds. As residents of North China well know, the cold monsoon winds blowing during the winter from the Mongolian region to the warmer coastal region of China are typical examples of such drying winds. Blowing outward from a region of high pressure, where, because of their greater density, their capacity for moisture is moderate, they expand as they reach the warmer coastal region, and as a result their capacity for moisture is increased. They thus deprive the country over which they blow of all the moisture in the soil, and this soil becomes a loose shifting mass easily lifted by the wind which blows it about in clouds of dust. It is a popular fallacy that Peking dust comes from the distant Gobi Desert. Peking dust is nothing more than the fine soil of the plain, picked up by the winds that come, dust-free from the Gobi, after these winds have first sucked up the moisture and so rendered the soil defenceless against its onslaught. Peking dust, then, is the local loess material of the plain stirred up by passing winds, and, though these dust-laden Peking winds are often strong enough to irritate man almost beyond endurance, they are as gentle zephyrs compared to the winds which brought the loess to China far back in Pleistocene time. For that the loess was deposited in China in Pleistocene time, when Europe and America were buried under ice, is now a well established fact, and that the loess was formed of wind-borne dust is equally well established.

Now let us try and correlate the facts so far discovered. The loess which covers so much of China is a thick deposit of wind-blown dust. This dust is the fine material sorted out from an older deposit which was a mixture of sand and dust. In the Takla-Maken of Sinkiang Province, and to some extent in the Gobi of Mongolia, we have great areas covered with sand, which has been freed from its dust deposit by an agent, which, taking all the facts into consideration, could only have been the wind. The loess thus appears to be that dust which was taken by the winds from the Tarim and the Gobi Basins. But the winds of to-day are far too weak to carry dust from the Gobi and from Sinkiang to China. They can only play about with the dust which they pick up locally. Hence the winds of Pleistocene time, the period during which loess was deposited, must have been many times as powerful as the strongest monsoons of to-day. The modern monsoons are the product of the great cold of Mongolia, and their drying effect is due to their flow to warmer regions. The Pleistocene winds, which carried the dust from the Tarim and the Gobi to China, must have been the product of a much greater cold than that which prevails in the interior of Asia to-day. If now we recall that this was the period when Europe was covered with ice, we realize that we have found the source of this greater cold, and if glaciation was due to the shifting of the pole 15° south of its present location, then the equator on the opposite side, that is, in the coastal region of China, must have been 15°

farther north than it is to-day. Thus Peking would have enjoyed such a climate as is characteristic of the Philippines to-day.

But even if North China was bounded by the latitudes which bound it to-day, the difference in the temperature between the glaciated region of Europe and the coastal region of China would have been sufficient to produce a vast difference in atmospheric pressure, and this would lead to the production of the powerful winds which brought the loess. It was these winds which changed the Tarim Basin to a desert, because it was there that their drying effect would first be felt, and it was these winds which carried the dust and did not drop it until it reached the Chinese plains. We find life burdensome when the dust winds blow to-day, but the dust winds of Pleistocene time must have made existence in China nigh to impossible. It was bad enough in the Tarim Basin when the cold wind from the ice fields blew across it, but these winds only picked up the dust and carried it away and so existence was still possible. Nevertheless, these changing conditions forced early man to seek a region where the climate was more genial or where at any rate protection from its rigours was available. Such protection he found in the caverns of South Europe, and there, too, he found a more genial climate during the warmer inter-glacial periods when the cold winds ceased to blow. But in the east, little or no protection was found from the cold blasts of the glacial winds, and, even if man had been able to endure the cold, he would have been defenceless against the devastating effects of the dust storms. No wonder, then, that Pleistocene man could not come to China, and that most of the larger animals which went with him to Southern Europe likewise kept out of China. There are, to be sure, occasionally found remains of animals whose presence seems incongruous with the climate which we have pictured as the prevalent one. Such is the giant ostrich, or *Struthiolithis*, whose eggs are found in Chinese loess. But it is probable that these creatures wandered into the loess country during the milder interglacial periods, when the dust-bearing winds were in temporary abeyance, and that they came from the coastal belt which then was much farther east than it is to-day. For at that time old Cathaysia had not yet become dismembered, and neither these animals nor early man could have been a permanent inhabitant of North China during the period of loess deposition. And so it is in Europe, rather than in Asia, that we find the records of his evolution in mid-Quaternary time.

When the Pleistocene era came to a close, the glaciers waned. Perhaps the north pole wandered back to its present location, and as it receded the glaciated country again became free from ice. And with the disappearance of the ice-caps, the strong winds ceased to blow across Asia and the loess deposition came to an end. Then Neolithic man could spread eastward once more and occupy the territory from which his predecessors were excluded. The evidence of the presence of later Neolithic man in North China and Siberia and Japan is as striking as is the absence of the record of the presence of Paleolithic man. Not only are the artifacts of Neolithic man found everywhere in great abundance, but the remains of man himself have been obtained from many an ancient

Neolithic burial ground. And the striking fact, first revealed by the researches of Dr. J. G. Andersson, is that the culture of this man was essentially uniform from the Mediterranean to the islands of Japan. Not content to occupy the Asiatic continent, man wandered across the Bering Bridge to North America, and there established himself, and some of his descendants, the last of the Amer-Indians, still linger among the alien population, which migration in historic time has brought to America from the shores of Europe.

A PRELIMINARY REPORT ON THE DISCOVERY
OF A SKULL OF ADULT *SINANTHROPUS*
PEKINENSIS AT CHOU KOU TIEN

BY
DAVIDSON BLACK

On December 2 last Mr. W. C. Pei of the staff of the Cenozoic Laboratory of the Geological Survey of China, while excavating a sheltered recess of the main deposit at Chou Kou Tien discovered the greater part of an uncrushed adult skull of *Sinanthropus pekinensis*. Mr. Pei at once recognized the importance of the specimen and personally carried out the difficult work of excavation and subsequent field preparation of the block of matrix in which it lay. It is entirely due to his skill and devotion that this bulky mass with its unique and fragile contents reached the Cenozoic Laboratory quite undamaged.

Mr. Pei has been in charge of the Geological Survey's field excavations at Chou Kou Tien during the past season. He was also associated with Drs. Bohlin and C.C. Young in the work of excavation carried on at that site during the season of 1928, which resulted in the recovery of the major parts of two lower jaws and numerous teeth and skull fragments referable to the genus *Sinanthropus*. Within the main cave deposit at Chou Kou Tien up to the present time *Sinanthropus* remains have been recovered from five different loci, three of which, including the last major find, have been discovered by Mr. Pei during the last season's work. Contrary to any reports which have been circulated, no skeletal parts other than the skull and numerous isolated teeth have been recovered during this year's excavations.

It should be noted that the different *Sinanthropus* loci discovered within the main Chou Kou Tien deposit are all clearly contemporaneous with one another, being Lower Quaternary (Pleistocene) in age. This latter statement is based on the evidence collected in a preliminary

report on the geology and palaeontology of the site by Père Teilhard de Chardin and Dr. C. C. Young, which is now in the press. Further it should be added that up to the present time, though hundreds of cubic meters of material have been examined, no artifacts of any nature have been encountered, nor has any trace of the usage of fire been observed.

The greater part of the left lateral surface and the fore part of the base of this unique skull specimen of *Sinanthropus* is still imbedded in a block of very hard travertine. The vault of the skull from its massive brow ridges to the occiput, and the whole right side of the specimen was, however, supported within a relatively soft matrix which has now been removed. In the present stage of its preparation it thus becomes apparent that the brain case has been almost completely preserved, while most of the facial region would seem to be lacking.

The skull of *Sinanthropus* would seem to be of approximately similar length to that of *Pithecanthropus*, and, like the latter form, is provided with massive brow ridges, a feature to be correlated with a powerful jaw mechanism. However, *Sinanthropus* characteristically differs from the Java type in the following important features: relatively well developed frontal eminences, well localized parietal eminences and greater height of skull vault, all these characters pointing to a relatively greater brain capacity in *Sinanthropus*. The mastoid processes of *Sinanthropus* are small and massive. The sockets in which the lower jaw articulated are well preserved on both sides, a circumstance which will be of great value in the restoration of the lower jaw fragments recovered in 1928.

In general it may be said that while the new skull specimen bears out what little was already known from other fragments, the perfection of its preservation will enable much to be learned that is now obscure concerning the evolution of the head region in early man. Preliminary photographs and notes will be published in an early issue of the *Bulletin of the Geological Society of China*.

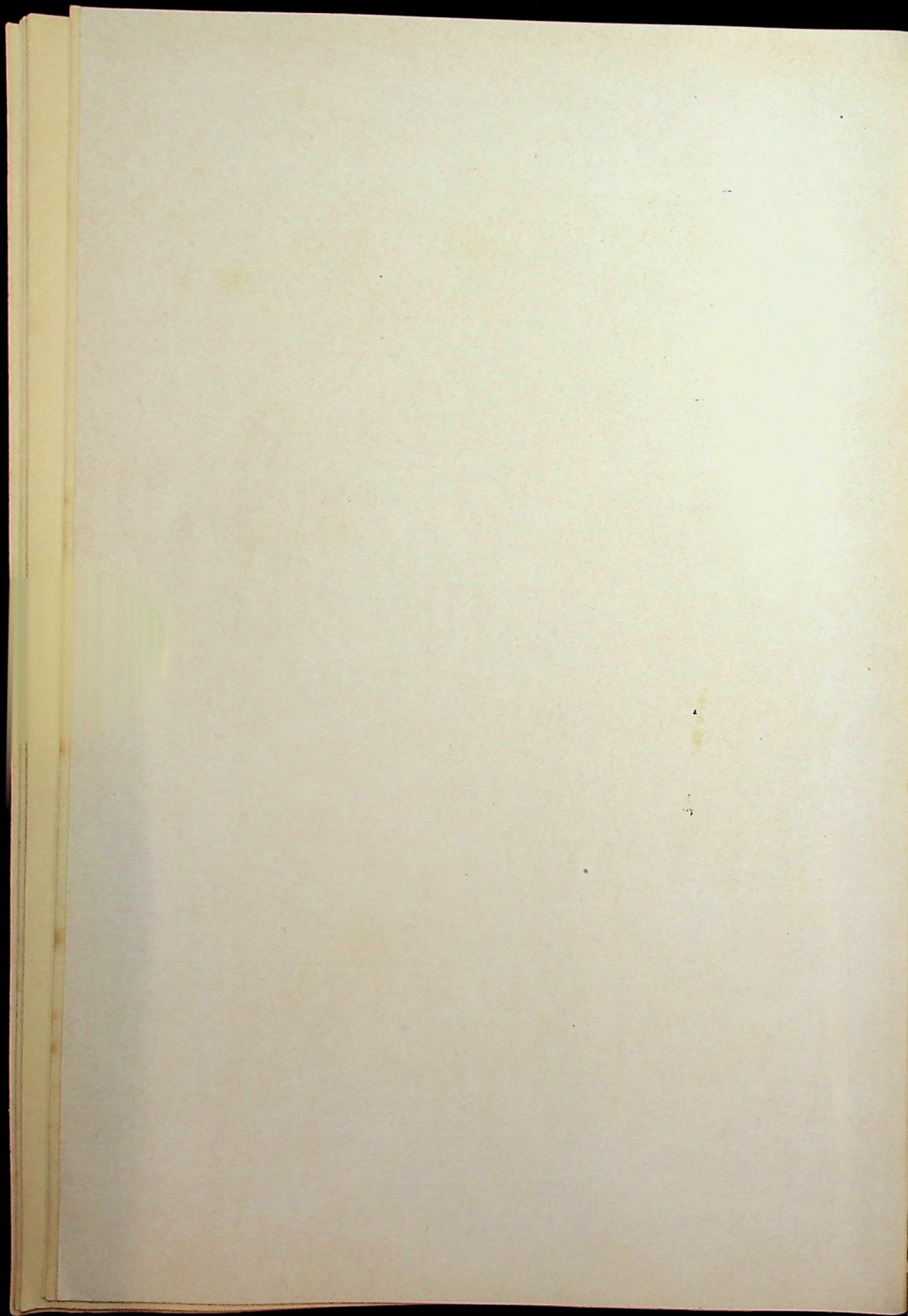
SCIENTIFIC NOTES AND REVIEWS

BIOLOGY

THE ANIMALS CONTEMPORARY WITH "PEKING MAN": When considering any of the many types of prehistoric man it is only natural to wish to know something of his surroundings, and most interesting of these are the animals that were contemporaneous with him and formed his food and his enemies. In regard to the latest and most sensational discovery in this line, the now famous "Peking man" of Chou Kou Tien, we are in the fortunate position of knowing a very considerable amount about the contemporary mammalian fauna of his immediate vicinity, for the simple reason that scientists have for some time been busy excavating and describing their fossil remains. The first to list and describe this fauna was Dr. Zdansky, who was for a time connected with the Geological Survey of China and the Geological Museum in Peking. He made out a list of some thirty seven different



The right side of the Vault of the Fossil Skull of *Sinanthropus pekinensis* as it appeared on first removal of the Field Wrappings. A Cast of this Specimen in Natural Colours is on exhibition in the Museum of the Geological Survey of China, 9 Ping Ma Ssu, West City, Peking.



SCIENTIFIC NOTES AND REVIEWS

species of mammal belonging to thirty genera and seven orders. Of these six species were new. Some of the species he was unable to identify or name, presumably owing to insufficient material. Since his time excavations have been carried on by the Geological Survey, and an additional eighteen mammalian species have been discovered, making a total of fifty-five species. These may be listed as follows:

PRIMATES:

- A black ape or cynopithecoid.
- Andersson's macaque (*Macacus anderssoni*).

CHIROPTERA: (Bats).

- A species of *Myotis*.
- A species of *Vesperugo*.
- An undetermined bat.

INSECTIVORA: (Insect-eaters)

- A mole (*Scaptorchirus primitivus*, Zd.), related to the present day common moles of North China and neighbouring Mongolia.
- A mole of the *Talpus* group.
- An insectivore named *Neomys sinensis* by Zdansky.
- A second species of *Neomys*.
- A shrew of the genus *Crocodyrus*.
- A hedgehog (*Echinocorys*).

CARNIVORA: (Flesh-eaters)

- A sabre-toothed tiger (*Machairodus*).
- The sharp-toothed cat (*Felis acutidens*, Zd.).
- Three other species of cat not further identified.
- A dog (*Canis*) of the dingo type (possibly wolf).
- A fox (*Vulpes*).
- A hyaena (*Hyaena sinensis*).
- A musteline (weasel family).
- A badger (*Meles*).
- The brown bear (*Ursus arctos*).
- Another bear named *Ursus angustidens* by Zdansky.

UNGULATA: (Hoofed animals)

- Two species of rhinoceros (*Rhinoceros*).
- A horse or wild ass (*Equus*).
- A wild pig (*Sus lydekkeri*, Zd.).
- A spotted deer (*Pseudaxis grayi*), possibly *Sika*.
- A flat horned deer (*Emyoceros*).
- A wapiti (*Cervus canadensis mongolicus*).
- A roe deer (*Capreolus*).
- A musk deer (*Moschus*).
- A bison (*Bison*).
- A gaur (*Bibos gaur*, Matsumoto).
- A water buffalo (*Bubalus*).
- An antelope or gazelle (*Gazella*).
- A wild sheep (*Ovis*).

PROBOSCIDEA: (Animals with trunks)

- An elephant (*Elephas*).

RODENTIA: (Rat-like animals)

- A squirrel (*Sciurus*).
- A chipmunk (*Tamias wimani*), probably *Eutamias*.
- A marmot (*Arctomys*).
- A giant beaver (*Trogontherium cuvieri*).
- A beaver-like rodent (*Castoroidea*).
- Brandt's vole (*Microtus brandti*, Radde).
- Another microtine or vole not identifiable.
- The variable hamster rat (*Cricetinus varians*, Zd.).
- Another hamster rat called *Cricetulus songarus*.

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A third unidentified hamster of the genus *Cricetulus*.

The wood mouse (*Apodemus sylvaticus*).

An unidentified murine or mouse.

A harvest mouse (*Micromys*).

A gerbil or sand rat (*Gerbillus meridianus*, Pallas).

A porcupine (*Hystrix*).

LAGOMORPHS: (Rabbit-like animals)

A hare (*Lepus*).

A pika or mouse-hare (*Ochotona*).

All of these are represented in the general region of North China by species occurring to-day, except the black ape, the insectivores *Neomys*, the sabre-toothed tiger (*Machairodus*), the hyaena, the flat-horned deer (*Emyces*) the bison, the gaur, the water-buffalo, the elephant, the rhinoceros, the beavers, the variable hamster (*Cricetinus*), and the porcupine. Of these only the *Machairodus*, *Emyces* and giant beaver (*Trogontherium*) have become completely extinct as genera; while the gaur, the wild water-buffalo and the elephant are found in Indo-China to-day and the porcupine as far north as the Yangtze Valley. The black ape (*Cynopithecus*) is now confined to the Celebes. It is a kind of baboon. The presence of this species, the elephant, rhinoceros, gaur, and porcupine indicate the existence of a very much warmer climate in North China in the days when "Peking man" lived, while these and the beavers show that the country must have been well wooded. The bison, gazelle and horse, on the other hand, suggest good grazing grounds, while the buffalo indicates that there must have been swampy jungles. All these types of country and their corresponding vegetations could quite well have existed contemporaneously and at close proximity to each other. We can imagine the hills (now known as the Western Hills of Peking) already in existence, with the sea coming much nearer to them, the great Chihli plain as it now exists not having been built then by the enormous alluvial deposits later brought down from the loess covered area in the far interior. Immediately bordering the sea, especially in the vicinity of the mouths of rivers, would lie the swampy jungles where the water-buffaloes might be found. Then, perhaps, would come grassy meadows, occupied by the other grazing animals. These meadows might have low-lying forests pushing into them from the hills and mountains, which would be forested up to a certain point, and harbouring the many forest dwellers. Then would come the more or less barren uplands where the wild sheep and pikas would find congenial surroundings. All these animals would afford an abundant food supply to our primitive hunter, but the flesh eaters, the sabretoothed tiger, the bears, the wild dog, would constitute his most formidable enemies, and these it would be that drove him to seek shelter in the cave where his remains were found. Here he would bring the spoils of the chase, and here he would fight to a finish any foe, bestial or human, that might threaten his little family or community. From his cave he could scan the meadows below for his prey, or keep a sharp lookout for his enemy. It is more than probable that he was a cannibal, and did not hesitate to devour any of his human enemies that he overcame.

Of course, it is not to be assumed that mammals were the only animals that existed about him. Undoubtedly there were birds, reptiles, amphibians, fishes and all the multitude of insects, molluscs, land, fresh-water and marine species, and other invertebrates that abound everywhere in suitable places on the earth; but it is likely that these were mostly very similar to present day species in this general area, since they belong to older faunal types than the mammals. He would thus probably know how to snare birds, catch fish and dig clams and other molluscs, thereby adding variety to his diet.

ANTHROPOLOGY

HOW OLD IS MAN?: The age of man as a sentient being is a subject that might well lead to endless discussion, and, in our present knowledge of the subject, is really indeterminate. Nevertheless theories and conjectures have been made, and it might prove of interest to review some of the latest of these. One thing is evident, however, before we go any further, and that is that the stone age existence

of man spread over an immeasurably greater period than heretofore supposed. Dr. Henry Fairfield Osborn, retiring president of the American Museum of Natural History, and one who has been in the forefront of the intensive researches carried out upon man's past, is reported to have made the statement that the cave men of a million and a quarter years ago were the superiors in average brain capacity of present day man. He claims that men almost identical with those of to-day were leading an intelligent nomadic existence as far back as the first Interglacial period, and sets the first appearance of man-like beings in the Eocene, or first Glacial period. Both man and the apes must have been descended from a quadrupedal creature, whose fore and hind feet were capable of developing respectively, in the former case into grasping hands and walking feet, and in the latter into grasping hands and grasping feet. The human line kept to the ground, his theory is, while the apes took to the trees. Such a creature must have been fairly far advanced mentally, although it could not have been a true thinking man. It must soon have developed mentally, however, and became a tool maker, while the apes either remained static mentally, or, what is more probable, retrograded. Dr. Osborn declares that this new hypothesis carries us into geologic antiquity hitherto undreamt of, while anthropology is forced to share with chemistry and physics entirely new notions of space and time.

As to how far back in time we have to go to reach the Eocene period opinions, of course, differ, but according to Dr. Roy Chapman Andrews in a recent statement made to the press upon the subject of "Peking man," a method of reckoning geologic time which has recently found wide acceptance would place the Miocene period at 19,000,000 years ago. The Eocene period, in which a man-like being first appeared, according to Dr. Osborn, far antedates the Miocene.

In the same statement Dr. Andrews stated that "Peking man" lived at the very beginning of the Ice Age, which would give him an age of many many millions of years.

NEANDERTHAL MAN THE ANCESTOR OF MODERN MAN: For some time the consensus of opinion amongst ethnologists and paleontologists has been that Neanderthal man, who occupied Europe during the last interglacial period and was abruptly replaced by Aurignacean man during the advance of the last glaciation, represented a distinct species from the latter, and an offshoot from the line of descent of modern man. Recently, however, Dr. Ales Hrdlicka of the United States National Museum, in his Huxley Memorial Lecture for 1927, reprinted in the Smithsonian Report for 1928, pages 593 to 621, has expressed the view that Neanderthal man developed, evolved, into Aurignacean man, and thus is in the direct line of descent of modern man. He states that this theory is not yet capable of conclusive demonstration, owing to lack of material, but declares that the thoroughly sifted indications appear to favour such an assumption. His contention is that neither an examination of the Mousterian culture, with which Neanderthal man is associated, and the culture of the Aurignaceans, nor an examination of the physical remains of the men of the two periods justify the conclusion that they have no connection with each other, but suggests, rather, a transition of the one into the other. A strong point he makes is that if we are to assume that Aurignacean man is entirely distinct from Neanderthal man, we are faced with the difficult fact to account for that the former, Aurignacean man, appears suddenly in Europe with a complete and highly developed culture with no evidence of any kind as to where he originated or how he developed his culture. He points out that nowhere does the Aurignacean culture show as being contemporaneous with that of Neanderthal man, always immediately following it. A wide range of variation in Neanderthal skulls shows a gradation from a very low type to something approaching modern man, while some of the Neanderthal features actually continue into modern times. If this theory can be established it will help to simplify the problem of man's descent since Mousterian times, but it will not help to explain the remarkable Piltown skull, which by some is considered in the direct human line, but which shows a cranium very different from that of Neanderthal man. However, that the latter should fit into the chain of man's descent is very much more satisfactory than that he should not, and possibly further data will help to fit the Piltown man, *Eoan-*

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thropus dawsoni, as well as the Trinil man, *Pithecanthropus erectus*, into their proper places.

Dr. Hrdlicka concludes his paper by saying that Neanderthal was a *phase* and not a distinct race of man.

DID MAN ORIGINATE IN SOUTH AMERICA? With reference to the belief entertained by some scientists that South America was the cradle of the human race, a *United Press* message of January 17 quotes the scientist and explorer Richard O. Marsh in regard to the discovery of certain inscriptions on rocks in the Amazon Valley, which are supposed to be of Phoenician origin, as saying that his explorations in that section of the country led him to believe that traces of a civilization immeasurably more ancient than that of the Phoenicians might be found when the Matto Grosso, a wide area in Brazil 1,000 miles long and 1,500 miles wide, which is probably the least known habitable region in the world, had been entered. He indicated that the Aztec, Phoenician and Ancient Egyptian civilizations had a common origin, a belief based on the similarity of their respective calendars, the existence of the same type of banana in both the Old and New Worlds that had been under cultivation so long as to be unable to reproduce from seeds, and the wide divergence of the domesticated llama from its nearest wild relative, indicating that it had been domesticated for an immense period of time, and going back to a period before the Egyptian civilization.

It may be pointed out, however, that so far no human remains of an antiquity comparable with those found in Europe, Asia or Africa have been found in the New World. In this connection it is noteworthy how persistent is the belief in the lost continent of Atlantis, now lying at the bottom of the Atlantic, and believed to be the means by which the civilization of South America and Egypt were connected.

An interesting fact may here be recorded, however, and that is that a few years ago a French explorer in the Brazilian forests killed a huge tailless ape unlike any of the Old World anthropoids. He took the skin and skull, but these were lost in a disaster which overtook his expedition before he reached civilization, and all he was able to produce in substantiation of his claim was a photograph of the dead creature. We must also not overlook the stories told by Indians of the South American jungles of strange wild men, so that it might, perhaps, be unwise entirely to rule out South America as the ancestral home of man till the vast unknown areas there have been fully explored. All we can say is that the present Indian inhabitants of America did not originate there, but are Asiatic in origin, certainly not African.

HOW DID MAN REACH AMERICA? If, as appears likely, it is finally proved that the human race originated in the Old World, the question naturally arises: How did man reach America? The theory has long been held that it was by way of North-eastern Siberia, the Bering Sea and Alaska that this took place, and recently this theory has received further substantial support in the collections of prehistoric Eskimo implements found by Henry B. Collins, Jr., assistant curator of Ethnology in the United States National Museum, on his recent expedition to the Yukon and islands in the Bering Strait. * These, according to Dr. Ales Hrdlicka, the well known ethnologist and head of this department in the United States National Museum, show very clearly that the Eskimo (who was probably the earliest of the great Mongoloid stock that peopled America) and his culture came from Siberia. Frozen Eskimo villages have been found in St. Lawrence Island and the nearby Punuk Islands in the Bering Strait, while the Eskimo culture is known to be closely related to that of the Chukchis in North-eastern Siberia. This, of course, means that man reached America at a comparatively late date, late, that is to say, in the immense period of man's evolution, but still a very long time ago. It is probable that this migration took place soon after the last Glacial period, and may well have been carried out by a race of reindeer men living in the Ice Age,

* Prehistoric Art of the Alaskan Eskimo. Smithsonian Miscellaneous Collections, Vol. 81, No. 14, November, 1929.

who followed the retreating reindeer herds which in turn were following the retreat of the glaciers, and so came into Northern Siberia along with the mammoth, ultimately reaching the Bering region, whence they crossed to Alaska. These early immigrants into America moved eastward keeping always to Arctic and sub-Arctic regions. They were followed by wave after wave of other closely related men, who may also have been moving north-eastward away from the advancing warmth, or under pressure from hostile races coming from Southern Asia, the Mediterranean region, or even Africa. Or it may only have been the search for food that caused this great migration. Once it reached America, where game of all kinds abounded, it must have moved very rapidly, even to the extreme south, where, in what is now known as Patagonia, the giant ground sloth provided an ample supply of easily acquired food. Indeed, evidence has been found that these early Patagonians actually kept live giant sloths penned up in caves, feeding them there, and killing them as they were required for food. All these early men lived entirely by the chase.

The theory that Atlantis, an extensive territory now lying at the bottom of the Atlantic Ocean, once existed and joined Africa with South America is really not tenable as a means by which man reached America from the Old World. The close relationship that exists between the American Indians and various races in Asia, including Siberia, Mongolia, Tibet, China and Formosa, alone precludes the possibility of America's having been populated from anywhere but Eastern Asia. The difficulties in the way of a theory that man reached America from Southern Asia by way of Polynesia are too great to overcome.

One other theory has been put forward, and that is that the Eskimo reached North America from Europe by a land connection of which Iceland and Greenland are relics. This theory supposes that he originated in Europe. He may have originated in Europe, but that he reached America by way of Iceland is untenable, since there is no real evidence that Europe and North America were so connected at any time when man could have existed. The Bering Straits region, therefore, remains the only way by which man could have reached America from the Old World, and it is more than likely that this region was dry land at the time of man's immigration into this new home.

PALAEOLITHIC REMAINS FOUND IN CHINA: Although China contains plenty of evidence of the existence of late Neolithic man, and abundant remains of this culture have been found, until comparatively recently not a particle of evidence had been unearthed to show that Palaeolithic man ever occurred in these regions. The race and culture represented by "Peking man" (*Sinanthropus pekinensis*), it must be noted, far antedate the Palaeolithic period. Thus there was a great hiatus in the occupation of this part of the world by human inhabitants. This gap, however, has been to a certain extent filled by the splendid researches of Fathier, Licent and Teilhard de Chardin in Kansu in 1923, where, at a small village called Choei-tong-keon (Shui-tang-ken) in the north-western corner of that province, they found in a very thin seam under some thirty odd feet of *loess* a number of stone implements of undoubted Palaeolithic origin. Later they found similar implements in other sites in the same province, as well as in the neighbouring province of Shensi and in the Ordos Desert, which lies immediately to the north, so that quite an extensive area in the *loess* country of North China was occupied by this early stone culture. The position of the finds beneath the *loess* shows that this culture existed before the great depositions of this peculiar material, and it is conceivable that this culture was brought to an end in this region by the very conditions that caused the *loess* deposits to form. Amongst the objects found are the following: stone anvils, hammer to chip stone implements, "nuclei," or stones chipped to obtain pieces to make into implements, scrapers, kitchen refuse, Mousterian "points," various pieces of chipped stone, teeth, fragments of bone and so on.

It is obvious that these do not belong to an Aurignacian culture, and we can only conclude that they were Mousterian, which was the culture of Neanderthal man in Europe. This being the case, the men of this Palaeolithic culture may well have been the immediate descendants of the "Peking man" type.

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This interesting collection of Palaeolithic material is lodged in the Hoangho-Paiho Museum of Natural History at Tientsin, where it may be seen by the public. Dr. the Reverend Father Emile Licent, S. J., whose researches throughout the Yellow River basin area have added so much of value to our knowledge of this country, was the founder and is the director of this important institution.

THE ORANG UTAN OF MALAYA: The meaning of *Orang Utan*, a Malay word, is literally "man of the forest," and while it is generally applied to one of the anthropoid apes, the great, red, hairy fellow of Borneo and Sumatra, whose scientific name is *Simia satyrus*, yet it is also applied by natives in the Malay region generally to certain forest or jungle dwellers altogether distinct from the Malays, Siamese and other types of humanity found in these parts. Very little has been known about these jungle dwellers, for they are extremely difficult either to find or to approach. They do not appear even to have regular villages or homes, but make themselves leafy shelters in the forests.

Recently, however, an account of these wild men of the Malayan jungle has been presented to the world in two books by Herr Paul Schöbesta entitled "Among the Forest Dwarfs of Malaya" and "Orang Utan." While there are more than one race of jungle dwellers in Malaya, only one, the Semang, is considered autochthonous, or aboriginal, the others being later arrivals from other parts of Southern Asia. But the Semang represent a race that occupied Malaya, Siam, Indo China, and probably India, the Philippines and other islands of the East Indies, long before any of the present day races existed. They are dwarfs, not more than four feet six inches in height, very dark, with negroid features and black woolly hair. They are very primitive in their culture, emotions and general mode of living. Many individuals cannot count more than three. They live in loose communities held together by little else but the herding instinct common to many animals, and exist by hunting and fishing, the blowpipe being their chief weapon for the former. Their woodcraft is superb, and they are experts at such primitive arts as they possess. They do not have homes in the strict sense of the word, but make shelters for themselves at night from leafy branches. They might be called nomadic forest dwellers, who have not even the comfort of tents. The author of the books describing these interesting people carried out his investigations concerning them by actually living with them in the jungle, travelling with them, hunting with them, sleeping under their leafy shelters, learning and speaking their language.

The position of these Malayan *Orang Utan* in the human family is difficult to assign, but it is certain that they represent an exceedingly old stock which has continued in practically the same stage of development at least from early Neolithic times, when they were probably very widely spread over tropical and sub-tropical Africa, Asia and the Pacific region. Similar people now occur in the dense impenetrable forests of New Guinea, while they must also be related to the Hottentots and Bushmen of Africa.

A. DE C. S.

SHOOTING AND FISHING NOTES

SHOOTING

THE BUSTARD IN CHINA: It is not often that sportsmen in the Shanghai district get a sight of, let alone a shot at, the bustard, a bird that loves wide plains and great distances. But some fifteen years or so ago a correspondence developed in the local newspapers and waxed furious over the alleged appearance of some of these birds along the Sea Wall at Woosung. There is, of course, no reason why in winter bustards should not appear as far south as this in China, considering they habitually spend the colder months of the year on the great plains of North, Central and East China extending well into the Yangtze Basin. But they can only be



Photo by R. S. Clark Expedition.

Mr. A. de C. Sowerby and a Bustard shot in Central Shensi, North China, where these Birds are very numerous throughout the Winter.

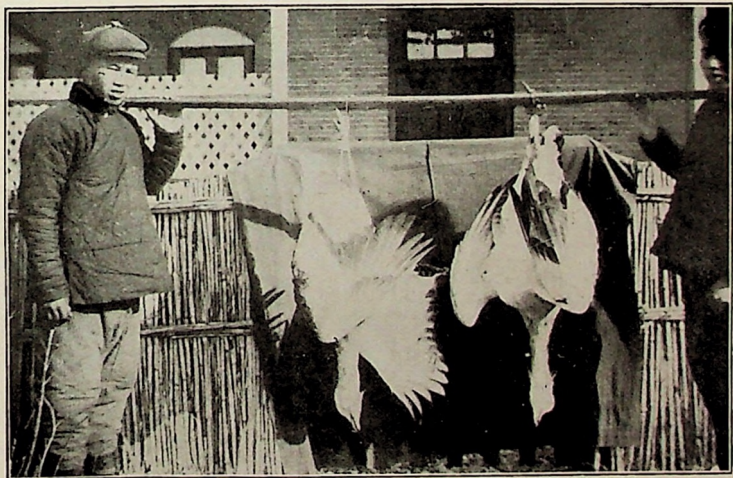
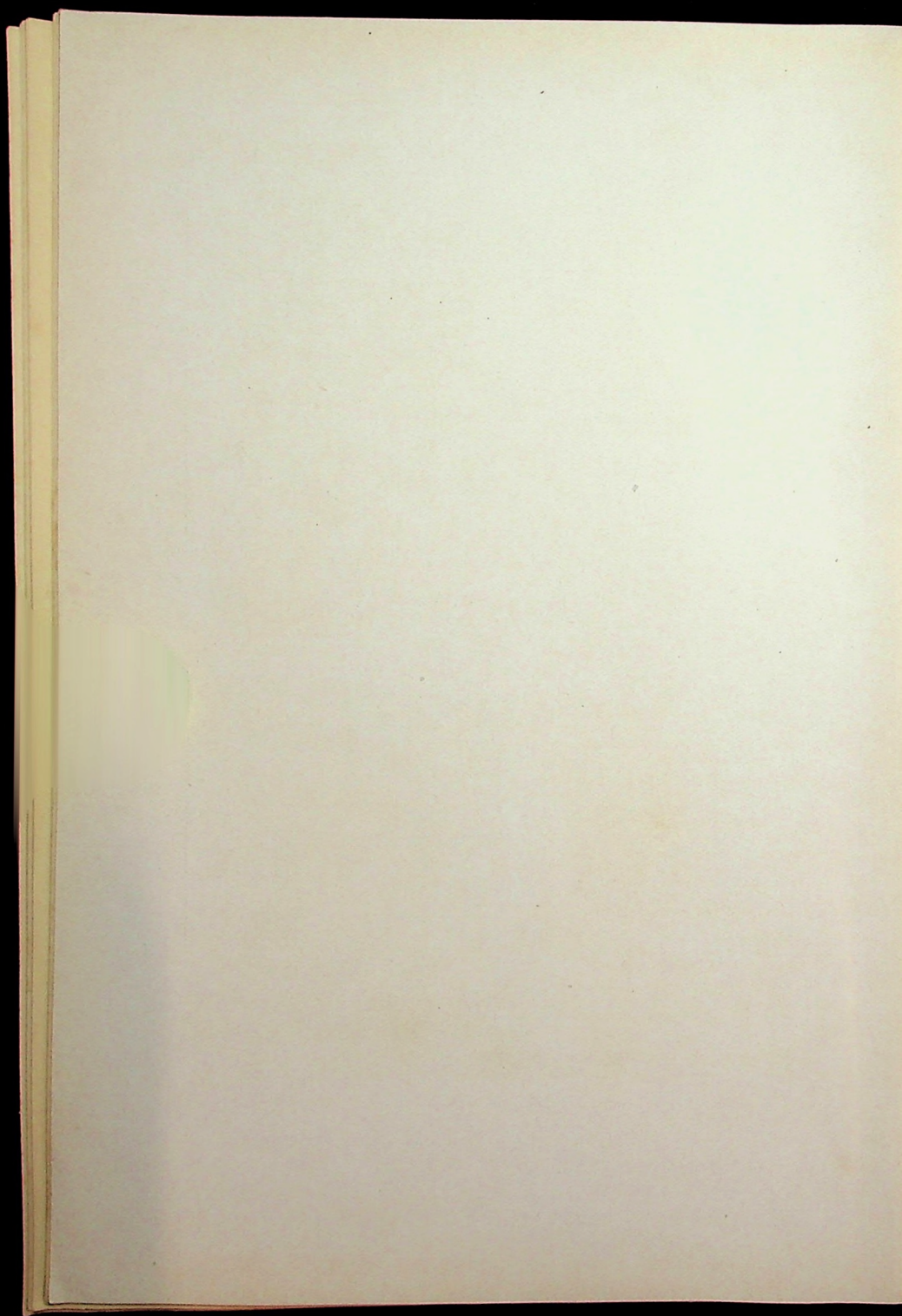


Photo by J. D. D. La Touche.

Two fine Male Bustards shot at Chinwangtao, North-east China. Large flocks of these birds winter on the Plains of Chihli and neighbouring Manchuria.



SHOOTING AND FISHING NOTES

considered as stragglers in the latitude of the Yangtze mouth, where, apart from other considerations, they would be unlikely to find an adequate food supply.

Throughout the plains of Chihli and Shansi, and in the great flat valley of the Wei River of Central Shensi, bustards are very abundant in winter, albeit by no means easy to hunt. Hunt is the correct word to use, for to secure a shot at bustards one literally has to go after them as one would after deer or antelope, riding long distances and indulging in the most elaborate and carefully planned stalks. Seldom can one come within shotgun range, and the rifle must be resorted to in order to bring one's quarry to bag. But it is well worth it, for the bustard is no ordinary fowl, ranging, as it does, up to twenty pounds and over; so when one does manage to shoot one, there is something worth while to show for one's trouble.

The largest bustard so far recorded is an allegedly 35 lbs. bird shot by some member of Roy Chapman Andrew's expeditions in Mongolia. We say "allegedly" because our experience is that large cock birds run to something over 20 lbs., while the largest we have ever seen weighed on a scales was a 28 lbs. bird shot in Shansi. Still we are open to conviction that birds seven pounds heavier than this could exist. Our sporting readers will appreciate that such a bird must be a truly magnificent trophy.

The bustard in this part of Asia is a close relation of the European bustard (*Otis tarda*) with which it agrees in general appearance, size and habits. Its only difference is that the feathers of the lower neck and the shoulders are light grey instead of buff barred black. It thus has a greyer appearance. The name that has been given to this Eastern representative is *Otis dybowskii*, Taczanowski.

Its food consists of grain picked up on the open plains and cultivated fields with a liberal admixture of the blades of winter wheat when procurable. The large males associate in flocks of five to ten birds, seldom more and often less. The large flocks one sees are made up of females and young males. These may easily number as many as forty to fifty individuals. The Chinese resort to the use of decoys and blinds in order to secure bustards, the decoys consisting of cleverly stuffed and lifelike skins of birds already shot. While the flesh is eaten, it is not the reason for which these birds are shot. What is wanted are their wing and tail feathers which make fine fans. To the European palate the flesh of the bustard is excellent, so that this bird is usually to be found for sale in the game markets.

A GOOD BAG OF PHEASANTS AND HARES: The accompanying letter from a local Shanghai sportsman mentions a bag of pheasants and hares that is well worth putting on record. Unfortunately the photograph of the bag was not good enough for reproduction.

Dear Sowerby,—It may be of interest to some of your readers to know that at last China New Year in three days actual shooting between Wuhu and Kiukiang three guns, viz. G. H. Charleton, J. Turner and myself, accounted for 178 pheasants, 34 hares, a deer and some 'various.' The pheasants were shot partly on hills and partly in reeds, and gave some very good sport; hares were very numerous and if more attention had been paid to them and to the deer seen this portion of the bag might have been very materially increased, as also could the pheasant bag if the shooting had been less patchy. Most of the pheasants were in fine condition. Cocks predominated in a fine show of birds. I enclose a couple of photos which I fear are hardly worth reproduction, but I leave that to you.

Yours sincerely,

REGINALD F. C. MASTER.

Shanghai, February 20, 1930.

It will be agreed that this looks like old times again, and we can only hope that game in these parts really is on the increase, especially that best of all birds, the ring-necked pheasant.

PIRATES ATTACK HOUSEBOAT PARTY ON THE TAIHU: What we have more or less been expecting for some time took place during the Chinese New

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Year holidays, when a houseboat party of Europeans was attacked and robbed by river pirates in the Taihu. The latter is a large lake in Kiangsu Province, lying to the south of the Shanghai-Nanking Railway near Soochow and Wusih and no very great distance from Shanghai. The details of the piracy are of no particular interest, since the victims did not suffer any actual violence, nor was anybody hurt. The important fact is that foreign sportsmen proceeding up country in territory supposed to be under the protection of the Government and within a comparatively short distance of such a large and important centre as Shanghai, have been held up by pirates, not petty thieves, but regularly organized and well-armed bandits, robbed of everything they possess and their lives threatened. We may well ask what are things coming to? Surely the forces of law and order in this country are strong enough to prevent this kind of thing? If not, then it is high time that the Government authorities set about adequately policing the waterways of this part of China, for if the lawless elements have become so bold as to hold up foreigners, who are at all times liable to prove tough customers to deal with, what must be the conditions as regard the native travellers on these waters who are always an easy prey? Sportsmen should be warned by the above mentioned occurrence and take good care not to expose themselves to the risk of a similar attack. Meanwhile we trust the authorities are making it their business to round up and exterminate the perpetrators of the outrage.

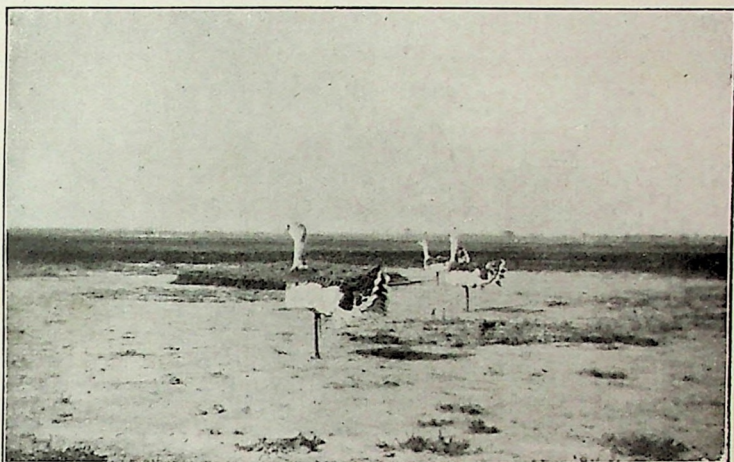
HARBIN HUNTER MAULED BY BEAR: Early in February news reached Shanghai that a Russian from Harbin, who was hunting in the forest along the eastern section of the Chinese Eastern Railway in North Kirin, was attacked and badly mauled by a black bear which he had tried to shoot. It seems his regular rifle had been confiscated by the Chinese authorities when the trouble with the Soviet broke out, and he was using an old gun. Encountering a bear he tried to shoot it, but the gun misfired and the bear immediately attacked. The hunter drew his large knife with which he tried to defend himself, and eventually both man and beast fell exhausted from loss of blood. When they recovered they made off in opposite directions. The hunter was ultimately taken to a hospital in Harbin, where his wounds, though severe, were pronounced not dangerous unless blood-poisoning set in.

FISHING

AN ANGLER'S PARADISE: According to a report by Dr. William C. Kendall, aquatic biologist of an expedition last year of the Bureau of Fisheries of the United States to Baffin Land to study the distribution of various species of fish, the finest fly-fishing he had ever had in his life was enjoyed at the head of the Peter Force Sound. He also reported fishing at many other places on the expedition, both marine and fresh-water. At Battle Harbour in Newfoundland an unprecedented catch of salmon had been made, the fish being so numerous that they had to be packed away in ice in large boats pending the arrival of more boxes. The largest salmon observed weighed 62 lbs.

A MONSTER JEWFISH: A jewfish, which is a kind of sea-bass, weighing 605 pounds was caught a little while ago by J. T. Faulkner, a Texan ex-cowboy near Jacksonville, Florida. It took him an hour and forty minutes to play the monster, which had to be despatched with a rifle bullet through the head after being dragged ashore. This must constitute a record for this species of fish.

CARP SEASON IN NORTH CHINA: With the melting of the ice on creeks and canals in North China, the season for fishing the various species of large carp so prevalent in Chinese waters begins. The fish are hungry after the long winter and come close in shore in search of food. Ide, common carp and even *huang-chuan* may be taken, not to mention other species of carp that have no popular name.



Stuffed Bustards set out by Chinese Hunters as Decoys. So natural do these appear that more than one amusing story is told of Foreign Sportsmen stalking them.



Photos by J. D. D. La Touche.

A Chinese Eagle and Bustard Hunter in his Blind. The Birds are shot for their Feathers which make good Fans. The Blind with the Door shut looks exactly like a Grave-mound.

THE KENNEL

LUNA PARK BREEDING GREYHOUNDS: Within a few weeks interest in greyhound racing in Shanghai will be revived with the reopening of the Luna Park course for its 1930 season which has every indication of being quite as successful as the past two seasons. The two rival tracks, the Stadium and Canidrome, by adopting a somewhat different schedule this winter, provided that entire absence of this class of sport necessary to create fresh interest upon its resumption, and it is safe to predict a third successful season for greyhound racing in Shanghai.

The embargo placed upon the importation of racing dogs by the Chinese Government, and the effect of this upon the three Shanghai tracks, has already been dealt with in these pages. Suffice to say that whether or not an embargo had been placed, Luna Park, at least, had a large number of greyhound saplings ready to make a public appearance upon resumption of racing this year, and preparation for next season's breeding has already been entered into in a thorough manner and upon an extensive scale.

It is this fresh blood which is going to mean the life, or death, of greyhound racing in Shanghai, unless the embargo is removed, and, bearing this in mind, particular care has been taken by the Luna Park Racing Manager and those who have cooperated with him in his breeding activities to produce future racing dogs from only the best and most trusted animals of mating qualities. The English and Australian strains have been carefully blended and the results already achieved give every suggestion of extremely fine produce to come.

A good deal of money has been laid out by the Greyhound Racing Club (Luna Park) upon its Breeding Establishment. A suitable piece of ground was discovered in the Western district and the construction of breeding kennels is already proceeding with specifications allowing for large-scale breeding. It is estimated that with ordinary luck among the present racing dogs, one hundred puppies annually will meet the requirements of any local racing track. A good start has already been made towards acquiring this number for 1930, upwards of 20 puppies between the ages of a couple of weeks and three months having been successfully produced by both English and Australian bitches.

The principal sires used to date include the names of "Glen Luss," "Captain Cuttle," "Merry Sinner," "Rockhampton," "Skipper Boy," "Finnette," "Night Alarm," "Fresh Fruit," "Nobody's Fancy," "Silver Spear," all of them fine, upstanding dogs of proved ability. Bitches which have already produced litters include the names of "Lady's Wood," "Princess Pat," "Mayflower," and numerous others with good records on the racing track during the past two seasons at Luna Park. Owners are cooperating freely with the G. R. C. in this matter, for it needs no persuading to prove the necessity of such cooperation if the Club and greyhound racing are to be preserved in Shanghai.

With a reputation already established for its new ideas and high-class variety of racing, Luna Park already has one or two innovations for the coming season which will undoubtedly enhance its popularity in no small degree. What these are it is naturally difficult to discover in view of the keen competition prevailing among the three tracks, but they are said to be something entirely new to Shanghai. Racing will start at Luna Park on Saturday, March 22.

THE GARDEN

DWARF FIRS AND PINES: These notes on the treatment of Japanese dwarf trees were received from an authoritative source, and the instructions carefully followed will prolong the life of these fine old plants. As these pine trees grow naturally in mountains, and can withstand cold, they are hardy and should remain out of doors as much as possible, and should only be brought in for decorative purposes. Trees out in the great open spaces are under nature's care, while the pot

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plants depend on man's care; their source of life is limited to a handful of soil. These plants need sun, rain, air: artificial heat is not natural to them.

Watering: In winter watering two to three times in a fortnight in an unheated room is sufficient; four to five times outdoors. In summer two to three times in a week; twice a day when in the hot sun. Never water before the soil has become thoroughly dry, not on the surface only, but at the roots, too, and then give a generous watering. Do not keep them muddy wet. The water direct from the faucet is not good, pond water is good and rain water better.

Fertilizing: As a dwarf tree is not intended to increase in size, but only to keep to its own shape, manure must not be used excessively. Two to three table-spoonsful of bonemeal gently worked into the soil twice a year, in spring and autumn, is sufficient food. Fertilizing is a necessity, but sun, air and water are more important.

Repotting: This treatment is required once in two to three years; it means changing part of the old soil for new soil. Lift the plant out of the pot, loosen part of old soil, and cut off small superfluous roots around the sides and bottom. Put a layer of fresh soil in the pot, and place the plant as low as originally, first covering the drainage hole with broken brick. Then fill up all sides with fresh soil, press firmly and water well. March is the best month for repotting. During May to June, when the new leaves are growing, the plants should be left out of doors most of the time until the leaves have turned from light to dark green. If plants are left in a dark, sunless spot, they will easily perish at this period.

Summary: The warmer the weather the more outdoors, the colder the more indoors. Though pot plants want to be exposed to all kinds of weather, they should not be left outdoors with soil frozen all through. During such weather they should be brought in at night and taken out during the daytime. These dwarf pine trees do very well in the garden, too; plant best on the side of a mound and give rough earth, sand and stones to resemble the porous earth of the hillsides. They are wild in their original state and have only the sun, dew, rain and loose mountain earth as nourishment.

OTHER SHRUBS: Besides dwarf pines and firs, there are many other attractive shrubs.

Daphne odorata is a delightful dwarf shrub and likes a rough hillside where drainage is good. Make a small mound, fill with broken stones or brick, and cover with light earth such as leafmould, and plant on the side of the mound. This is a beautiful evergreen shrub with glistening, laurel-like, green leaves; the flowers come in clusters and are most fragrant. A hardy plant which does very well here in Central China, and once planted needs little care.

The Creeping Juniper (Juniperus chinensis), as its name suggests, is a creeping variety and is very fine for low edging. Some very fine specimens occur in Jessfield Park, where they are planted in raised mounds and droop down to the lawn.

Cryptomeria in pots need winter protection, as do some of the junipers. The tips of their branches are delicate and easily turn brown if mishandled.

Pinus Thunbergii is a large leaved, or, rather, a long leaved pine; an old plant will be only one to two feet in height.

Dwarf Maples (Acer palmatum) bring a bright colour to the autumn garden, as also will the finer ivy-leaved maple. Maples like a richer earth than the pines do, as also does *Wisteria*, which can be cut down to maintain a small shape. *Wisteria* needs iron in the earth, which enriches the colours of the blossoms. Dig a trench near the roots and put in any old iron nails and tin cans, and, legend has it, the flowers will be deeper in colour.

FLOWERING SHRUBS: The following flowering shrubs and small trees are worthy of note at this period.

Pyrus japonica is a very small plant much used in miniature gardens, as it has bright red blossoms which flower in winter. Height six inches to one foot.

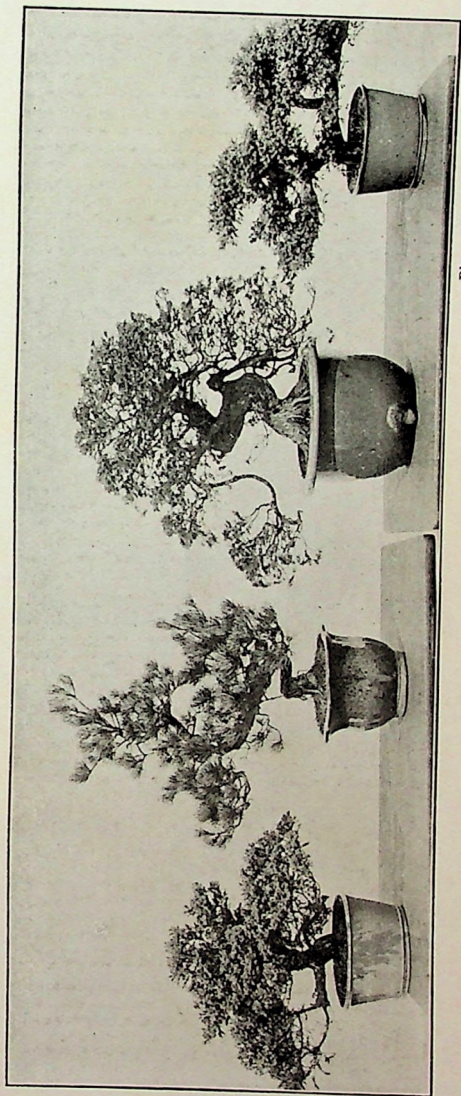
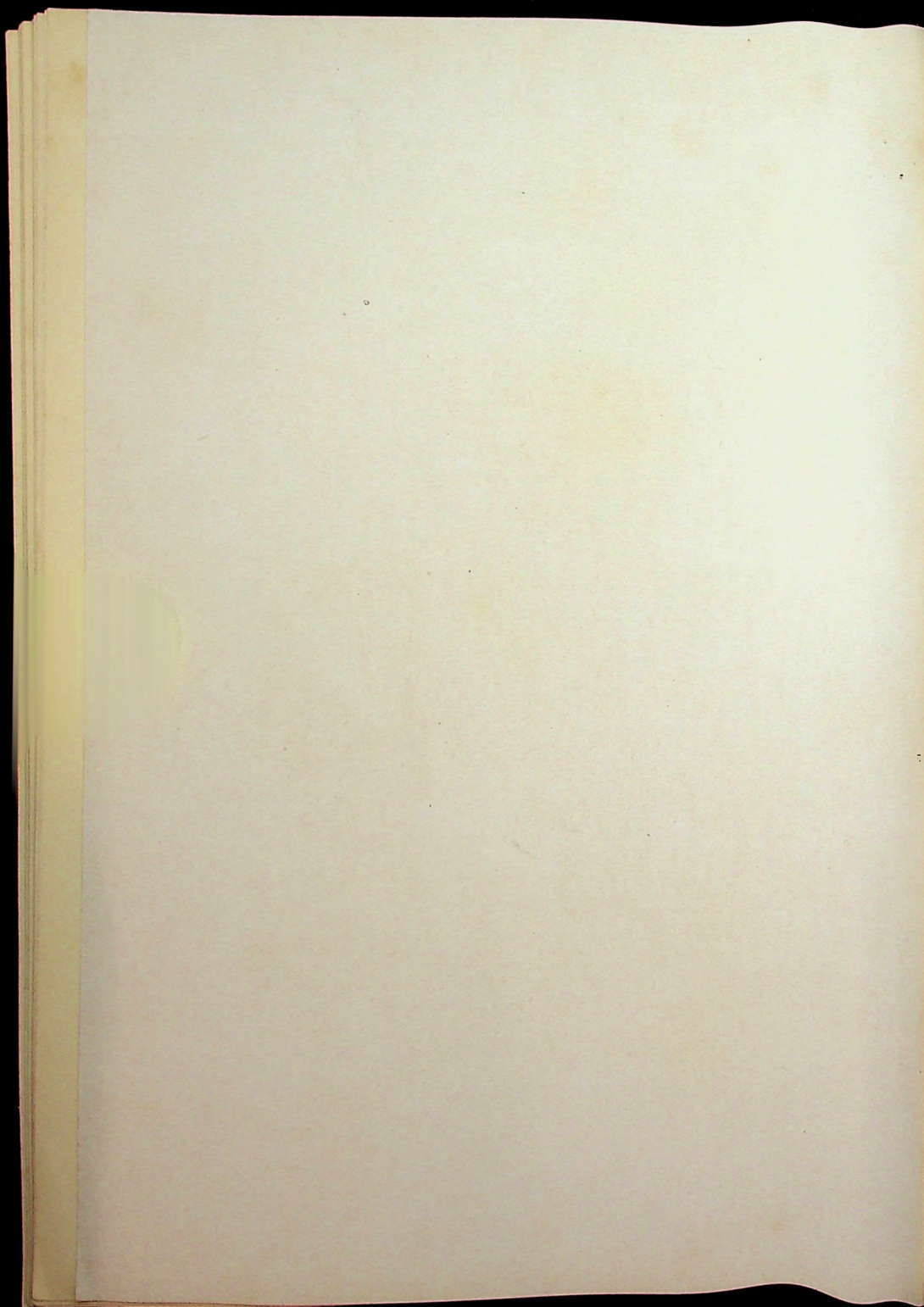


Photo by Ah Fong.

Some lovely old Dwarf Trees belonging to Mrs. L. Laurenz of Shanghai. The two outer ones are Junipers (*Juniperus procumbens*), the middle left is a Pine (*Pinus pentaphylla*) and the middle right a Thuja, (*Thuja obtusa nana*). They were originally brought from Japan, and have been in Shanghai many years.



THE GARDEN

The flowering plum (*Prunus Mume*) is probably the most popular flowering tree in Japan, due to its early flowering nature and the fragrance of the flowers.

The flowering peach (*Prunus persica*) is more appreciated for its flowers than its fruit. Very fragrant are the blossoms and delicate pink in colour.

Japanese cherry trees are famed throughout the world. The tree is one mass of blossom early in spring, the leaves come later.

Almond Blossoms (*Prunus glandulosa*) are very popular, fragrant flowers, which blossom very early in spring.

PRUNING: To maintain dwarfness in trees, pinch back the young growth. This is usually done from April to the middle of June, and always with the finger and thumb. The Japanese nurseryman pinches out all points of the young growth of *Thuya* to maintain the form; also *Cryptomeria* and all conifers except *Pinus* are treated thus. Only the irregular growths of the *Pinus* are pinched back to retain the form.

From all flowering trees, such as peach, cherry, pomegranate, the non-flowering shoots are picked either before or after blooming; in July and August all the young growth of *Wisteria*, leaving only four or five leaves on each shoot; maple and other deciduous trees are pinched back at the same time as *Thuya*, leaving two to four leaves as may be necessary to maintain the desired shape of the plant. It may be necessary to pinch back the leaves twice in a season.

THE COMING OF SPRING: The first crocuses, harbingers of spring, are out, and anemones, naturalized in the grass, are in bud. Soon the lawn will be a gay carpet of purple, yellow and white blossoms. Daffodils are gay in their yellow dresses, narcissi and jonquils follow suit. Do not cut the leaves off after blooming, as the plants need to accumulate the food from which next year's flowers are produced.

The Chinese Lunar Calendar has two delightful agricultural events in our February and March, the feast of *Li Chun*, or "Beginning of Spring," and the *Ching Ché*, or "Excited Insects" (March 6th). A picturesque description of the former feast is given in the "Moon Year" by Juliet Bredon and Ivan Mitrophanow. In it they write: "While New Year gaieties are in full swing, and in the midst of the coldest weather, the Chinese calendar announces the *Li Ch'un*, or beginning of spring. The movable feast, falling on or about the Birthday of Grains, is observed with an ancient and symbolic ceremony which inaugurates the farmer's year. In China the peasant was not supposed to plough his lands until certain state ceremonies had been performed. These sacrifices, indicative of the deep veneration for agriculture ingrained in the people, were performed in Peking by the Emperor in person, and in the provinces by the local magistrates."

Now Spring is ushered in!

THE LAWNS: Lawns need immediate attention. All weeds must now be dug out, and, when the lawn is thoroughly weeded and raked, apply artificial fertilizer. Follow instructions carefully, as too much fertilizer will burn the grass: it is best applied during rainy weather, failing which the lawn must be thoroughly watered after application. A good fertilizer will stimulate growth of the grass, which will choke out the weeds. Mix the fertilizer with finely sifted soil or sand, as this will insure an even distribution. Cut three times a month and roll once, if the lawn is used for tennis, cut once a week and roll twice a month. A beautifully kept lawn is a pleasure, and is not difficult to maintain.

L. L.

EDUCATIONAL NOTES AND INTELLIGENCE

TEACHERS IN CONFERENCE: The English section of the Christian Educational Association held an important meeting during the early days of February at Shanghai College, when representatives of colleges from all over China discussed methods of teaching English and kindred subjects. The need for training teachers of English was emphasized, and plans were drawn up for courses to be given in colleges as well as the summer schools for the training of both Chinese and foreign teachers of the language. For this purpose it was decided to form a society and an executive committee of five was appointed representing different areas, as follows:

Dr. Henry Huizinga, Shanghai College, President and Treasurer, representing East China; Dr. Lawrence Faucett, Yenching University, Peking, Secretary and Editor, for North China; Prof. R. S. Underwood, Central College, Wuchang, representing Central China; Prof. Paul A. Grieder, Lingnan University, Canton, representing South China; Prof. J. E. Moncrief, West China Union University, representing West China.

It was further decided to publish a bulletin every month or six weeks dealing with the subject and to invite teachers in colleges and middle schools and in private and government institutions to become members. Those wishing to join should communicate with the secretary, Mr. Lawrence Faucett, Yenching University, Peking.

HONGKONG UNIVERSITY: It is reported that the British Government is sympathetically considering the request of the University of Hongkong for the grant of a substantial portion of the Boxer Indemnity Funds. The representations are now in the hands of the vice-Chancellor of the University, Mr. W. W. Hornell, who is endeavouring to convince the Labour Government of the desirability of allotting the institution a big share of the funds. It is suggested that members of the staff are in receipt of salaries which stand in urgent need of increasing, and, though some of the Hongkong Chinese are supporting the University with gifts of money, there is room for considerably more assistance, particularly in the matter of improving the library and the laboratories which are badly in need of more and better equipment. Local opinion seems to support Sir Henry Gollan's contention that the Colony's grant to the University should be increased from \$50,000 to \$225,000 per annum, while it is reported that Sir Cecil Clementi, the former Governor, favours recourse to the Boxer Indemnity.

PUBLICATIONS RECEIVED

BOOKS:

Considerations sur la Structure du Noyau de L'Atome, by Charles Janet, Imprimerie Departementale de L'Oise, 26 Rue du Malherbe, Beauvais.

The Li Sao, Translated by Lim Boon Keng: The Commercial Press, Ltd. Shanghai.

PERIODICALS:

The Peking Society of Natural History Bulletin—Far Eastern Review—The China Critic—Sinensia—Antiques—The Naturalist—Henderson's Magazine—Japan—Discovery—Smithsonian Miscellaneous Collections—Geographical Review—Bulletin of the Geological Society of China—Shipping & Engineering—The Mid-Pacific Magazine—Man—American Journal of Science—The Philippine Journal of Science—Museum News—The Bodleian—Sinica—The Chinese Recorder—The Toledo Museum of Art—The Travel Bulletin—The City Directory—The China Truth—The Modern Review—The Chinese Economic Bulletin—Ostasiatische Zeitschrift—The Library of Congress Division of Chinese Literature—The Metropolitan Vickers Gazette—Chinese Economic Journal—Bulletin of the Department of Biology of Yenching University—Manchuria Monitor—Inter-Ocean—Pacific World Commerce—Pacific Exporter—Electrical Communication—Records of the Indian Museum—Bulletin of the Pan-Pacific Union & Pan-Pacific Youth—The Compress Bookman.

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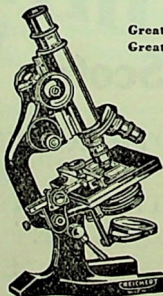
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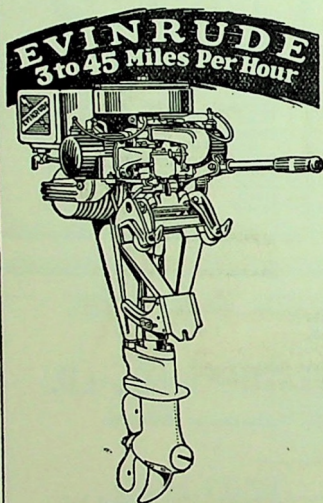
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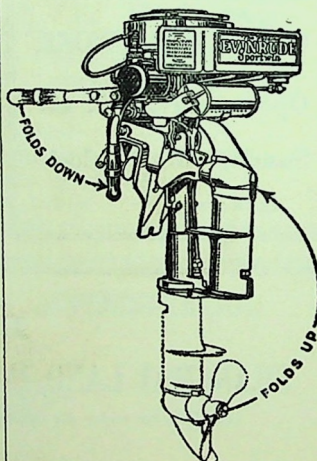
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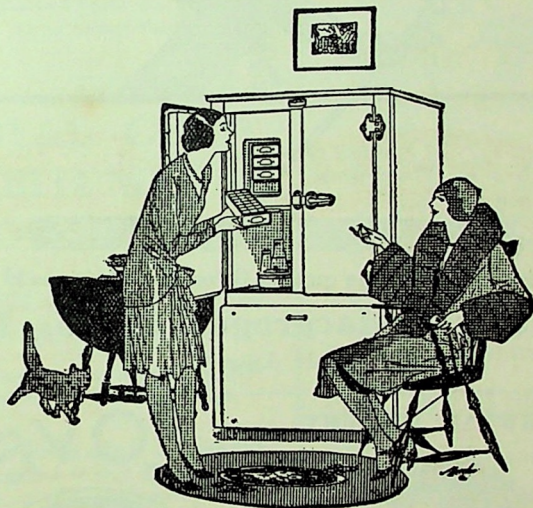
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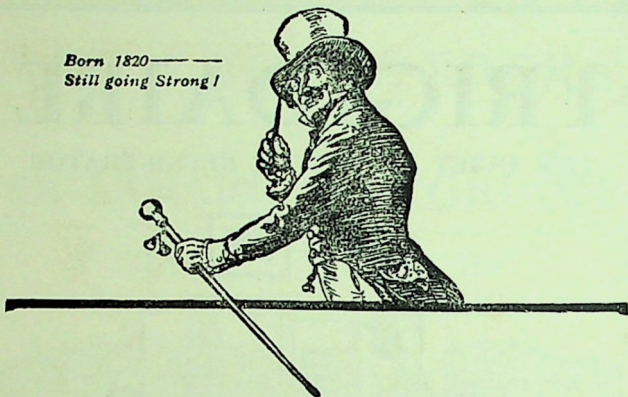
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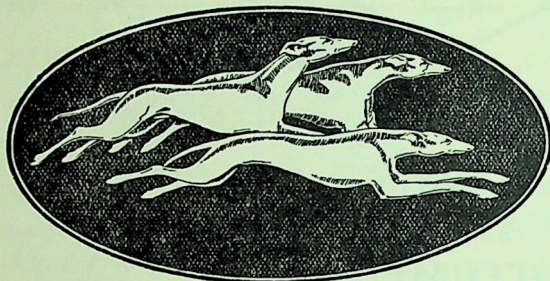
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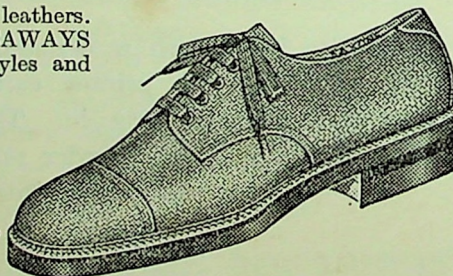
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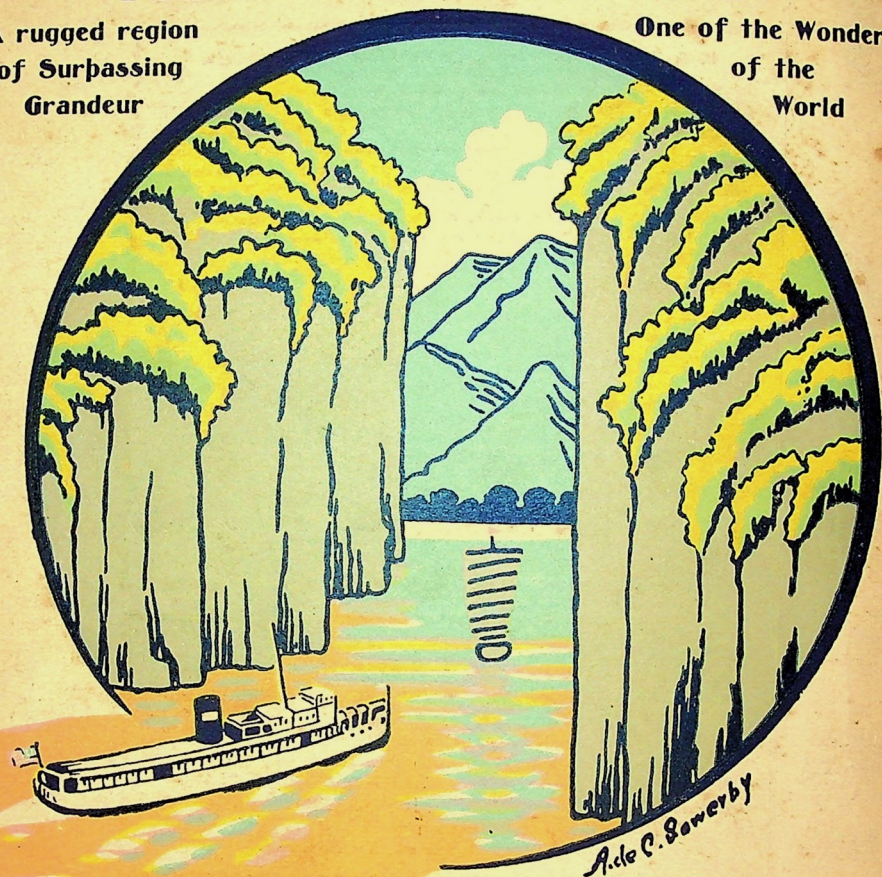
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