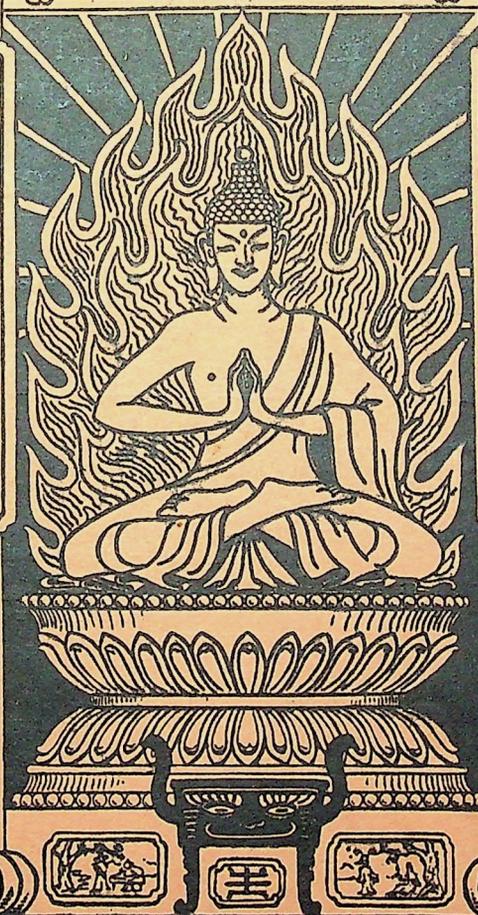


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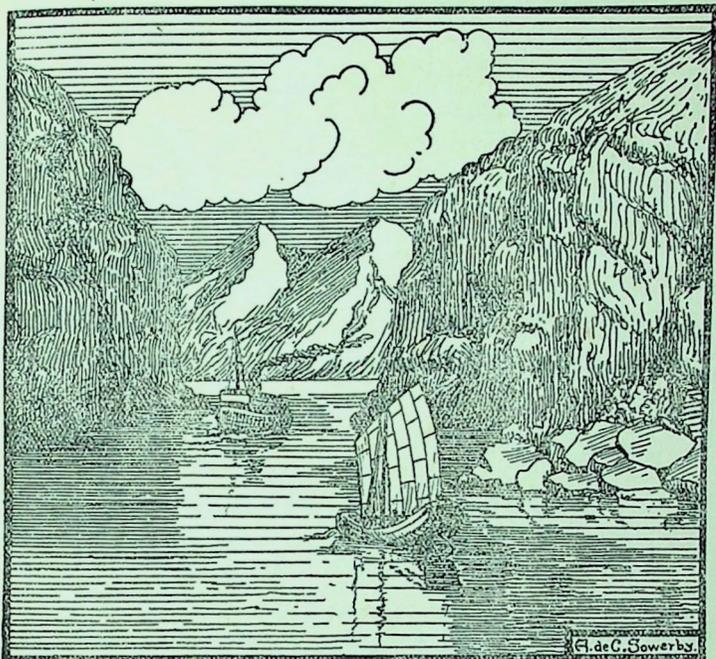
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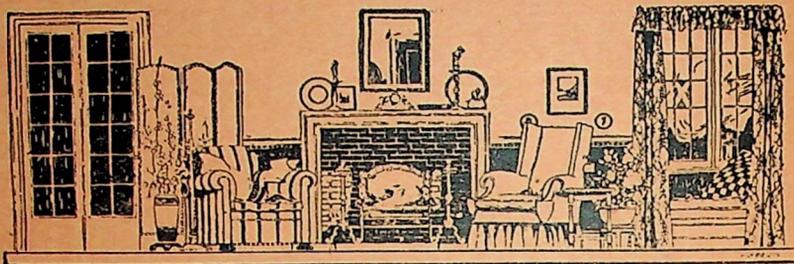
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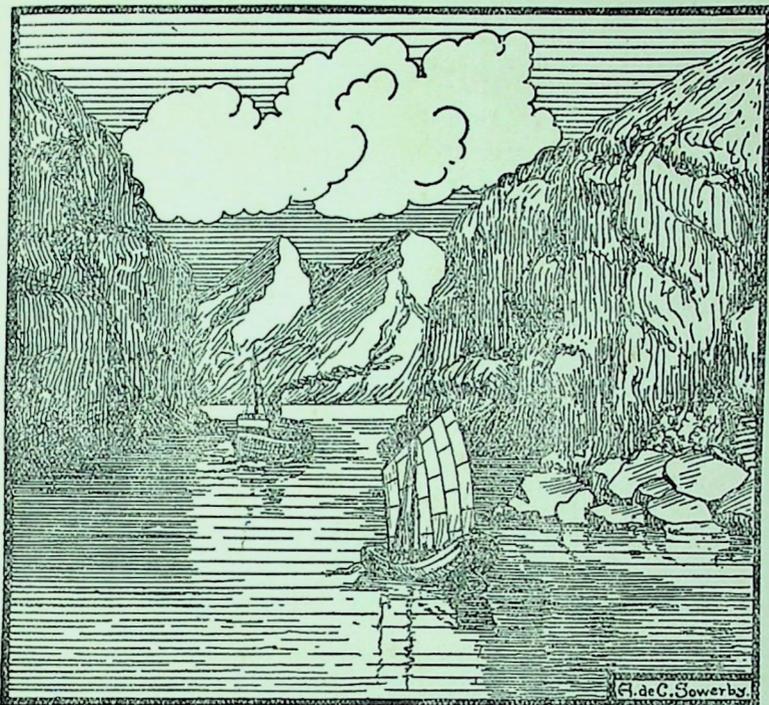
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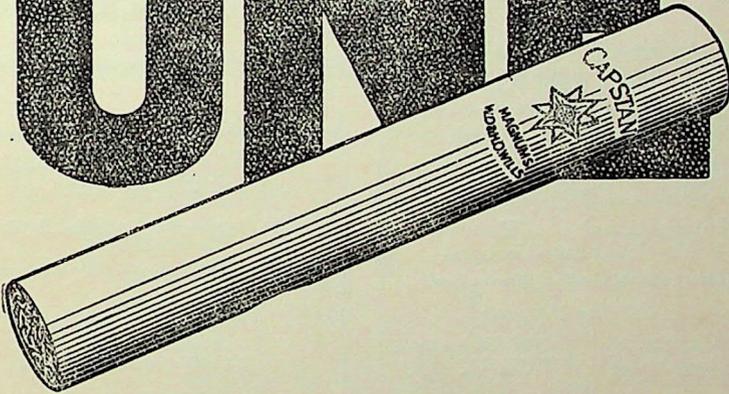
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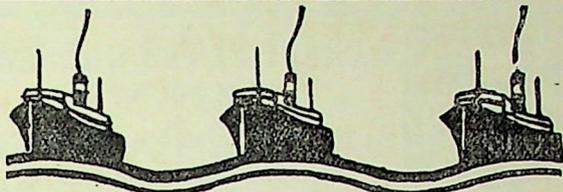
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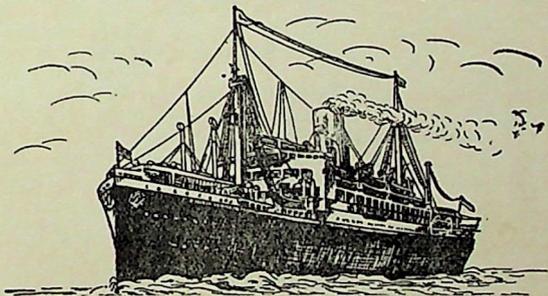
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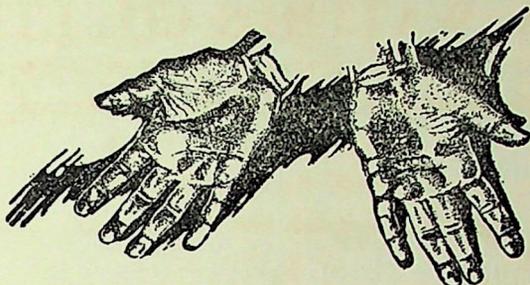
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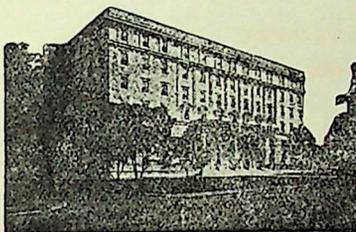
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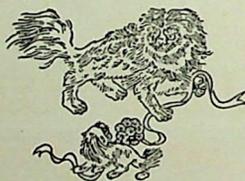
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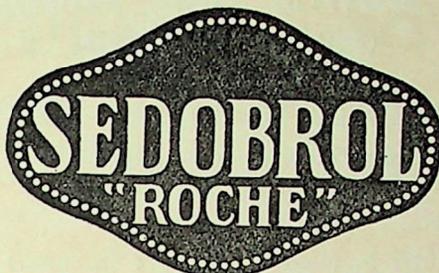
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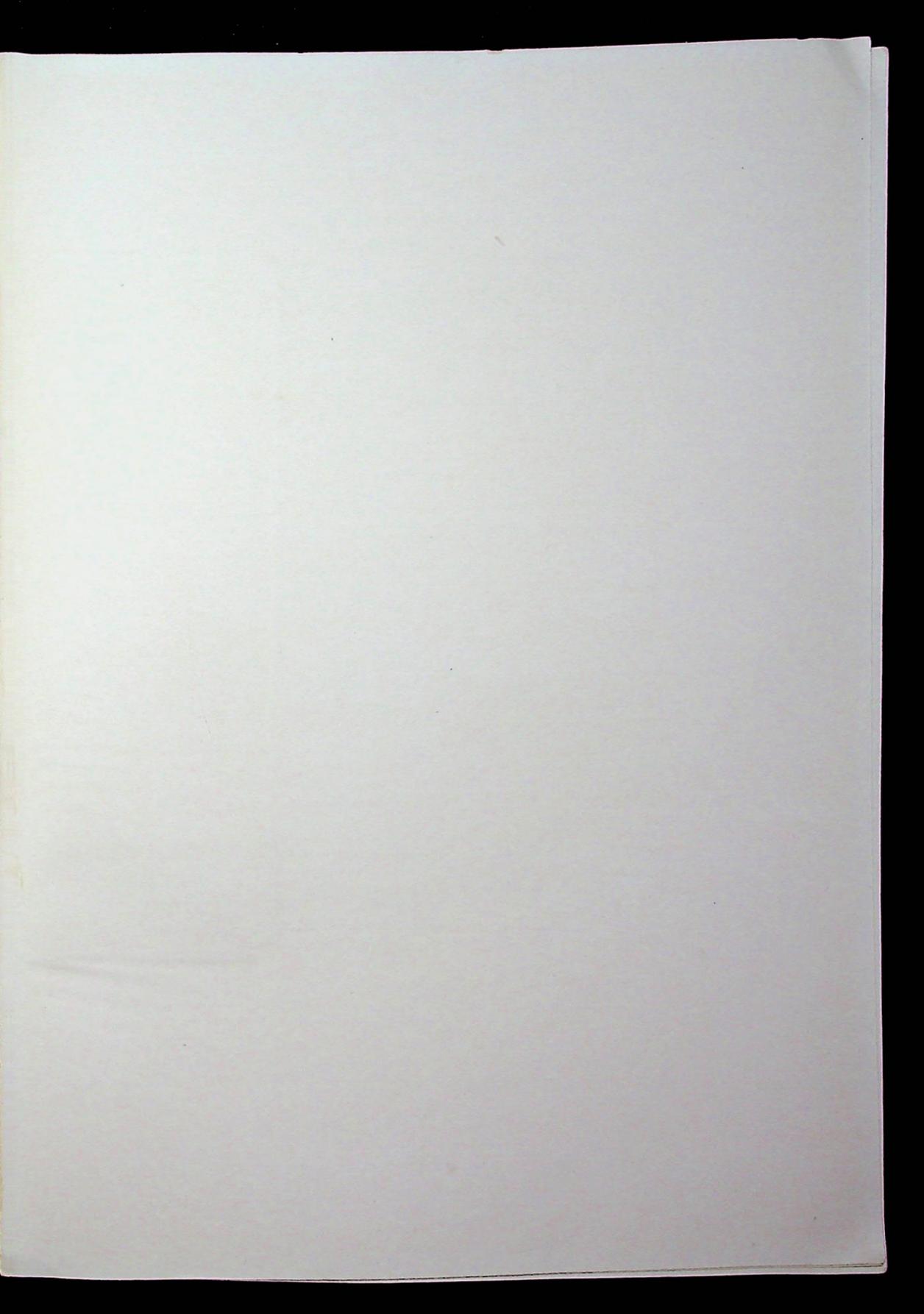
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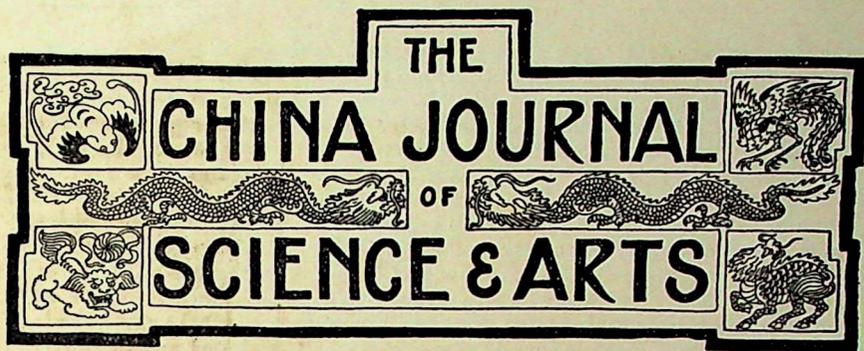
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The Late Reverend John Sutherland Whitewright :
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(See page 126)



THE
CHINA JOURNAL
OF
SCIENCE & ARTS

VOL. IV

MARCH 1926

No. 3

A NEW ART-CRAFT IN SHANGHAI

BY

ARTHUR DE C. SOWERBY

It is not often that one has the satisfaction of watching the development of a new art-craft in a country like China, where almost every phase of human activity is directed along lines that are hoary with antiquity.

In the West, fashions in the arts change almost as rapidly as they do in matters of dress. In China, while changes may be traced if one delves deeply enough into the past, one finds that they have been very gradual and have taken place during a long period of transition. This applies to practically every phase of Chinese life and culture.

It is all the more interesting, then, to be able to record a new departure from the conventional in so important a craft as the manufacture of furniture, such as is taking place in Shanghai to-day.

The impact of our Western culture upon that of China has naturally had marked results; but up to the present, in the realm of furniture manufacture it has produced nothing worthy of consideration.

Attempts have been made to adapt Chinese art motifs to furniture of European style, but so far with little success. Everywhere Chinese manufacturers of European furniture have sprung up, but their production, except in the case of the few who have catered to Europeans, is bad beyond belief.

Recently, however, a marked change has been taking place. European interior decorators, mainly women, have pioneered the way in adapt-

ing Chinese furniture, *objets d'art* and decorations to the needs of Western homes, both in China and abroad ; which in turn has called for a definite adaptation in the furniture itself. To meet this demand experiments have been made in various directions, till at last a new and successful school of furniture manufacture has come into existence. Indeed, development in this new art-craft is taking place under our very eyes.

It began with the use of carved wood-work decorations, such as are noticeable on shop fronts and in temples in Shanghai and other cities in this part of China, and on the well known Ningpo beds as ornaments in European or American homes. This was followed by the use of pieces of carved wood as decorative panels in such objects of household use as mirrors, cupboards and screens, the old Chinese carvings being artistically built into newly made furniture and the whole designed and coloured so as to have a distinctly Oriental appearance, yet to be suited to the requirements of Occidental culture.

This particular type of furniture became so popular that the supplies of suitable old Chinese carvings soon showed signs of exhaustion, and, to meet the ever growing demand, those engaged in the new industry have resorted to the simple expedient of making the required carvings, using the older forms and motifs as models.

From this it has been but a step to the manufacture of beautifully carved furniture, which is rapidly replacing in popular esteem the makeshift products in which old carvings are set in new frames.

While the old carvings are very beautiful, and are handsomely lacquered and coloured, they in no wise exceed in beauty of design or workmanship the new, which are really remarkable for their artistic merits.

To-day any piece of furniture may be ordered, with specifications as to measurements and general requirements, only the design and decoration being left to the manufacturer, and in due course the latter will turn out, at a ridiculously low cost, as handsome an object of household use as ever graced the halls of princes or kings.

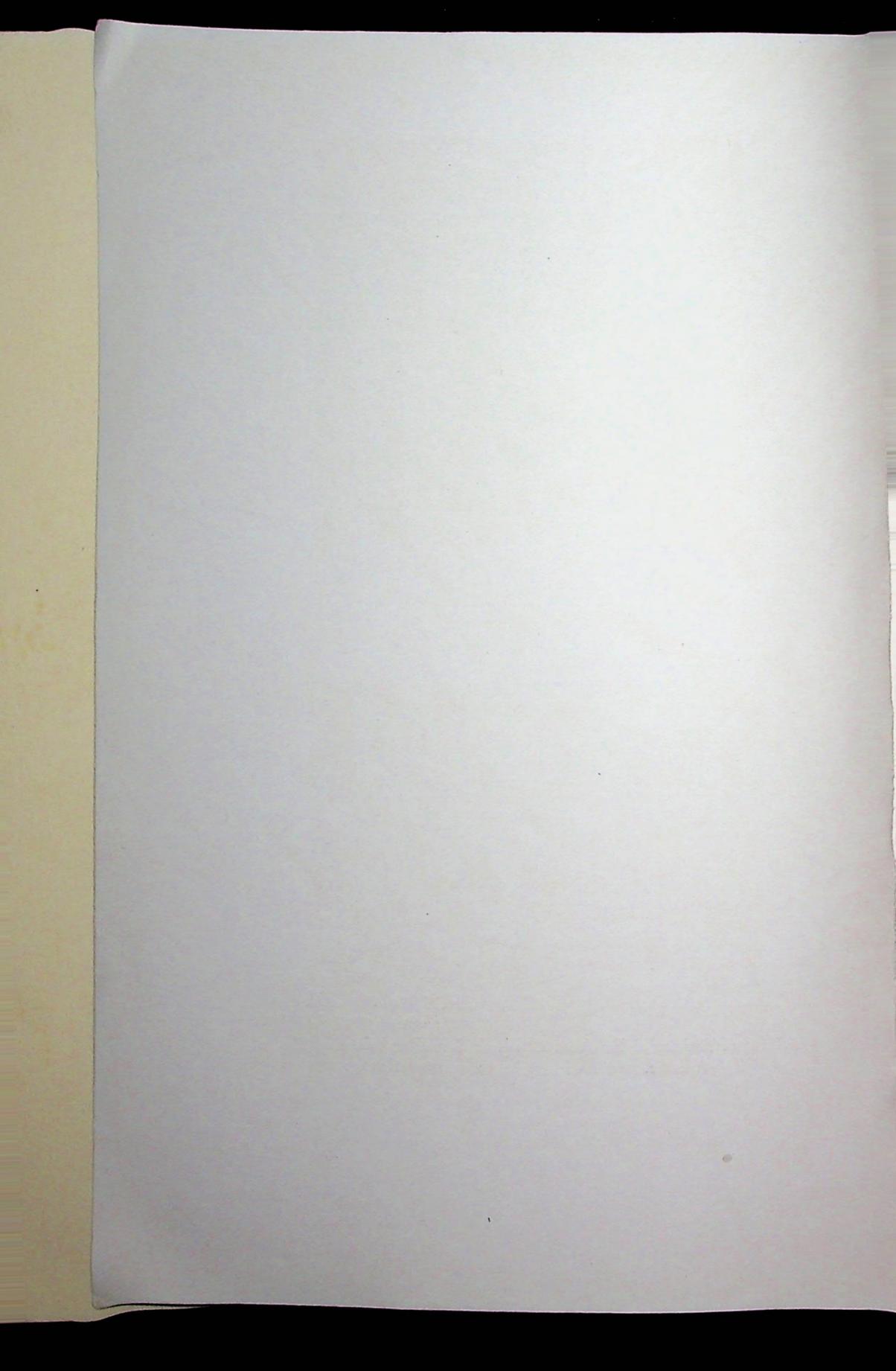
The wood used is almost exclusively teak, and in the final product may be painted, stained, or merely polished or varnished. One popular method of treatment is a combination of gilding and painting, the result being very attractive, and extremely Oriental in effect. But the handsomest pieces are those in which the natural colour of the wood is enhanced and enriched by the application of a varnish. A sideboard, cupboard, dressing table or desk, treated thus and with brass hinges, plates and catches or locks attached, would delight the soul of any artist. The variety in the form and designs of the carving is a never ending source of pleasure, particularly is this the case with the extremely beautiful screens that are being turned out. The technique is being consistently applied and includes the framing of pictures and mirrors, so that a whole room or house may be furnished harmoniously.

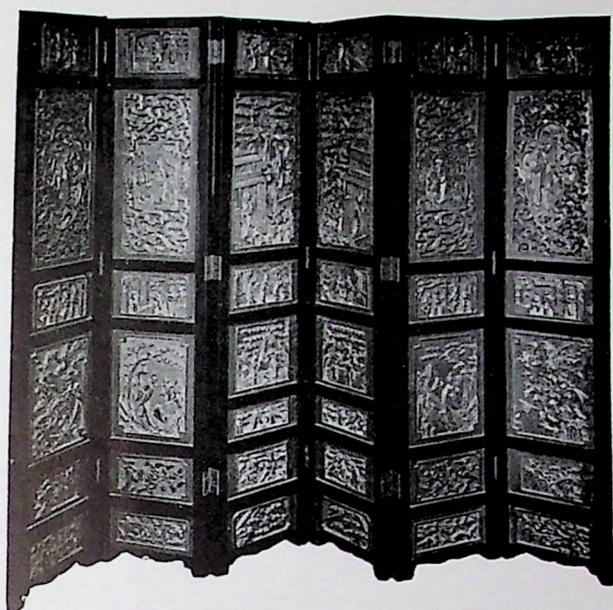
It is safe to predict a great future for the industry that this new art-craft is calling into being. At present it is hardly more than a year old ; but is certain to develop rapidly and to large proportions, since a demand from abroad will inevitably arise.



Photo by Courtesy of Tai Loong.

A Group of Articles of Furniture all Richly Carved and done by Modern Artisans. Some of the pieces are gilt or coloured.





A Screen made of Carved and Lacquered Panels from
Old Ningpo Beds.



Photos by Courtesy of Tai Loong.

A Screen made of Richly Carved Panels by Modern Artisans.

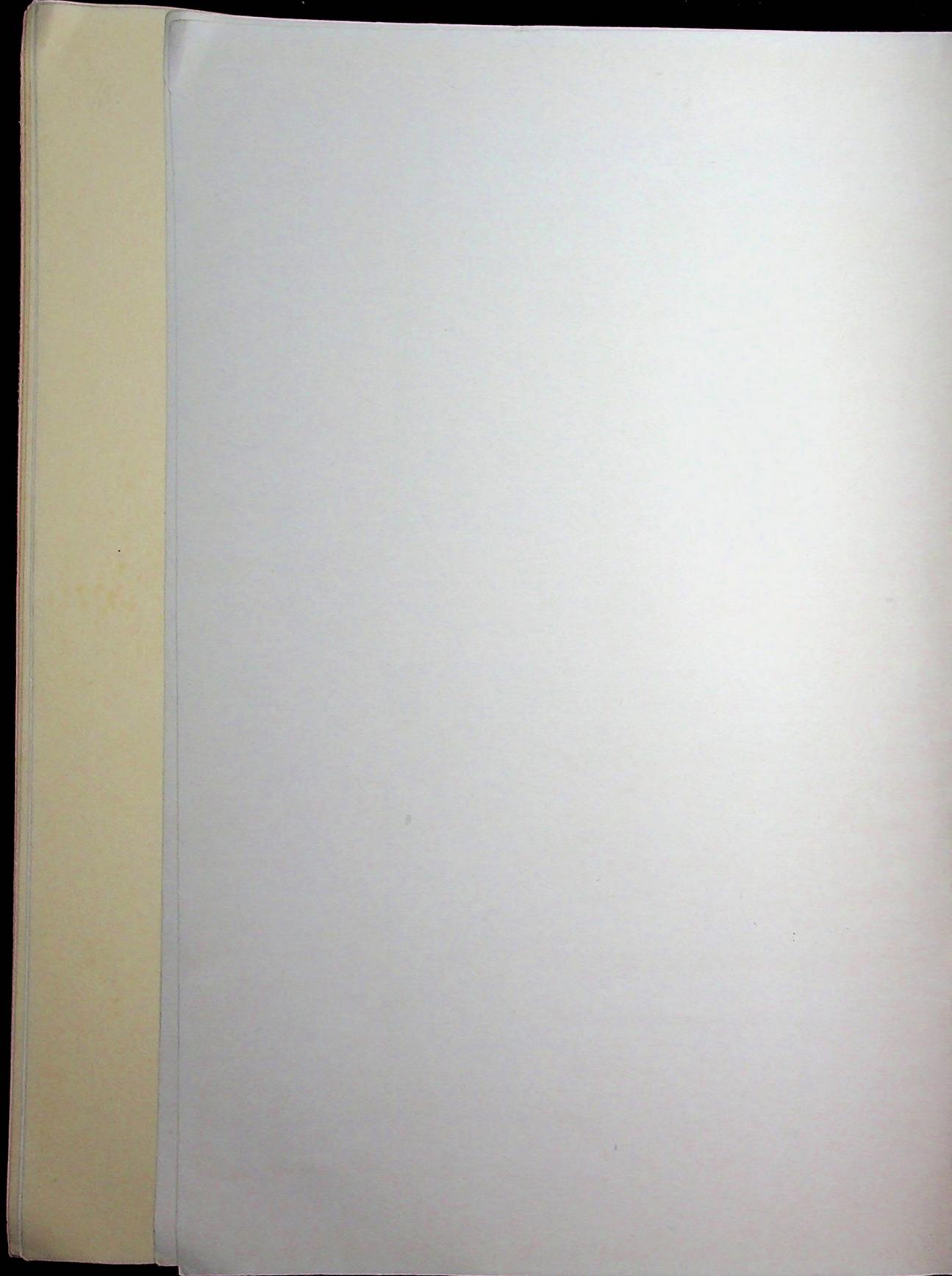
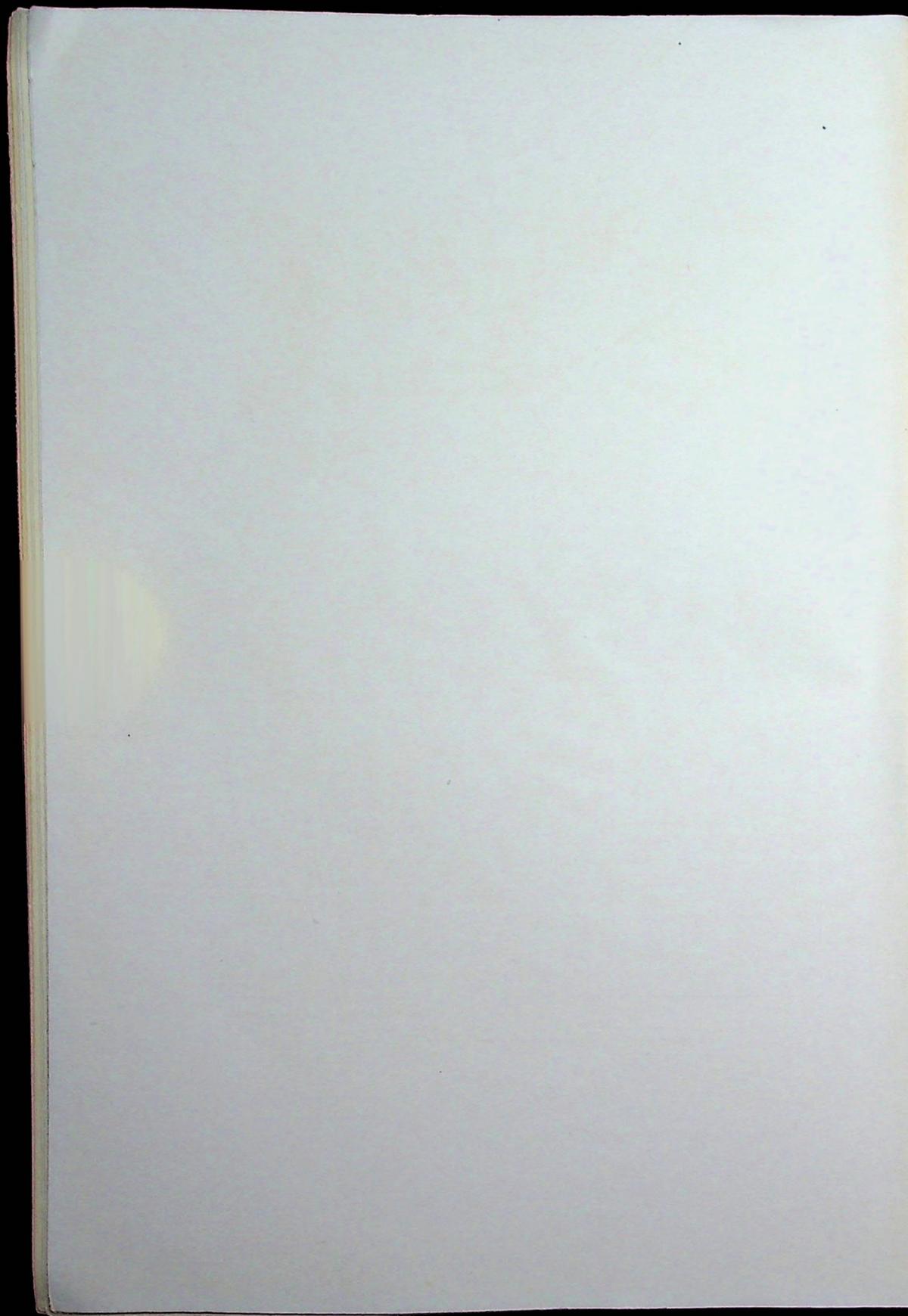
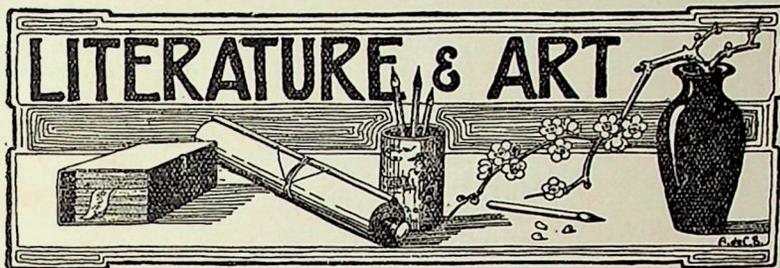




Photo by Courtesy of Tai Loong.

A Fine Example of the Modern Carver's Art.





NOTES ON LITHOLATRY ON THE WESTERN FRONTIERS OF CHINA

BY
J. H. EDGAR

1. Litholatry exists in some regions in West China, and its survival in the form of charms of stone and decorations in whitewash is common not only in widely separated regions (between North Lat. 29-32 and East Long. 100-103), but also among tribes ethnically quite different. Indeed, the insistence of the Border people on a pre-Lamaist "White Religion," with many peculiarities in Lamaism, leads us to conclude that litholatry was a prominent feature of the early religions of Non-Chinese Tribes.

Critics of the Kuenen-Wellhausen school suspect a strong litholatrous element in the worship of ancient Israel. While the writer cannot admit that idolatry of any kind was an essential part of Nahweh worship, there seems to him abundant proof in the Old Testament of the adoption of customs that were formerly litholatrous, as is the case with Lamaism to-day. Indeed, one of the objects of this paper is to show how peculiarly Semitic this worship in some instances, and these talismans generally, are.* Dr. James Orr says regarding Asherah. . . "the trunk of a tree or a cone of stone which symbolized Asherah was regarded as a Bethel, or 'house of the Deity' wherein the god was immanent. The trunk of the tree was often provided with branches." Again, we gather from Rawlinson that Ashtoreth was the Female principle in Nature. She represented the moon and bore the head of a heifer with crescent-like horns, and became sometimes Astarte of two forms. Asherah and Ashtoreth were at one time probably the same objects of worship in Babylonia. As we proceed the value of these references will be apparent. (See Journal of W. C. Research Society, 1922-3, p. 59).

*In Bonism we have probably a later Mazdaic survival which will be discussed in another paper.—J. H. E.

Stones are undoubtedly worshipped as gods or as the abode or garb of a god. This custom is quite common in the Min Valley, but even as far away as Kanzè a conical stone resembling discoloured quartz is worshipped as a local deity (*Sa bdag* or 土地) by Tibetans and Chinese. It is said by the latter to be peculiarly malignant (歪).

A large number of designs of a talismanic nature have been collected by the writer and have appeared in the 1922-23 number of the Border Research Society. They are very frequent in Minyag and in most cases are fragments of quartz worked into the masonry. Occasionally, white-wash takes the place of the quartz fragments. The ox head with spreading horns is very frequent. The sun, moon and stars are also common and suggest a former reverence for the planetary system. The stone talismans, however, are more general in other positions. They form capping stones for walls and corners of houses; they are the culminating points of religious mounds, graves, altars and shrines. They support the praying flags and are the material of which incense stoves are made. On the hill sides, also, the all-sufficient charm "*Om mani padme hum*" is displayed in glistening white quartz fragments. And, as an anticlimax, manure heaps often have a large cone nestling on their summits! The bleached skull of an ox with the spreading horns attached is sometimes seen in positions occupied by the quartz cones, and even on the Mani mounds. That we have here survivals of litholatry, zoolatry and a worship of the heavenly bodies, is extremely likely. But locally there is no clear idea of the original meaning. However, everyone agrees that they are charms, like the Mani flags. They are mostly white stones, but in the ordinary Mani mounds this is not so; and granite and even black material may be used at times. The frequent association of branches of trees with the mounds, pillars and cones of stone is not only interesting as regards the question of origin, but seems to hint that the Mani praying flag may be a development of the secret bough and that the moss-clad branches of the sombre and mysterious forests were the parents of them all. Local explanations, while agreeing that the stone, and, indeed, white in any form, are charms, differ in detail. On the Yalung (right bank) the yak head design is said to commemorate the faithful animal whose soul is now the protecting genius of the family. In Litang, the white stones are thought to bear the same relation to the god as the gala dress does to the people. Here we find the Bethel idea. In Libang the fir branch decked with tufts of wool is also a powerful talisman. In Badi-Bawang the stones are said to have the same duties as the "praying flags," that is, they are powerful charms. A very common explanation is that they are "capping stones" giving a beautiful finish to erections of all kinds in the same way as snow peaks do to the mountains. Here we find a hint of the totem or fetish or god ending in an artistic principle; but again the Bethel idea is not far away. The white or Holy Stone was the palace of the god. But the Mountain God and the Sky God had their abodes far from the haunts of men. Could any place be more suitable for their dwellings than those grand, pure regions of eternal snow so common to the frontiers of Tibet? But domestication or bringing them under control was necessary, and

the Bethel of snow-like quartz was suggested. Even to-day the Tibetans may be seen piling up mounds of quartz and granite fragments to tempt the Sky God to dwell among them. These Bethels are common on all the great passes, and the energetic expressions of thanks (*Gsol lo gsol lo*) indicate that the god is thought to be residing in a house, not so much built with hands as tossed into a heap by shovels! But the idea may possibly be to tempt the gods to live in regions where their services are most needed.

2. The litholatry of Tibetan Tribesmen in spite of the settled habits of the people seems to have retained its desert peculiarities. Their altars, shrines and groves will illustrate what is meant; and one temple only will prove an exception. The stones for shrines, altars and objects of worship would be everywhere; the cattle and sheep would be part of their every day life; and the grove would represent the oasis near to which they would reside for longer or shorter periods.

A very important litholatrous grove—the only one visited by the writer—is on the left bank of the Lifan River, about three miles below the town. It is a rough square of virgin jungle on a rather bare mountain side. Nothing in the nature of vegetation is added and nothing is taken away. It is Holy Ground. In the centre, in a rough wooden shed, a white cone of stone, stained with the juices of green juniper smoke and gory with the blood of animals, is enthroned as the Primordial, Eternal Substance. No doubt the Mountain God, perhaps one with, or nearly related to, the God of the Heavens, is intended. In the grove are sacrificial platforms and shrines on which the heads with the branching horns of steers lately sacrificed are displayed. This grove suggests to the writer a strong flavour of Mazdaism.

The altars are very common and prominent, if miniature, features of the landscape. They are each mounted by a long, slender slab of quartz which is remarkably like the Lingam decorations of ancient altars seen by the writer in Java. At the two sides, at least, are the spreading horns of an animal or their imitation in stone or wood. Their relation to the worship in parts of the Min Valley at least is indicated by the translation of an account written in Chinese by one of the *Chiang* leaders: * “The Animal Sacrifice of the Wei Chow natives.—

(1) In every district and settlement either below a cliff, in groves, or in a wilderness, a stone altar from four to six feet high is reared and a white stone erected on the summit. (2) Every year in the first or sixth month—it may be early or late—and in the tenth (the tenth month is most popular) a lamb is sacrificed. This has been a fixed custom from earliest generations. A male lamb without blemish is required. (3) Unleavened wheaten cakes are used at the sacrifice; and the flesh of the lamb is eaten by the community afterwards. (4) The mouth and feet of the animal are cut off and the sinews and testes plucked out and sacrificed altogether on the altar. (5) Wheat straw is put in a basin

*See Royal Asiatic Journal 1922, page 68, for Chinese text.

into which the sacrificial blood is drained in preparation for the sprinkling. (6) The sacrifice is eaten only by members of the clan initiated by the "separation" ceremony. (7) The "cutting" or "separation" ceremony is as follows: The natives when young lead out a lamb (for sacrifice). A white string is tied to the neck (of the infant);* then a section of little more than a foot long is knotted off and a few inches severed with a knife."

My only comment on the above is that the *Chiang* authority had been reading the Mosaic Law and had an idea that his tribesmen were submerged Israelites. In the last paragraph, where he says that circumcision 割禮 was totally unintelligible to him, he was probably thinking of Exodus 13/13. Students of Comparative Religions, while not connecting the Bethels, Paschal Lambs, unleavened bread, blood sprinkling and the plucking of sinews with Moses and the Law, will do well to infer very remote Semitic origins. The analogies may prove to be influences.

3. But there is a *bona fide* temple where litholatry explains its existence. On the left bank of the T'o or Lifan River opposite the new Chinese settlement of T'ong Hwa, is a depression in the mountain with settlements and agricultural areas. It is fringed above by an irregular rim, as a rule over 11,000 feet. Here at one time lived a Chiang Ring who suffered, it is said, for righteousness sake. At the present time the major portion of the depression, about 30 square miles, with its fields, castles and population, is sagging down to the river, but so leisurely that no harm is being done. The people are almost pure Chiang, and on the summit mentioned they have a temple known as the *Pe'h K'ong Sze* (白空寺) or "White Vacancy Temple." It was the Bethel *par excellence* of the litholaters, and under its shadow live yaks, which, burdened with the sins of the people, were driven into unknown wastes beyond. Strange and persistent stories were told, also, of the fury of the God of Fire, who seemed to amuse himself aiming thunderbolts at the helpless temple. Here was a challenge, then, for bold men; but a climb of 6,000 feet in a burning sun over a steep rough road long influenced me unfavourably. However, in July and August, 1921, pilgrimages were made in spite of Azazel and the Fire God.†

On the way up each time we camped in a dirty castle about at 8,500 feet. The people, who had illegally rented fields to opium smugglers, were inquisitive, unfriendly and expert at coming to wrong conclusions. They tried, also, to hinder us from visiting the White Vacancy.

"Where are you going and what do you want? Opium?" quizzed the village buck.

Missionary: "No, we are visiting the Vacancy Temple."

Buck: "Be careful, if you are not pure in heart, the God of Fire will incinerate you."

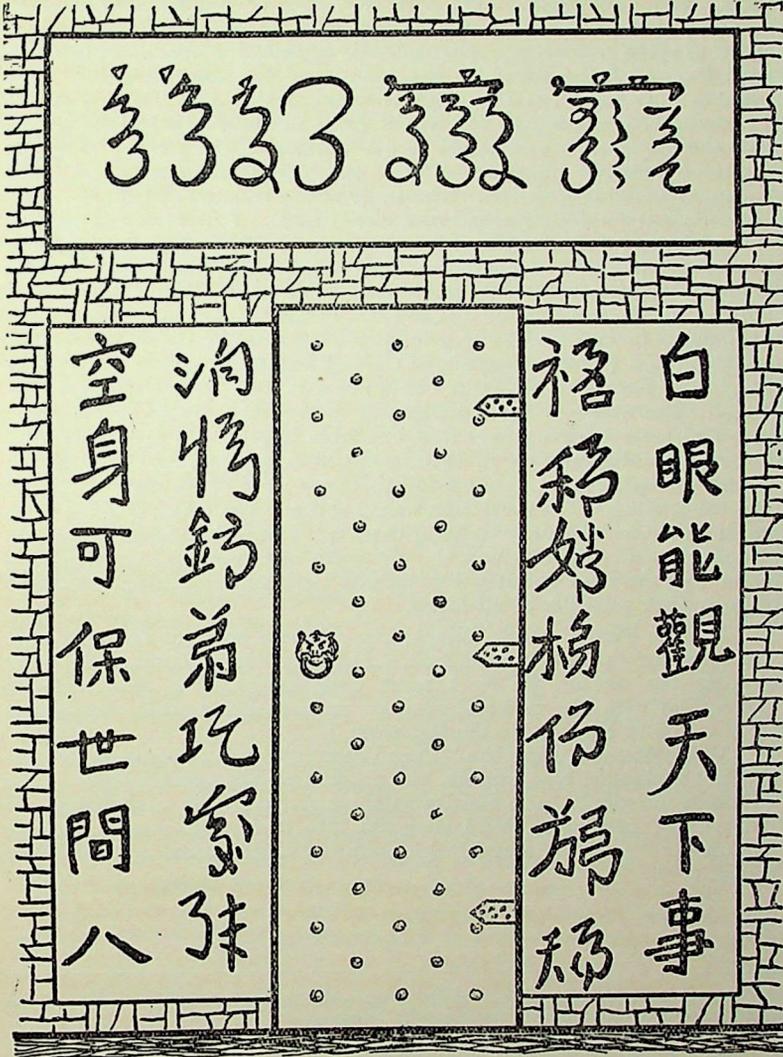
*So the Rev. T. Torrance. The text here is uncertain. I have a great admiration for Mr. Torrance's work. Mr. Torrance's paper was only read years after the Chinese text was written. Indeed, this paper was already written before I became acquainted with his paper on the *Chiang* religion.—J. H. E.

† Wilford Brace and R. G. Allan, lads under 13, accompanied me.

Missionary: "Is that so! Have *you* been to the Temple?"

Buck: (who probably visits the peak one hundred times a year—smiling): "No; I am not good enough!"

We found the White Vacancy small and unpretentious. It was



built with stone, and, no doubt on account of snow, had Chinese roofs. The view from the tiny plateau on which it stands is far-extending and unusually grand. But the temple was my special quest. Chinese characters above the main entrance showed how catholic the Worshippers could be, for among the Patrons were "Sacred Ancestor," "Mother Earth" and "all Gods." On a large "*pien*"* was an inscription in unknown letters which, some insist, were made by mediums in a frenzy of spirit possession. On each side of the door were sentiments in scroll form with the name of the temple as the starting point. The meaning may be "The Pure Eye is Omniscient," and "The Vacuum is Omnipotent." Perhaps the whole Vault of Heaven is intended, and, with the peculiarities mentioned in other parts of the paper, we might suspect a Mazdaic influence—Chura, the sole Creator of Light, and Mazda, the Omniscient One. The inner script consists of Chinese characters broken up and arranged in unusual ways. It is after the manner of the Kitan Tartars, but may be nonsense. Inside, Chinese idols were numerous; but the worshippers were manifestly litholaters. Some "ikons," phallic cowry shells and conches showed that lamas also bowed "in the House of Rimmon." The Gods of the *Chiang* were three large conspicuous cones of white or gray quartz in front of the same number of gilded idols, † and a fragment of the same material said to be the Fire God. The names of the large cones are *Peh Lala*, *Peh Haha* and *Pen Hsihsi*. The story of their apotheosis is on the whole rather silly. Ages ago these divine stones flew out from Tibet. No one recognized their value until, one day in 1910 inscribed slips of paper began to fall around the villages. Lamas alone—there are none in the district—could read the writing. The revelation was that the stones were powerful gods and it would be necessary to build them a "House" on the Peak of the Thunder Spirit. And it was so. In spite of numerous fatalities from lightning, the Pure Vacancy Temple was built and now is an important objective for pilgrims of all lands.

4. The Pure Vacancy Temple has only one priest or Shaman. He was very dirty with a hunted look. As lightning is almost continually striking the temple, he lives most dangerously. We could not but sympathise with him as he showed us rents made in walls and beams by the God of Fire within the last week.

While we must claim the "Pure Vacancy" as a non-Chinese temple and not controlled by Lamaism, the Tibetan priests worship there. The tradition mentioned also illustrates their methods—an ability both to incorporate new and useful elements into their own system, and to exploit the superstitious and religious ardour of untutored men wherever found.

*The accompanying sketch gives a general idea of the inscriptions. Some unimportant Chinese matter has not been included.

†Here the stones are the *Chiang* representatives of the Chinese Gods behind.

ON CERTAIN DIVINE METAMORPHOSES

BY

BARON A. VON STAËL-HOLSTEIN.

(Continued from Page 61)

Another divinity mentioned in the Mitani treaty and praised by the Vedic poets, is Varuna. He appeared to the Vedic Indians as a most powerful god approaching, if not rivalling in might, the national god Indra himself. The opinions of scholars differ widely as to the origin of this divinity. Some of them assert that the word "Varuna" is related to the Greek word "ouranos" which means "heaven" and that we are confronted with an old personification of the firmament. Others, like Professor Oldenberg, believe that he was originally a moon god. The Rigveda celebrates him as the upholder of both the moral and the physical order of the universe. But much greater stress is laid on his activities in the sphere of ethics than on his rôle as creator and warden of the physical world. From the heights of heaven, where he resides in a palace with a thousand gates, Varuna can observe not only the acts but likewise the thoughts of men. He inflicts terrible punishments and avenging maladies on the hardened criminal; but he is merciful to the man who repents. It is to him that the cry of anguish from remorse ascends, and it is to him that the sinner comes to confess his guilt.

Varuna has six or seven brothers, like himself sons of Aditi, or immensity. The most important of these brothers is *Mitra* who is frequently invoked concurrently with Varuna. Both Mitra and Varuna are called *Asura*, which originally meant "endowed with supernatural power." This attribute was also occasionally applied to Indra and other Vedic deities.

Among the ancient Persians this word Asura, in the form *Ahura* has become part of the supreme god's personal name. Ahura Mazda or Ormazd is the personification of the good principle as opposed to Ariman, the Evil One. It is interesting to note that the word "Asura" in later times acquired an entirely opposite meaning and came to signify a demon or enemy of the gods. This change of meaning is evidently due to the speculations of over-wise philologists. The initial "a" of Asura was explained as an *alpha privativum* and "sura" was supposed to mean "god." All the Chinese translators of Buddhist sutras that I know accept this explanation and translate Asura by Fei T'ien (非天)*

In this case we have again a remarkable transformation before us: a word which was used by the original Aryans to designate the highest

*Eitel defines Asura as follows: Asura (Singh. Asur. Tib. Lha ma yin or Lha min. Mong. Assuri) 阿素羅 or 阿脩羅 or 阿須倫 explained by 非天 lit. those who are not dévas. The 4th class of sentient beings, the mightiest of all demons, titanic enemies of the dévas.—Ed.

and most benevolent divinities, has become the name of a class of dangerous goblins in later Hindooism as well as in Buddhism.

Already in the Rigveda Varuna is considered as ruling over the waters of heaven and earth. He is asked for rain and is mentioned as pervading the oceans.

But Varuna's functions as a water god are very rarely mentioned in the Rigveda. The contrary is the case in the literature of mediæval India. There the other traits of Varuna's personality are completely lost and only his connection with the waters remains. This character he still retains in India, but I do not know whether any modern Hindoos actually worship him at present. In Chinese and Japanese Buddhist books the word "Varuna" (variously spelt: 嚕嚕拏, 婆樓那 etc.) occurs as (1) the name of a water god (水天), (2) the name of a dragon king, and (3) the name of the deity presiding over one of the twenty-eight lunar mansions (星宿 Sanskrit *nakshatra*).

While the element or natural power originally represented by Varuna cannot be determined with certainty, the fact that the Aryan Mitra was a sun god seems to be admitted by all authorities.

In the Rigveda he is generally associated with Varuna, Mitra being regarded as the ruler of the day and Varuna as the ruler of the night. Together, they uphold the moral and the physical order of the Universe. Mitra, like Varuna, is invoked as a protector of the righteous, dreaded by all evil doers. The cult of Mithra (which is the Persian form of the name) or Mitra was much more popular in Persia than it had ever been in India. Certain communities worshipped that god almost to the exclusion of all other divinities and formed a sect which spread from Persia to the adjoining territories subject to the Roman Empire and thence to Rome itself. The Roman legionaries, who had been partly recruited in Asia Minor, carried Mitraism to the farthest borders of the Empire. By the middle of the first century A.D. the cult had reached the Danube frontier; and Mitraic monuments dating from subsequent periods are found on the Rhine, in France, Spain, Africa, Greece and Great Britain, principally along the northern border of the Roman dominions. The monuments left behind by the Roman soldiers are our main source of information concerning Western Mitraism, and the ancient Latin texts do not help us much.

The central act of worship seems to have been the sacrifice of a bull, the prototype of which was the slaying of the bull by Mitra himself, represented in relief in every Mitraic sanctuary. Such Mitraic reliefs are found nearly everywhere in Europe and Africa where legions were stationed during the first centuries of the Christian era. The chief scene depicted by these reliefs varies but little in the different localities. We see Mitra, clothed in conventional Oriental attire, placing his left knee on the back of a bull, seizing its muzzle with the left hand and plunging a knife into its throat. From the tail of the dying bull, or from its blood, spring ears of corn, and the sacrifice is supposed to symbolize the annual renewal of vegetable life. The adherents of the cult believed that the killing of the bull promoted fertility on earth and assured the prosperity of the pious.

The cult of Mitra, who was supposed to be represented on earth by the Roman Emperor and who was worshipped throughout the Empire as "Deus Sol invictus Mithras," achieved its widest dissemination during the third century A.D. and bade fair at that time to become a world religion. Mitraism still had some adherents in Central Europe at the end of the fifth century, but must be considered extinct in the West ever since the sixth century. In Persia it lasted longer; and even present-day Zoroastrians still recognize Mitra as one of their gods without, however, as far as I know, performing any special rites in his honour. He is particularly respected as the god of contracts and oaths.

About the career of Mitra in the Far East, I know very little. His name, according to the "Dictionary of Buddhism" (佛教大辭典 Tokyo 大正五年) occurs in Chinese Buddhist books as Mi To Lo (密多羅 page 776) and as Mi Ch'i Lo (迷企羅 page 934). He is regarded as presiding over one of the lunar mansions mentioned above and also as one of the twelve divine generals (十二神將) representing the twelve divisions of time.* In the Japanese iconographical work (佛像圖彙) we find a drawing of Mitra as a rather demoniacal looking warrior (fasc. 4, page fig. 1b).

The only Chinese representation of Mitra known to me belongs to the Hsi-yü-ssü, where he appears as one of the twelve great generals. From the photographs of them which are in my possession we see that a bowl is placed before each general, which tends to show that Mitra still enjoys divine honours in China.

The ground covered by this divinity is indeed enormous! We find him killing the bull on the Scotch border, protecting a treaty in Mesopotamia and surviving as a Chinese general on the Peking-Hankow Railway.

The god Yama also was invoked about four thousand years ago by the Aryans in the mountains of Persia and is still worshipped, or at least feared, by Buddhists in China and Japan. According to the Rigveda, Yama was the first man who died. After departing this life, he ascended to heaven to become in the course of time the ruler of the righteous who followed him. To dwell in the heaven of Yama was regarded as the highest reward of a pious life. In Yama's heaven the virtuous enjoy immunity from all diseases and live forever in perfect bliss. Yama, who rules over them, sits under a shady tree and drinks Soma, while listening to heavenly music. Among the original Aryans, also, Yama was regarded as a most benign divinity. This conclusion is arrived at by comparing the Rigvedic passages, in which Yama appears, with the corresponding parts of the Avesta. There Yama confronts us as the ruler of a marvellous kingdom in which neither old age nor death, neither heat nor cold, existed; and in which passions as well as want were unknown. Neither in the Rigveda nor in the Avesta is there anything terrible in the personality of Yama himself. The only objects of terror connected with him are his two insatiable dogs with four eyes and enor-

*The characters 迷企羅 represent "Mihira," a later Persian form of the word "Mitra." The name "Mihira" is, however, also found in some Sanskrit texts.

mous nostrils who guard the entrance to his abode. The departed are advised to hurry past these dogs with all possible speed. But when this had been achieved, there was nothing but beatitude awaiting them in Yama's world.

How different is the aspect of this god as he confronts us in later Hindoo and in Buddhist writings! In later Hindoo mythology he appears as the terrible judge of the dead and his abode is in the *lower* regions. A soul when it quits its mortal frame descends to Yama's world: there a recorder reads out his account from the great register, and a just sentence follows. According to their merits, the souls are allowed either to ascend to heaven or are sent down to one of the numerous hells. Some Buddhist books draw a still more frightful picture of Yama. He is supposed to have been the king of Vaisali (毗舍離), a city in India well known to all Buddhists as a place frequently visited by the Buddha. While King of Vaisali, Yama engaged in bloody wars, and, though reborn as the *ruler* of all the hells, he has himself to suffer for his misdeeds committed on earth. Three times in every 24 hours boiling copper is poured down Yama's mouth by way of punishment for his sins. Together with Yama his eighteen generals and his army of 80,000 men are reborn in hell and they all now serve him as assistant judges, jailors and executioners. (Compare Eitel's *Hand-book of Chinese Buddhism*, page 207). The changes the personality of Yama has undergone during the centuries are truly remarkable. The benign king of the blessed, the happiest of immortals, the ruler of heaven, has descended to hell where he lives to be tormented himself and to subject others to the most cruel punishments imaginable. (Outside Ch'ao Yang Men, Peking, there is a temple in which some of these punishments are illustrated.)

We have already observed that the change of meaning of the word "Asura" is probably connected with the speculations of super-learned philologists. It is not impossible that Yama became connected with the punishments inflicted upon sinners because (or partly because) his name, which is of unknown derivation, was explained by later philologists as containing the root "yam," "to restrain."

In Tokyo one of the most popular festivals is celebrated on the day consecrated to Emma-o (the Japanese pronunciation of the Chinese characters for Yen Mo Wang 閻魔王). The ceremonies in honour of Yama are attended by enormous crowds and are performed by laymen; the Buddhist clergy do not on that day, as far as I know, participate in the worship of Yama. A feature of this Japanese Yama festival are the religious plays enacted in tents erected for the occasion.

In China, Yen-wang or King Yama is certainly well known everywhere. I am told that his images are to be found in all the city temples (城隍廟) which have been built throughout the country ever since the Ming period. In the Tung-yüeh-miao outside Ch'ao-yang-men, Peking, a terrible Yama image is also found. I have not, however, been able to find out whether a special festival is held anywhere in China in honour of Yama. His name is frequently mentioned by the Buddhist priests, who read the scriptures at higher-class funerals, and occasionally

ON CERTAIN DIVINE METAMORPHOSES

incense is burnt before the representations of the god in the various temples. I have searched for the special Yama temples which I was told existed in Peking, but in vain.

In Peking there are at least two streets called Yen-wang-miao Chieh, or "Street of King Yama's Temple." One of them is near the Government Printing Office. Many persons living in that street have been questioned as to the location of the Yama temple, which gave the street its name, but none could give a satisfactory answer. Even the memory of the sanctuary, which surely must have existed, had vanished.

The other Yen-wang-miao Chieh is just outside the Hatamen gate and the temple of Yama was easily located; but it was found that the temple contained no images. It had three years before been converted into a fire brigade station. This change will probably be acclaimed by many as another victory of modern science over the powers of hell, but it will be sincerely regretted by all those interested in comparative mythology.

NOTE: This does not pretend to be an exhaustive inquiry into the history of the gods Indra, Varuna, Mitra and Yama. It is nothing but an after dinner lecture prepared in order to amuse "The Peking Friends of Letters" (Wen yu hui). The lack of a library containing the standard works on all the different creeds and all the corresponding periodicals prevents any serious work being done here on the subject of comparative mythology. The writer, for the purpose of preparing his various papers, has had to borrow books from American tourists, French bankers, British diplomats and other kind friends temporarily residing at Peking.

LOVE FOR YANG KUEI FEI THE BALLAD OF THE ETERNAL SORROW

長恨歌

BY

JOHN FOSTER

The Emperor Han* was beauty's slave, and sighed for a "Conqueror Fair":†

His wide domain for years he searched, but fruitless his searching there.
A maid there was in the clan named Yang, but newly from girlhood
grown,

Till now in their inmost chambers reared, secure from admirers' stare.

*A dynastic not a personal name.

†Literally "an overthrower of Kingdoms." Of another beauty of the Han Dynasty it was said "With one glance she overthrew cities, with another Kingdoms."

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Endowed with a blossoming beauty, such as hardly herself could hide,
One day to the Court they summoned her, to stand at the Emperor's side.
One turn of her head, as she smiled one smile, and a hundred passions
stirred :

The powder and paint of the rest (thought he) can scarcely their foulness
hide !

Those cool Spring days he bade her to bathe from the Sparkling Pool's
green sward ;

The fount felt warm as its ripples kissed a bosom* as white as nard.
'Twas when, with her maids to assist her rise, she languid and lovely came,
'Twas then that her charms full favour found, and beauty its full reward.

Her hair a cloud, her face a flower, her pins of gems and gold, †
The tale in the Hibiscus Bower of warm Spring nights they told :
Spring nights, alas ! How short ! The sun was high before they rose,
And, dallying ‡ there, the Emperor no morning Courts could hold.

The joys of love, the banquets spread, for these no dallying, none !
And Spring by Spring thus sauntered past, and night by night rolled on.
Three thousand girls in his Harem were lovely every one,
And yet they saw three thousand loves kindled by her alone !

In gilded house and matchless robes, each night her charms they prove :
The Banquet Hall of Jade—and then the ecstasy of love !

(Her sisters and her brothers all have ranks and offices.
Alas for her ancestral hall ! ill-omened brilliances !
For thus it chanced throughout the realm each father's, mother's heart
No longer hopes for birth of sons when birth of girls brings this !)

The Halls of Li that massive rise, tall as the sky, and fair,
Resound with elfin melodies, wind-wafted everywhere.

Of leisured song, and measured dance, full-toned guitar and flute,
The livelong day the Emperor unwearying hears the note.
The roar of drums ! Yu Yang, § his drums ! (his rival for her love).
They drown "The Dance of the Rainbow Skirt," "The Song of the
Plumed Coat."

Around the Imperial City gates the dust is rising high ;
And South ride charioteers, and West ten thousand horsemen fly.
Bejewelled women, toiling past, pause in their flight to rest ;
From out the Capital they haste ten leagues towards the West.

*Literally "congealed ointment."

†So Giles. Some Chinese explain this as shoebuckles not hair ornaments,
and some as a description of her "lily feet."

‡Inserted to bring out the irony of the first line of the following verse.

§A place name really.

LOVE FOR YANG KUEI FEI

The fleeing soldiers mutiny : " Our Conqueror's here ! " they cry.*
Reluctant, arch-browed Beauty, you before the host must die !

The scattered jewels from her hair no man will e'er bring home :
Lo ! here a plume, a golden bird, and there of jade a comb !
The Emperor hides his face. Too Late ! Too late to save his Love !
He turns to look—her blood, his tears flow mingling as they come.

The yellow sand is wafted wide, the breeze is moaning, hark !
Through cloud-capped passes, † up they wind to the Sword Tower, lone
and stark ;
For few are the folk who choose the way beneath Mount Omi's shade,
Where flags and pennons gleam less bright, and Day itself seems dark !

The Sze Chuen rivers azure flow, the Sze Chuen hills are fair ;
But morn and night the Emperor sees his own desolation there. ‡
The moonbeams on his Rest-House shine, and memory wounds him
sore ;
The wind-bells § tinkle through the rain, and sighs his bosom tear.

With Fortune's turn, and Chance's change, the Dragon Car comes home :
Why linger there on the homeward road ? Ah ! How could he bear to
come.

Past Horse Cliff Hill ? for there below in the dust of the grave She lies !
'Tis vain that he looks for her jade-white face—there's nought but the
deathly tomb !

Then Squire and Sire their glances meet, and robes with tears are stained.
They head their steeds for the City gate, and home they race unreined.

So home he comes : the Pool, the Park—all as it was before,
The Sparkling Pool's ¶ Hibiscus Bower, the willows round the door. ||
That pink Hibiscus is her face, her brows those willows frail.
Come home to these ?—To stem his tears oh, what can here avail ?

They fall when the breath of Spring unfolds the blossom of peach and
plum ;
They fall as the leaves of the wu-tung fall when the rains of Autumn come.

*Literally : " The soldiers will not advance : then is no (other) way." The
paraphrase is perhaps justified by the allusion in the opening line of the poem to an
" overthrower of Kingdoms." She is the cause of the fight, and so of the defeat.

†A road of wooden planks over mountain gorges.

‡The meaning of the Chinese is that the Emperor, usually secluded within the
walls of his Palace, is now a wanderer.

§Hanging pieces of glass which tinkle pleasantly in the breeze.

¶Called by a different name on this occasion, T'ai l.

||Literally 'Wei Yang Pavilion'—"the scene of much nocturnal revelry" (Giles).
It seems sufficient in the English to refer to the scene of their revelry mentioned
before, without multiplying Romanised names, which are meaningless and not
beautiful.

EDITORIAL COMMENTS

CHINESE ART, BURLINGTON MAGAZINE MONOGRAPH, 1925

Mr. Tatlock of the Burlington Magazine makes a frank statement in the Preface of "Chinese Art" that "no book of the least importance deals with Chinese Art as a whole"; but we may be pardoned for noticing that before he has finished this Preface he himself mentions Bushell's "Chinese Art." We must protest against Bushell's "Chinese Art" being spoken of as not being "of the least importance." A comparison of it with this volume edited by Mr. Tatlock reveals the contrast between the work of a scholar and that of a magazinist; and we presume that Mr. Tatlock wishes us to understand that writings of a scholar such as Bushell are not "of the least importance" to editors of such popular magazines as the Burlington. Perhaps we should be inclined to agree with him. But let us compare the orderly contents of Bushell's "Chinese Art" with this new volume of the Burlington.

<i>Bushell</i>	<i>Burlington</i>
Historical Introduction	Chinese Art
Sculpture	Paintings
Architecture	Ceramics
Bronze	Textiles
Carving, in wood, ivory, bone, etc.	Bronzes
Lacquer	Sculpture
Carving in Jade and other hard stones	Jades, Enamels and Lacquer.
Pottery and Porcelain	
Glass	
Enamels; Cloisonné, etc.	
Jewelry	
Textiles	
Pictorial Art.	

One may pass over the wearisome disquisition of Roger Fry in the opening pages. It compares most unfavourably with the Historical Introduction of Bushell which furnishes the reader with a background to his artistic studies. Our interest in this book is first arrested by Binyon's charming chapter on "Chinese Paintings." It is full of interest from beginning to end; and it serves the purpose of being a good introduction to the subject for those who know little or nothing about it. "Bronzes" by Dr. Yetts, "Sculpture" by Osvald Sirén, and "Ceramics" by Rockham, are treated in separate chapters, all of which are illuminating and helpful; but by some unhappy planning "Jades" are thrown into a jumble with enamels and lacquer, while such minor art as is represented by textiles has a chapter to itself. It is distressing to have "Chinese Art" treated in this flippant way even by the Editor of the Burlington Magazine, while at the same time it is equally distressing to be obliged to make one's protest against the methods of persons so friendly to this art as this same Editor. Instead of producing this volume which is much inferior to Bushell's, it should have been possible, this quarter of a century later, to have done much better than he. We seem still to be dependent in Europe and America for interest in Chinese Art upon those who have only a modicum of time to devote to it. Perhaps we should be more grateful to these kindly gentlemen for what they do; but we protest that we are as grateful as we know how to be. This gratitude to them, however, does not preclude the persistent wish that they may soon cross the borderline of real understanding, where they now linger with admiring gaze upon distant beauties, and by patient scholarship enter the promised land flowing with milk and honey where understanding supplements admiration. This volume may be of assistance to the dealers in Oriental Art whose advertisements take 58 pages, leaving 72 pages of letterpress, "because the revenue from these advertisements has been instrumental in enabling us to publish the book at the lowest possible price" (see Preface); but it adds little or nothing to the world's knowledge of Chinese Art.

J. C. F.

REVIEWS

PROCESS OF PHYSICAL GROWTH AMONG THE CHINESE. Vol. I. by S. M. Shirokogoroff. The Commercial Press, Ltd., Shanghai. Price \$8.00

Proceeding upon the assumption that racial distinctions are subject to variations in endocrine functioning on the one hand, and to environment on the other, Dr. Shirokogoroff undertakes to explain why the Chinese differ from other peoples.

It is sincerely to be regretted that the author adduces not one jot of evidence in support of his major premise, thus relegating his thesis to the realm of pure speculation. This is all the more to be deplored because of his suggestion that the characteristic mental aptitudes of the Chinese are traceable to differences in the constitution of hormones and hence of functioning of the ductless glands, as compared with those of other races; and, more particularly, because of his contention that the "process (of growth) is regulated by the interaction of the glands of internal secretion and metabolism which *depend upon heredity.*" (the italics are ours.) Could Dr. Shirokogoroff prove this last, his would be an epochal contribution to science, coordinating the discoveries of cytology with the phenomenon of life in the human, and establishing the truth of evolution beyond peradventure or doubt.

In one respect, the author's hypothesis is less fantastic than it appears at first blush. According to him, the Chinese differ from all other ethnical groups by reason of a marked acceleration of growth at the age of eleven to twelve and a corresponding retardation four years later. In support of this he submits tables of measurements and comparisons with those of other peoples, and a statistical critique of the data. It is to be remarked that the age at which this acceleration is stated to manifest itself, closely approximates the age of puberty, coincident with which, by the way, marked physical development is to be observed in races other than the Chinese. In seeking, therefore, to account for this acceleration of growth by a corresponding acceleration in functioning of the ductless glands, Dr. Shirokogoroff enunciates nothing startling nor new. It is his implied ascription of the subsequent retardation of growth, four years later, to this same influence that taxes credulity, since it presupposes an expenditure of procreative energy, in that brief interval, which is normally distributed over a number of decades and which is opposed to all reason despite the abnormal powers popularly credited to the Chinese.

Again, respecting Chinese mental aptitudes, Dr. Shirokogoroff apparently would have us believe that modes of thought antithetic to those of the Occidental are begotten by differences in hormones: or perhaps it is the converse that he intends, *i.e.*, that the modes of thought beget differences in hormones that in turn are responsible for the unusual physical characteristics which the author is at such pains to emphasize. While such hypothesis is not untenable, it is pertinent to inquire why the foreign child born in China who acquires the Chinese mental perspective and hence the language with phenomenal ease, does not subsequently exhibit the acceleration and retardation of growth established by the author's tables? Are we to call heredity to account for this or simply to conclude that the author is mistaken?

Dr. Shirokogoroff has been pleased to rest his case upon pure assumption without calling a single witness. Had he been content with merely suggesting a connexion between the measurements observed by him and others, as compared with the corresponding in other peoples, with a possible difference of endocrine functioning, we should be indebted to him for opening up an extremely interesting field for speculation. But no. Apparently taking advantage of the fact that diabetes bronzé (Addison's Disease) is due to interference with adrenal function and the resultant medical hypothesis that pigmentation of the skin may be due to idiosyncrasy of that function, Dr. Shirokogoroff appears to argue that, since it is further held that abortion of function of a given ductless gland is due to hormone insufficiency, hormone variation suffices to account for the difference in measurements he so painstakingly records. That this process of reasoning involves a chamois-like agility in clearing the chasms of fantastic speculation in order to reach the isolated peaks of established fact, seems in no wise to have daunted him.

Dr. Shirokogoroff, however, is not to be condemned out of hand on the principle of *actus reus* in *bona fide* error. In his capacity of anthropologist of the Museum of the Russian Academy of Sciences, he undertook a series of valuable studies of Chinese human types. In the present work, he has supplemented the observations of Dr. Klaproth with data commanding respectful attention. It is further to be noted that this is not the first volume of the new series and is confined to a comparison of bodily growth in two groups of Chinese only. There is reason to hope that in subsequent volumes, the erudite author will realize the fallacy of excursions outside of the bounds of the anthropologist, more particularly into the realm of fantasy. On the other hand, if it be his intention to adduce, in subsequent volumes, evidence in support of the connexion of the physical characteristics he has observed with internal conditions, we await these with the greatest interest and at the same time reiterate our regret that Dr. Shirokogoroff has not seen fit to vouchsafe us at least a glimpse of the substance of his thesis in the present volume.

R. R. L. F.

THE CHINA YEAR BOOK, 1925, Edited by H. G. W. Woodhead, C.B.E. : Tientsin Press Ltd.

In previous years of this Journal we have reviewed this valuable work, which annually makes its appearance with its subject matter brought up to date. That subject matter includes practically everything one wants to know about China—her trade and resources, her currency and finance, her internal politics and external relations, her customs and flags, her educational and judiciary systems, her laws and treaties, her geography and topography, her minerals, her agriculture and her forestry. The growth of this compendium from what it was before the War to its present dimensions speaks for the energy and thoroughness of its editor, Mr. H. G. W. Woodhead, the well known editor of *The Peking and Tientsin Times*, and author of a recent book "The Truth about the Chinese Republic." The present edition has been carefully gone over and revised. It should prove invaluable, not only to the business man of the Treaty Ports, but to educationalists and missionaries as well, not to mention the many delegates to China from foreign countries on various missions or commissions of importance.

A. DE C. S.

CORRESPONDENCE

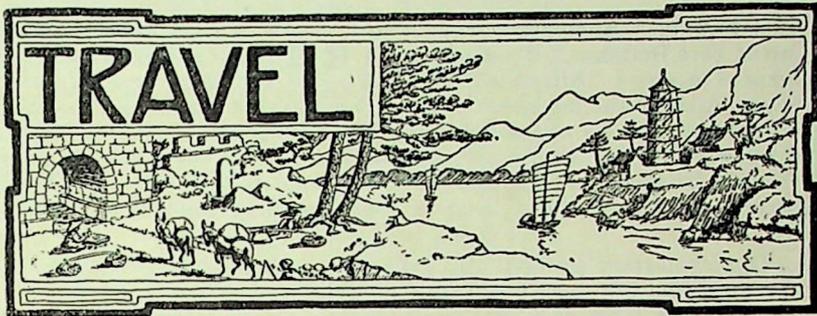
To the Editors of The China Journal of Science and Arts.

Sir—In your article on *Christians* in the December number of your Journal you say that the Christian festival was fixed on December 25 by the fathers of the Council "in the middle ages." All educated Christians who care for the history of their Church must see that there seems to have been no certain tradition of the date of Christ's birth. While the reason which you give for the choice of December for commemorating Christ, there seems to be at least one other possible reason, and in any case the festival was not fixed "in the middle ages." The Middle Age is described by the *Cambridge Greek Testament* as "about 1000-1400," and the present learned Editors of *Jesus and His Birth*, giving exact reference to his authority, that "in the *Western Church* as early as the end of the second century on December 25 had been fixed, and in the East this date has been generally adopted" (*A New History of the Book of Genesis*, *Vol. 1*, p. 321). Thus "in the middle ages" is an error of almost a thousand years.

I am,

Yours truly,

A. C. MOULE.



THE PAI MA SSÜ OR "WHITE HORSE MONASTERY"

BY

L. C. ARLINGTON.

The *Pai Ma Ssu* (白馬寺), of which photographs appear in this paper, is one of the oldest and most famous monasteries in China. It is situated on a sandy plain about ten miles east of Loyang city, Honan. It was originally called *Ch'ing-liang-t'ai* (清涼臺), "Clear Cool Pavilion," and in it the Han Emperor *Ming Ti* (A.D. 58-76) used to pass the heat of summer. In consequence of a dream or vision of a golden man that the Emperor had in 61, he sent a mission to India. This mission, which numbered eighteen men, returned to China in 67, accompanied by the Shamen *Kashiapmadanga* (迦葉摩騰), known to the Chinese as *P'ilufo* (毘盧佛), or *Vairochana Buddha*, who, together with his fellow-countryman *Chu Fa-lan*, translated the *Sûtra of Forty-two Sections* into Chinese, and died at Loyang.

Hung-Lou-Ssu (鴻臚寺) "Grand Ceremonial Court" was originally the title it was intended to bestow on the reconstructed *Ch'ing-liang-t'ai*, but the name of *Pai-Ma-Ssu*, "White Horse Monastery," was finally adopted, because the White Horse on which the sacred *Sûtra* was carried from India, during the period that the monastery was under construction, kept circling around the edifice and neighing incessantly. The monastery was allotted to *P'ilufo* as a residence about the year 67, in which he translated the above-mentioned *Sûtra*. Thereafter the word *Ssü* (寺) was commonly applied to Buddhist monasteries. The *chin-jen* (金人), "Golden Man," that the Emperor saw in a vision represented *P'ilufo*, of whom an idol was installed in the monastery.

On the fifteenth day of the Chinese seventh moon, *Chung-yuan-chieh* (中元節), a ceremony called the *Yu-lan p'en-hui* (盂蘭盆會), "Festival for the Delivery of Hungry Souls," is conducted by Buddhist priests, during which ceremony the chief priest wears a five panelled headdress with an image of *Kashiapmadanga* in each panel called the

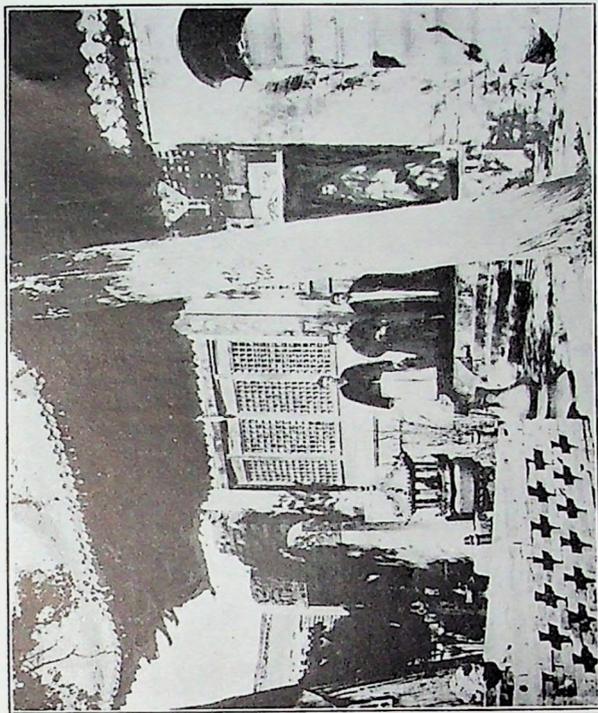
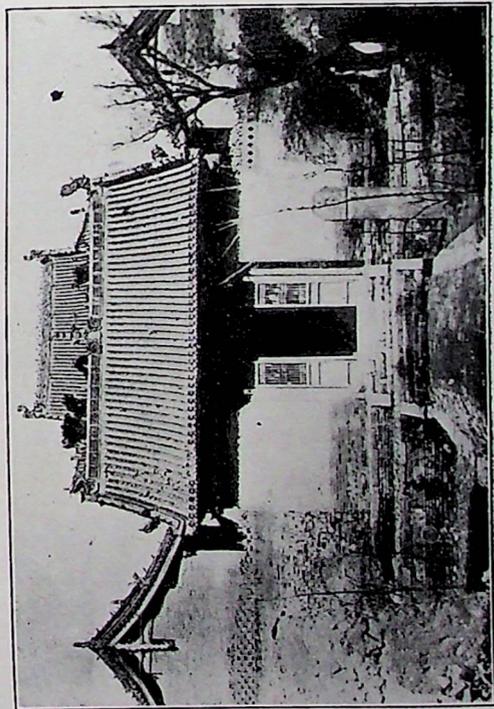
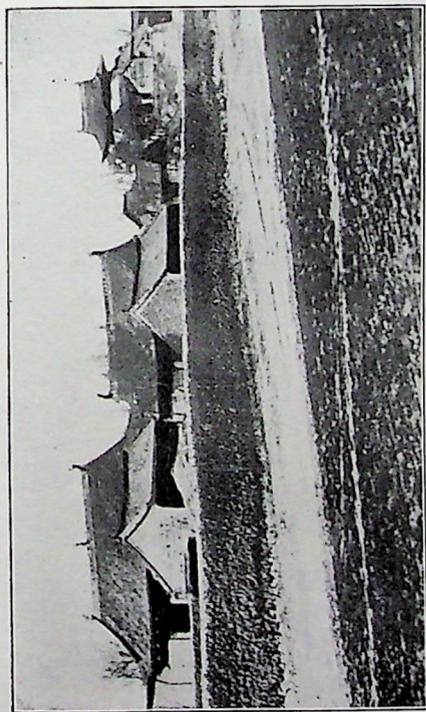
P'ilufo mao or "Kashiapmadanga Hat," which is also known as the "Cap of Five Buddhas," *Wu-Fo-kuan* (五佛冠)*. Is not Buddhism the religion of images? After the death of *Ming Ti*, the Sūtra were deposited in the monastery and incense continually burnt before the sacred volumes. The frequent streaks of sunlight, shining through the library windows and reflected on the inner walls, were believed to be the "halo" of the enshrined Buddha, causing the religious fanatics and the lay public, generally, to regard the monastery and especially the idol as divinely sacred.

The monastery grounds are famous for their large pomegranates and grapes, the first mentioned fruit weighing as much as 9-lbs., and the latter being as large as a goodsized cherry. These were highly prized by the royal family. These fruits, when ripe, were plucked by the Emperor personally, who frequently distributed them amongst the Court ladies and courtiers, who, in turn, presented them to their friends and relations; it being customary for the fruit to be passed from family to family several times before being finally consumed. The pomegranate tree is still living and some of its fruit was presented to Marshall Wu P'ei-fu by the monks when he visited the monastery in the summer of 1924. Two very fine old thuja trees adorn the frontage of the principal hall. Thousands of pilgrims visit the monastery during the fourth lunar month of each year for worship and sight-seeing. In former years the monastery accommodated a large number of monks, but owing to the appropriation of much of the temple grounds for public schools (at present there are only about twenty acres) the monks dispersed, and now there are only two left to look after the buildings which are—like most of the ancient structures in this land—fast falling into decay. K'ang Yu-wei, the Reformer, and Wu P'ei-fu promised to assist the monks to recover their lost property—I now understand that K'ang Yu-wei managed to recover some 40 *mou* for them—and to subscribe funds to renovate the monastery; but all plans were dropped on the outbreak of the fighting between Chang Tso-lin and Wu P'ei-fu. Nevertheless, it is to be hoped that some Chinese philanthropist will come forward and restore the temple to its former prestige and glory.

The ancient stele recording the history of the monastery has disappeared, but one stele records that the monastery was rebuilt during the reign-period *Chih Shun* of the *Yuan* dynasty, (A.D. 1332); and again during the reign of the *Ming* Emperor *Hung Wu* (A.D. 1368-99), but the actual date is not given.

The idol of the Golden Man—probably not the original one—is still in the monastery; but the likeness of the famous White Horse engraved on a stone pillar after which the monastery was named, is so weather-beaten as to be scarcely recognisable. *Sic transit gloria mundi!*

*It was not Kashiapmadanga, however, who introduced the Festival of the Departed Spirits into China, but the Singhalise Buddhist priest named Amogha or Amoghavadjra, and known to the Chinese as *Pu-k'ung-san-tsang* (不空三藏), who came to China in 733. He was much esteemed by the Emperors of the T'ang dynasty.



Three Views of the Pai Ma Ssu, or
White Horse Monastery, namely:—

- (1) The Temple from without,
- (2) The Inner Court-yard, and
- (3) The Principal Hall.



TRAVEL AND EXPLORATION NOTES

PEREIRA'S LAST JOURNEY: In the January number of *The Geographical Journal* appears a lecture delivered before the Royal Geographical Society by Dr. H. Gordon Thompson on November 23, 1925. It will be recalled that Dr. Thompson accompanied the late Brigadier-General George Pereira on his journey from Yunnan along the Tibetan border in 1924. This proved to be the gallant soldier's last journey, as he died of some internal trouble just before reaching Kantze, where he was buried, Dr. Thompson continuing alone and completing the journey as originally planned along the rest of the Tibetan border to the Sino-Mongolian frontier and thence north of the Yellow River to the railhead at K'uei-hua Ting and so to Peking.

Dr. Thompson's lecture gives a graphic account of the expedition and the hardships that had to be borne by the explorers. A traverse of the country passed through was made, details of the road and country kept, and altitudes taken, while a good series of photographs was secured, forming, altogether, a very valuable record of a wide stretch of new or little known territory. Dr. Thompson's harrowing experience in the hands of the bandits of North-western Shansi and his subsequent escape make interesting reading, but the most valuable part of the lecture is, of course, that which deals with the territory passed through.

TIBET, PAST AND PRESENT, by Sir Charles Bell, K.C.I.E., C.M.G.: Oxford University Press. Price 24s. net.

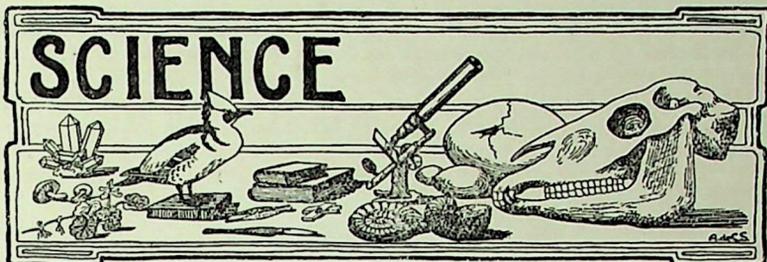
Tibet, the land of the lama, has always called forth the interest of peoples of the West, and many books have been issued dealing with this mysterious country. Few authors, however, have had so good an opportunity to collect first hand information regarding it as has Sir Charles Bell, who was for years the British political representative in Tibet, Bhutan and Sikkim. His experiences as head of a diplomatic mission to Lhasa at the invitation of the Dalai Lama and his Government are unique in the history of European intercourse with Tibet. As he points out in his introductory chapter, where others had to push their way into a city and country always aloof and usually hostile, he went as the invited guest and established friend of the ruler of the country. His book, then, may be considered the last word upon this interesting land, where the spiritual head of the Buddhist Church locks horns with Chinese Government agents in a struggle to retain the temporal power. The first few chapters are devoted to the geography and natural features of the country, followed by one on the early history. This in turn is followed by detailed accounts of the author's own experiences and activities in the country, and of its more recent history. Travelling extensively, the author visited the Tashi Lama, who is now on a visit to China, and with whom he established friendly relations. An interesting account is given of the negotiation of a treaty with Bhutan, which is independent of Tibet. The closing chapters deal with Tibetan foreign relations, including those with Russia, Japan, Nepal, Mongolia and China; while the main lines of British policy regarding Tibet are discussed and suggestions for guidance in Great Britain's future relations offered in the last two chapters. Several valuable appendices are given, mostly dealing with treaties and conventions. Not the least valuable feature of this book are the numerous very fine illustrations, some of which are in colour. These show an intimacy with Tibetan life that could only have been secured by a friend. Two maps assist the reader in keeping track of the places mentioned in the text. The book leaves us with a satisfactory feeling that Tibet, once aloof and hostile, is awakening to the possibilities of friendly intercourse with the outside world, and is at last making ready to take her place amongst the nations. Her desire for progress and independence are manifest, and we gather that the time is not far distant when her gates will be thrown open to visitors from the West, as they seem always to have been to Asiatics.

THE FUKIEN SCIENTIFIC EXPEDITION: The first batch of moving picture films taken by this expedition, which is in Fukien Province exploring under the auspices of the China Society of Science and Arts, have been received in Shanghai, and have turned out entirely satisfactory. They deal with scenes in and round the historic city of Foochow, and include amongst other items, some extremely interesting pictures of Chinese fishing with cormorants in the Min River. From Foochow the party proceeded southward into the Fuchin country, where further pictures have been taken of the people, country and wild animals. Amongst other things the remarkable scaled ant-eater in its natural haunts has been photographed, as also has the bamboo rat and the otter. Considerable difficulty has been experienced owing to adverse weather conditions, but the leader, Mr. F. T. Smith, writes optimistically of the prospects of returning with a valuable film and good biological collections.

THE LATE JOHN SUTHERLAND WHITEWRIGHT

On Sunday, January 10, in Tientsin, where he was visiting his son, a pioneer of education in China passed away, leaving behind him a gap that will be hard to fill. This was the Reverend John Sutherland Whitewright, of the English Baptist Missionary Society, whose forty-five years of educational work in China have been spent in Shantung. Mr. Whitewright came to China in 1881, proceeding at first to Tsingchou Fu, where in 1886 he started a theological college. Later this developed into the famous Gotch-Robinson College. In 1887 Mr. Whitewright started a small museum with the object of opening the minds and widening the outlook of his students and other Chinese with whom his work brought him into contact. So successful was this venture, it was decided to transfer the museum to Tsi-nan Fu, the capital of the province, and here Mr. Whitewright developed it till in 1905 it was rechristened the Tsinan Institute, under which title it has come to be known throughout the length and breadth of China, as well as abroad as the leading educational institution in the country. A detailed description of this institution was published in *The China Journal of Science and Arts*, Vol. I, No. 6, pp. 633-641, form which its value and scope may be gathered. Since 1917, the Tsinan Institute has been incorporated as the Extension Department of the Shantung Christian University, and is considered by experts to be "the most effective piece of university extension work which is to be found in Asia, if not in the world." Mr. Whitewright was one of the leaders in the founding of the Shantung Christian University. A man of keen intellect and high integrity, Mr. Whitewright was a most lovable man, endearing himself to all with whom he came into contact. The work he did for China was great, and its effect will long survive him.

A. DE C. S.



FOREST DESTRUCTION AND SLOPE DENUDATION IN THE PROVINCE OF SHANSI

BY

W. C. LOWDERMILK

(Research Professor of Forestry University of Nanking)

Erosion has been a destructive process in Shansi for many centuries. Erosion is only indirectly related to the destruction of the former extensive forests, but is directly related to the cultivation of the slope lands for the production of food crops.

At numerous times naturalists, botanical explorers, foresters and trained observers have noted and decried the absence of forests on the mountains and hills of Central and Northern China. Norman Shaw (7) has clearly indicated the lamentable shortage of forests. Several of the Jesuit priests early noted the destruction of the forests, among whom were Armand David (2) and E. Huc (4). The latter more specifically describes the processes of soil degradation which was at work in Inner Mongolia previous to the year 1844. Sowerby (9) and Wilder (11) have described the same processes at work in the Tung Ling. Numerous writers of travel have noticed the thin soiled slopes and barren hills and mountains.

Shansi was chosen for the studies upon which this paper is based, because of the existence there of remnants of the former extensive forest cover. Adjacent to the forests were found denuded areas. The processes of converting a forest cover into denuded slopes could thus be studied in the very act. The region at the head waters of the Fen River was first selected as the site of these studies for the summer of 1924. During the summer of 1925, similar studies, in addition to special run-off studies, which will form the basis of another paper, were carried out in the three remnant forest areas of Shansi, namely, Ning-wu, at the head waters of the Fen River, also previously studied, Fan Shan, West Central Shansi, and Tsing-yuan Hsien, in which is located the Mien Shan forests, including some very interesting communal forests.

The writer was ably assisted in these studies in the summer of 1924 by Professor C. O. Lee, associates in Forest Research, Messrs. T. I. Li and C. T. Ren, and by Mr. Tsiang Ying, a senior student in forestry; and in the summer of 1925 by Messrs. T. I. Li, C. T. Ren and H. L. Shen, associates in Forest Research, and by Mr. Chang Wen Tah, a senior student in forestry. During the latter part of the last summer, Mr. T. S. Tseh, Director of the First Forest Experiment Station of Shansi, visited our work at Fan Shan.

Governor Yen Hsi Shan, of Shansi, most cordially gave our party each summer valuable assistance and greatly expedited our work in many ways.

The Tai-yuan plain was suffering from a long drought when we reached Tai-yuan-Fu in 1924. The crops were dying for want of rain, even the wild grass had not started (July 3) and a famine was feared.

The rain clouds broke shortly after our arrival. The moisture which had been accumulating in the atmosphere, superheated by the roasting hills, came down in torrential volumes. The streams were suddenly overcharged with raging waters, heavily laden with mud and silt. The water supply so sorely needed for agricultural crops quickly ran off the steep barren slopes and brought floods and destruction in the place of the desired benefits of rain after drought. Despite the efforts made by the farmers to catch the flood waters for irrigation, most of them soon passed by and were gone. Dry weather in the fall months again made the conditions of the people serious and again threatened them with famine.

In the summer of 1925 the rains were more copious; likewise they were at times gentler than in 1924. Nevertheless the same phenomena of floods occurred as in the former year. The Fen River while in flood washed out the bridge in August on the motor road between Tai-yuan and Fen-chou. In many sections crops were drowned out, or the soil washed away.

From the evidences in stream beds such torrential run-off and destructive flooding are annual occurrences. The questions naturally arise as to whether this run-off has always been thus, and if there is any remedy for the present deplorable situation; for it renders food production over wide areas in the plain quite precarious. It is worth while, therefore, to examine the factors which contribute to the present regimen of run-off of the Shansi streams, as a preliminary to any scheme of flood control.

The stage is set in Shansi for the rapid development of torrents under certain conditions. The topography is steep and mountainous. The provincial surveys place the area of the plain land at 9 per cent. and the mountain land at 91 per cent. of the entire province (1). The slopes are generally steep. It is very probable that the most of the slope area has a gradient of over 25 per cent.

Likewise the rainfall is mostly convectional in character (3). That is, the clouds develop the cumulus form, due to ascending drafts of heated air whose moisture is condensed as the rising current reaches the altitude marking the dew point. The rains, therefore, usually come



Fig. 1. A perennial clear stream flowing out of an undestroyed remnant of the original forest area. This stream scarcely showed the effects of the rains which caused raging torrents in the denuded valley under observation during five weeks (Summer 1924). Lo Yah Shan, W. Shansi.

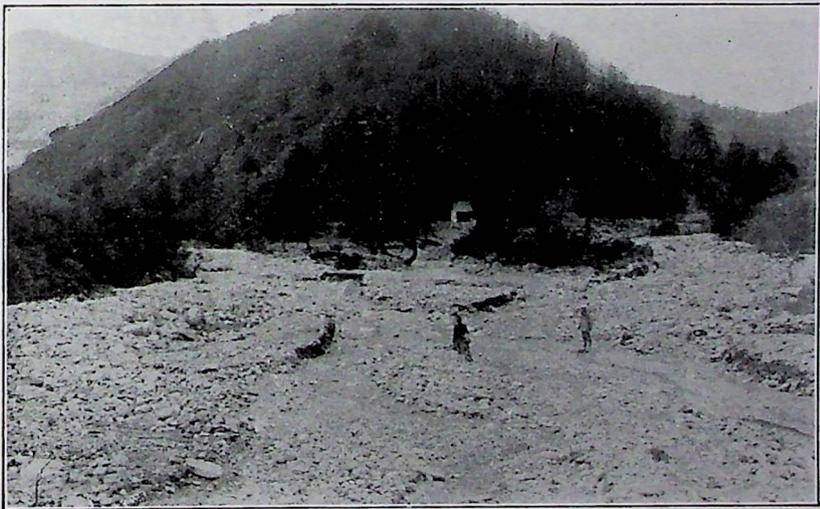


Fig. 2. Contrast this picture with Fig. 1. The slopes of the two converging valleys have been cleared and cultivated. A perennial stream which once flowed here has been converted into this torrential dry rocky bed within the past 40 years. Only when it rained hard did water flow down this valley, and then in a raging torrent. Tung Tsai, Ning-wu Fu District, W. Shansi.

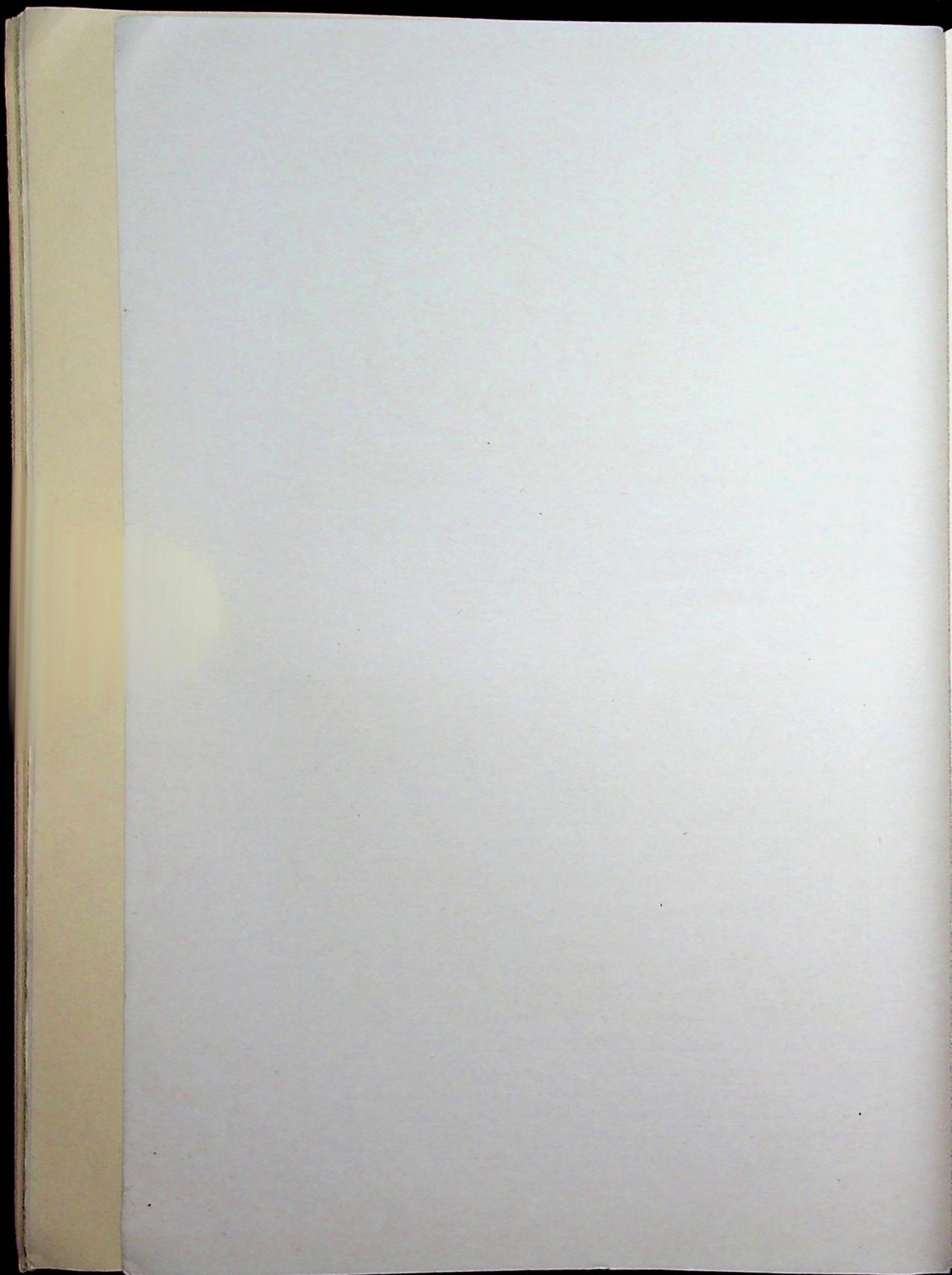




Fig. 3. The forests in the vicinity of Lu Yah Shan are cut very wastefully; fully 15—25 per cent. of the volume of trees is left in high stumps, and wasted tops. More valuable timber is being wasted here than is being grown in the plantations near the plains.

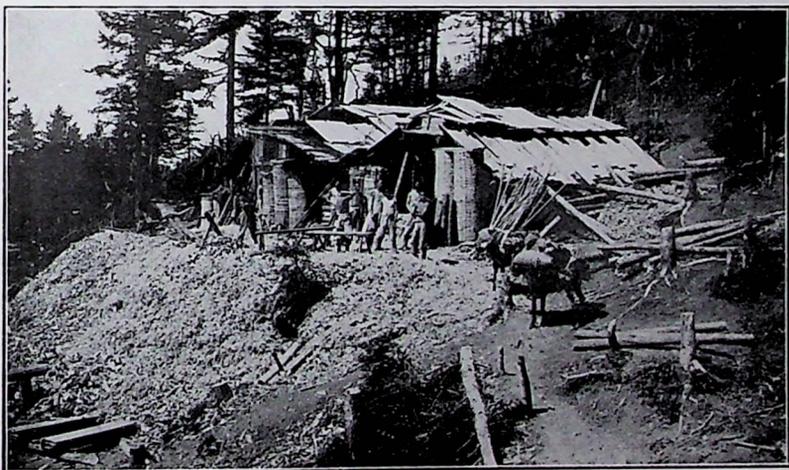
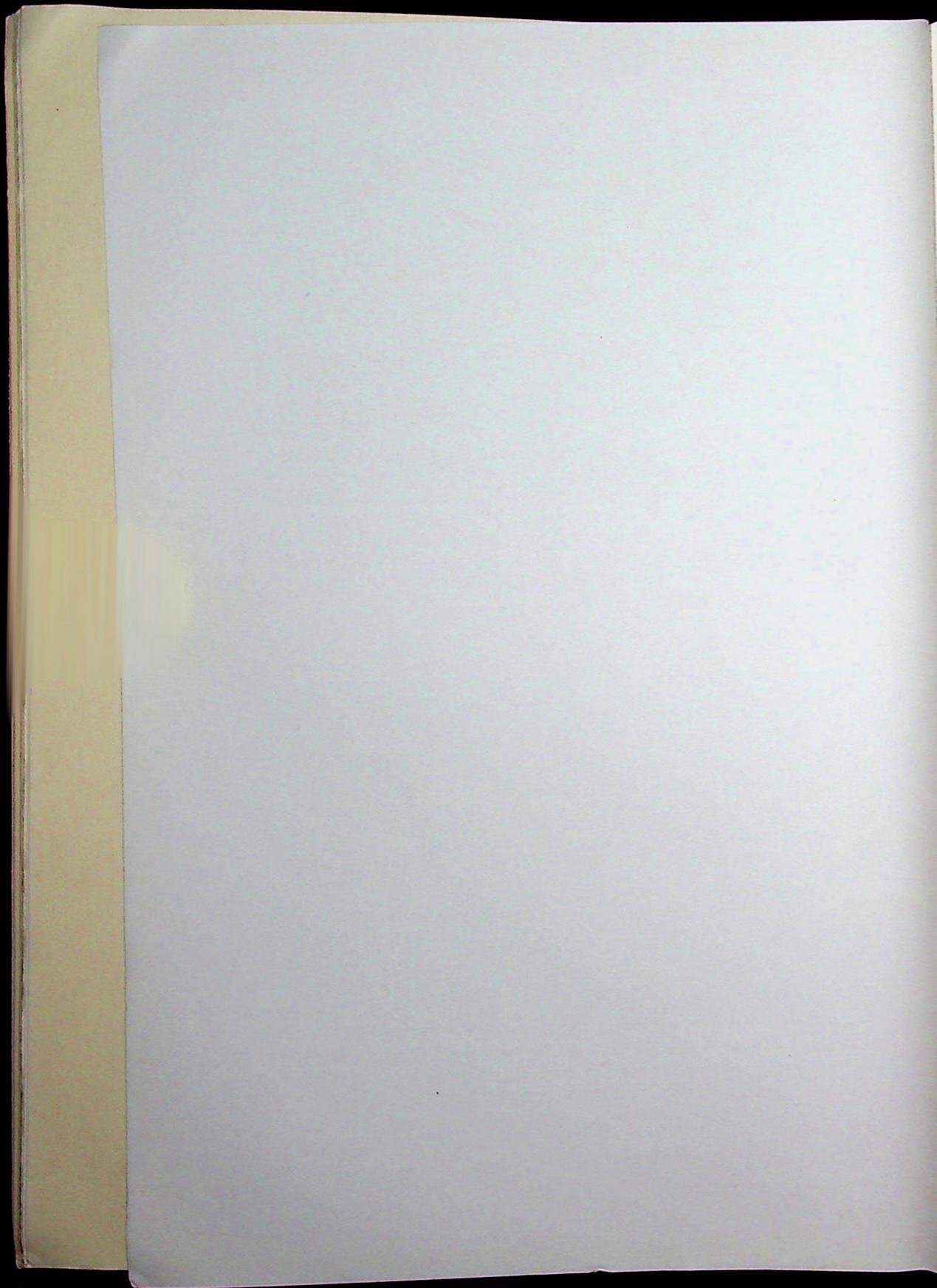


Fig. 4. Cutting and utilization is going on apace in the remaining stands of timber. Although the utilization is wasteful, this is not the process which brings about the loss of the forest cover.



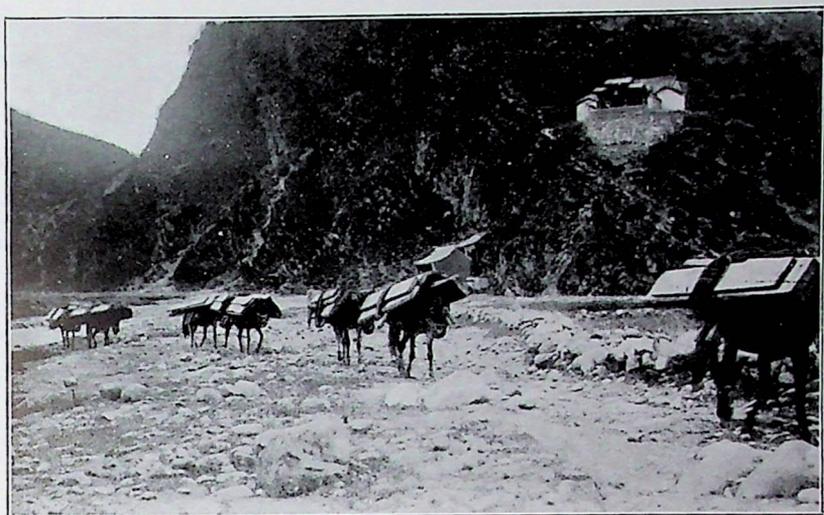


Fig. 5. The timber supplies cut on the upper slopes are transported by mule to Tung Tsai. This primitive method of transport accounts for poor utilization and discrediting the value of a forest cover. Near Tung Tsai, Shansi.



Fig. 6. One of the many lumber and timber yards in the town of Tung Tsai. Note on the hills beyond the few single spruce trees, which are testimonials to a former forest cover about Tung Tsai.



FOREST DESTRUCTION AND SLOPE DENUDATION

as thunder storm down-pours and occur most often in the latter half of the day, and rarely at night. Exceptions occur, but the precipitation is generally of the convective type, such as is characteristic of inland mountain regions.

During the two summers of 1924 and 1925 the rainfall was most often experienced as sudden down-pours. The latter summer, however, was marked by a few typical cyclonic rains, beginning with general sheet over-clouding and fine gentle rain, which lasted sometimes for several hours. Such rains were due to the occasional carrying over into Shansi of moisture-bearing cyclonic winds originating in the Pacific. The bulk of the rainfall, however, comes in the form of thunder showers and cloud bursts of high intensity.

Such is the stage setting in which man has been playing an important, and, perhaps, a somewhat villainous rôle for many centuries. (4) It is reasonable to conjecture that in early times the inhabitants of Shansi first began to clear away the forests from the level alluvial plains where the tilling of the soil for food crops was comparatively easy. As the population increased and the demands on the productivity of the soil grew, lands higher and higher up the slopes were cleared for cultivation. Whether this early clearing of the forest was done primarily for wood or for food production is not known. However, it is certain that as the needs of the increasing population approached the maximum productivity of the land, this clearing was done expressly to grow food crops. This went on until the forest and vegetative covers were cleared up to the mountain tops. Evidence of abandoned fields is found as far as the summit of Mien Shan and other high mountains. (Also see Smith, 8) Now only small remnants of the original vegetative cover can be found in the remotest and loftiest sections of the province, except where it is preserved by temple enclosures. Although timber is now increasing in value, it may be said that the dominant motive in removing the forests and clearing the land has been and in many sections still is to grow crops. The writer found logs rotting in the mountains of Shansi because of lack of transportation or profit in their removal. The land from which the logs were cut had been cleared and sown with oats.

The blind yielding to this demand for crop land has worked immeasurable misfortune to the people of Shansi. The studies in Shansi during the two summers, warrant the conclusion that this clearing of the slope lands for food production has set in motion certain processes which are inimical to the continued welfare of the commonwealth.

Man has no control over topography and little over the type of rainfall which descends on the land. He can, however, control the soil layer, and can, in mountainous areas, determine quite definitely what will become of it. This is not true to the same degree in level areas, for the controlling difference is the gradient of slope. Level lands may be cleared and cultivated for food production. In fact, this is the highest use to which such land may be put, except, perhaps, for residence. On slopes, however, where, according to measurements made in Shansi, the gradient exceeds 25 per cent., cultivated land is subjected to excessive wash and erosion during the sudden down-pours of summer rain. The deep fertile

soil layers may be entirely removed in this way after a few years : 3 to 10 according to experience in North Shansi and not exceeding 15 years on the more gentle slopes within this limit. The texture of the soil as well as the slope gradient are controlling factors in soil wash after the soils are prepared for crops, and therefore determine only the rapidity of the denudation. Cultivation of slopes makes denudation inevitable.

The complete story of the cutting of forests—the transport of some of the more valuable material, the clearing of the forest soil of stumps, roots, shrubs and other binding agencies, the planting with oats and potatoes, and the subsequent erosion, gulying, and development of torrents—was studied in the various stages in the highlands of Shansi during the summers of 1924 and 1925. These processes may be found at work at the present time in the highlands at the head waters of the Fen River, in Ning Wu Hsien. The ancient military camp of Tung Tsai (East Camp) is now the centre of the timber trade, which depends upon the logs, boards and poles which are packed out of the mountain valleys on mule back. In the vicinity of Tung Tsai are striking examples of various stages in the development of torrents. The torrent debouching into the main valley opposite Tung Tsai is a very typical example. It has come into being in the past 40 years due to the cultivation of the tributary watershed. The same processes and consequences are to be found around Lu Yah Shan on both sides of the divide between the Fen and Yellow River watersheds, and at many other points in these highlands. The unmistakable evidence of the onward march of this type of destruction may be found from Tsing Lo to Tung Tsai, a distance of 120 li, and throughout the mountains of Shansi.

The Fan Shan area of West Central Shansi presents two phases of these processes. Evidence is plentiful, in the form of abandoned fields on slopes, to show that the cultivation of the high slopes took place several decades ago. Few freshly denuded slopes exist now. But the remaining forest stands are now being rapidly cut. Particularly is this true of the holdings of a prominent family of Shansi. Plans are being made to rent as much as possible of this cut-over land to mountain farmers. The rocky nature of the soil may fortunately prevent its cultivation and favour the return of the forest, though more slowly than careful treatment would render possible. The timber of the Kuan Ti Shan area, a splendid forest cover of about 150 square li, has been sold to a match company which expects to use the poplar (*Populus sp.*) for match sticks and the birch (*Betula japonica* Sieb.)* which occurs in splendid development as both red and white varieties, for match boxes. The spruce (*Picea meyeri* R. & W. *Wilsonii* Mast.) and larch (*Larix dahurica* var. *principis rupprechtii* R. & W.) are sold as timber, being either floated in summer freshets or transported by camels during the winter to Kai-ssu at the edge of the Tai-yuan plain.

The south-eastern section of Shansi is an elevated and incised massif which drains southward directly into the Yellow River through its main

* "Plant Identifications" by E. D. Merrill and Alfred Rehder.

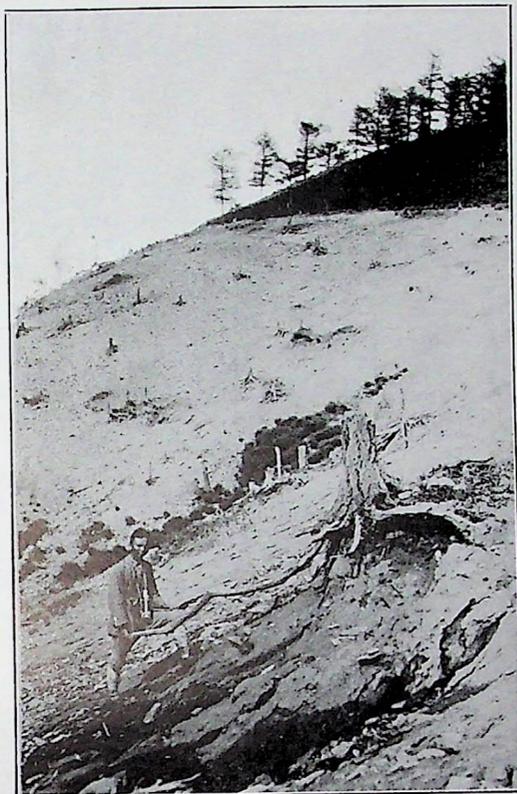


Fig. 8. When the soil is dug up, it is soon washed away by the summer rains. The steeper the slope, the more active is this process, until the mountain side is productive neither of forest nor field, but on the other hand becomes a menace to the valley below

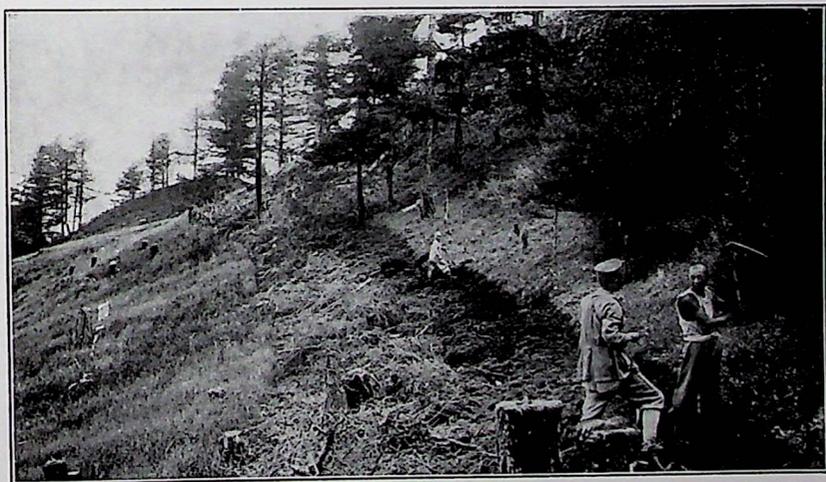


Fig. 7. The mountain farmer uses a long bladed pick which effectively loosens the soil from the binding and reinforcing effects of tree roots. This picture shows the advance on the forest cover. The field to the left consists of an oat crop; in the centre the farmers are shown digging up the forest soil for agriculture; to the right is the forest as yet intact.





Fig. 9. A general view of the process of denudation at work. The line of trees are property boundary trees, which by law and custom should be left to show the blaze marks. After the forest is cut off the land is dug up and sowed with oats. Thereupon the run-off washes away the humus soil, the more rapidly, the steeper the slope. Siao Si Ko, a valley near Tung Tsai, Shansi.

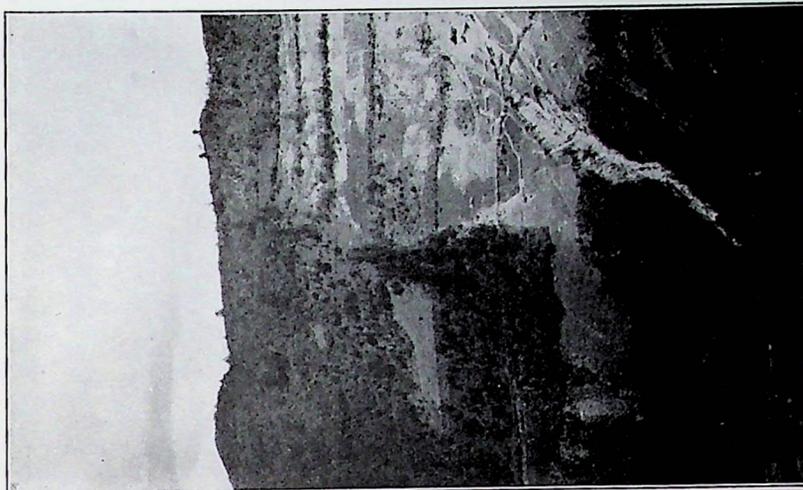


Fig. 10. Deprived of a protective cover of forest growth the mountain slopes are defenseless before the rapid run-off from the summer showers and downpours. A torrent in the making.

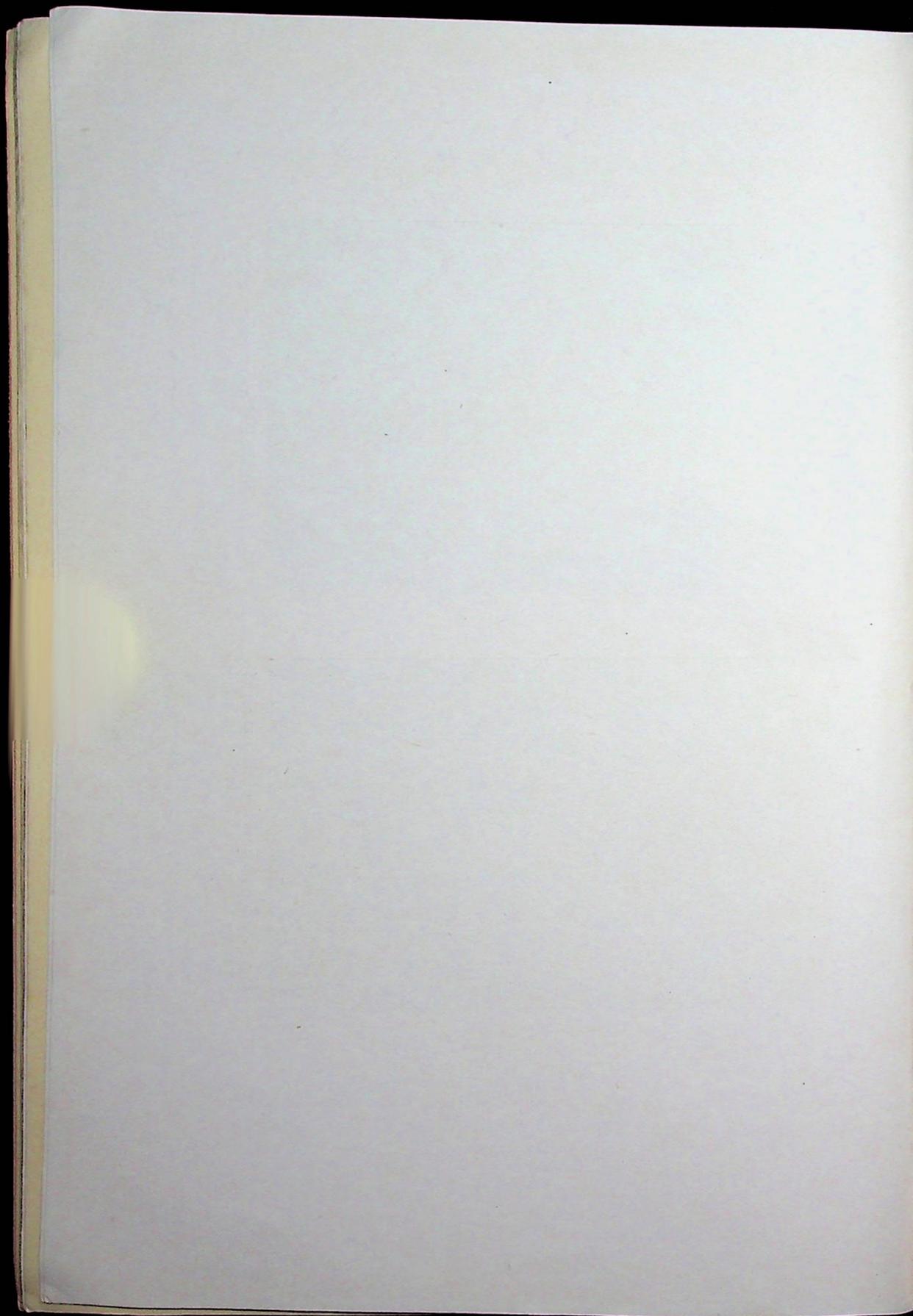
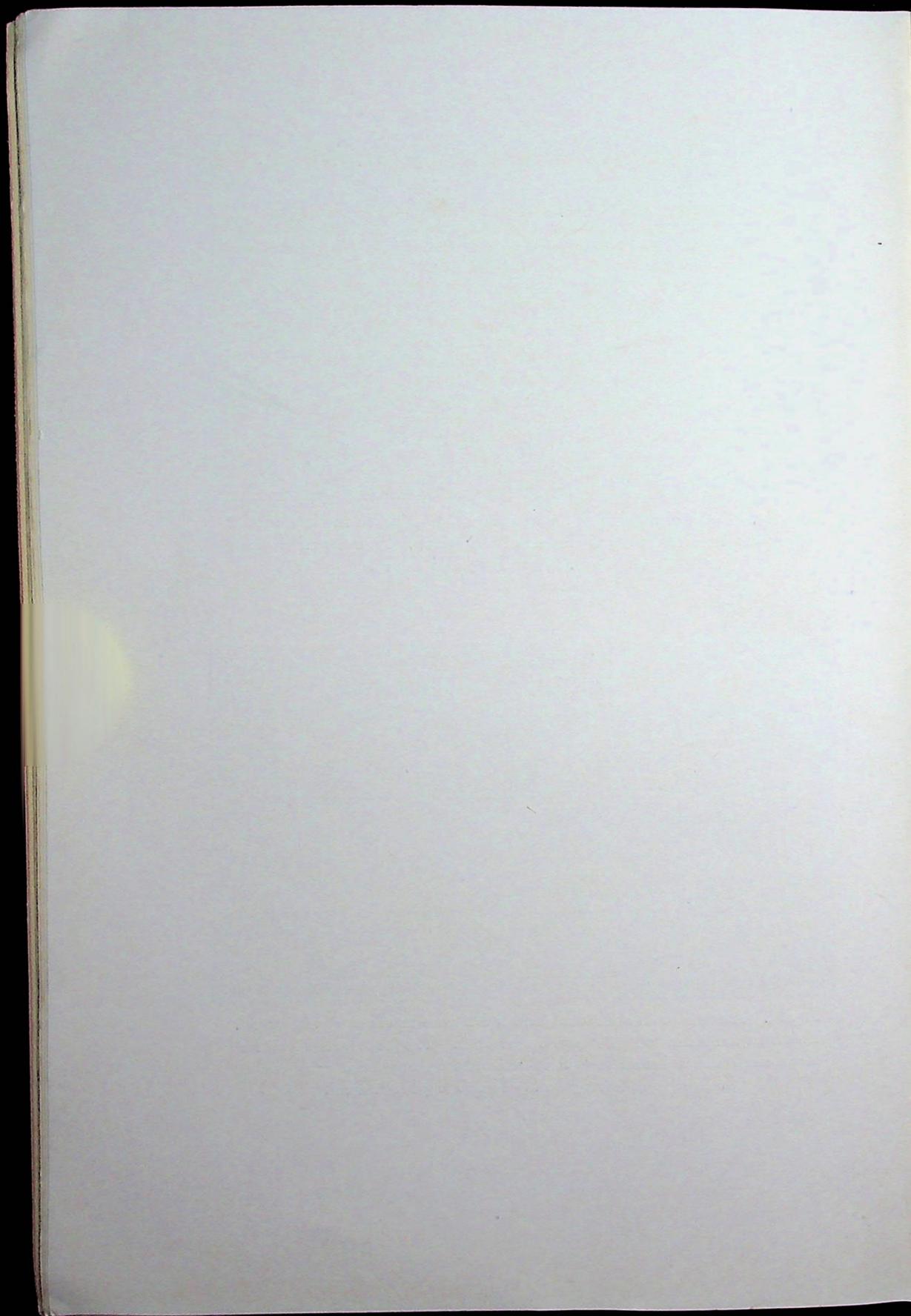




Fig. 11. Detail of a dump of an erosion gully as it debouches into another valley whose current carries the material further down. Note the effect of the larger stream. Near Tung Tsai, Shansi.



Fig. 12. A detail of an abandoned field which once was covered with forest. This tract had been under cultivation nine years. The black humus layer has disappeared and a brown rock filled soil remains, unproductive of oats or potatoes, or of forest growth. Near Tung Tsai, Shansi.



FOREST DESTRUCTION AND SLOPE DENUDATION

stream, Tsin Shui. This region is carefully described by Smith, 1925. (8) This section represents a much older stage in the processes of clearing and cultivation. No large single area of forest is to be found, for cultivation has etched the entire landscape. A large part of the slope areas are thin, solid and rocky dry sites on which meagre and scattered pines have established themselves naturally. The restoration of the former cover through slow stages of plant succession are at work, and, if unmolested by sheep, goats and wood cutters, would in time build up a fertile vegetable soil in which trees and shrubs might thrive. Little hope of this exists, however, without an intelligent and energetic conservation policy.

Small forests are found at many points in this region and show the result of communal and temple effort at protecting trees for a continuous crop of material for temple and village house repairs. The Lin Kuen Shan communal forest is the most noteworthy. A most interesting stone tablet was found in the little temple of Tsong Tse Yu in Tsing-yuan Hsien. The inscribed record of 1887 recounts how the beautiful little pine forest on the opposite slope, with its heavy undergrowth of shrubs, had been protected since 1857, to supply the repairs for the temple and the village houses. This stone may be considered the charter stone of communal forests in Shansi. There are also the interesting clan forests which are managed by eleven villages. The white bark pine (*Pinus bungeana*) of Mien Shan, protected by the temple of Sun Lin Miao (8) is also a noteworthy remnant of forest.

The outstanding impression, after making a reconnaissance through most of the highlands of Shansi, and particularly in the three forest regions of the province, is that cultivation has at one time or another been applied to practically all the slopes of the land area.

Terracing has been resorted to as a safeguard against rapid erosion of the agricultural soils where the loess deposits exceed a thickness of ten or more feet. In a few areas of no great significance terraces are built up with stones to hold the soil wash of the thin rocky limestone slopes. But the area covered by terraces is deceptive to the traveller who follows the roads and trails of the valleys. From such routes the entire landscape appears to be terraced. In fact only the faces of the main slopes are terraced. The back country, comprising a much larger proportion of the land surface, is meagerly terraced or not at all. Perhaps not so much as 10 per cent. of the slopes is terraced. Terracing is a useful treatment of the slope lands if they are cultivated, otherwise the soils are soon washed away leaving the areas unproductive, or, as in the case of loess deposits, are so cut up with gullies as to render cultivation impossible.

Terracing in the loess appears to have originated as a result of the division of the slopes into narrow fields along the contours. Repeated plowing has, through soil-creep, lowered the upper edge and filled up the lower edge of the narrow fields one above the other. The net result has been to establish marked differences in elevation between two fields and the reduction of their gradients. The former slopes have thus been converted into terrace formation.

The process of denudation is considered for convenience in description in three different stages. The cutting of the forest is the first. The methods of cutting in the highlands of Shansi were a great surprise to the writer; for the waste in high stumps and the careless utilization of timber, which has such high value in the plains and which is so vital to the economy of the province, is practically criminal. Sowerby and Wilder make a similar observation for the Tung Ling (9) (11). The wasteful methods resemble those of America, where the diminishing supply of what was once considered unlimited timber is only beginning to be seriously felt. The costly method of transporting the logs from the mountains on mule back must be considered the primary contributing cause. This is necessitated by the absence of adequate roads. The owner of timber land generally considers that renting his mountain slopes to a farmer for growing oats is more profitable than retaining his land for growing trees. Thus, the forests are frequently cut off more rapidly than transportation can deliver the timber to the plains. Rotting logs and trees are common in the Ning Wu and Fan Shan regions. Thousands of cubic feet of fine timber lie rotting in these regions.

The succeeding stage of cultivation follows immediately upon the cutting of the trees. The forest soil contains the accumulated fertility of many decades; it is deep, black with humic material and is highly productive. Accordingly, it is eagerly sought for in order to grow food crops. The general experience, however, is that the first year's crop yield is not as high as the second, due to the incomplete decomposition of the raw humus material at first.

The soil is first broken with a long pick or mattock; since the network of shrub and tree roots makes turning with a plough impracticable. In succeeding years the land is ploughed with bullocks, unless the slope is too steep, in which case the long bladed mattock is used as long as the crops justify cultivation. The chief crop is oats, particularly with freshly cleared lands. Peas and potatoes are sown to lesser extent at the higher elevations, whereas millet, maize and flax constitute the crops at the lower elevations of the mountain areas.

The third stage is erosion, or soil wash, to a disastrous extent. As soon as the slope soils are deprived of the protecting layers of leaves and twigs, and the binding net-work of roots of shrubs and trees, dashing rain storms pack the outer soil surface and start tiny rivulets of flowing slime. (5) These accumulate and develop into rills which join together to form gullies. The run-off attains accelerated velocities as it accumulates and increases its transporting power by $6\frac{1}{2}$ times the increase in velocity. The annual cultivation of the fields levels out the rills and fills up the small gullies and tends temporarily to check the development of larger gullies. Only a few years are needed so to remove the soil layer that the farmer can no longer afford to cultivate the slope fields. He, therefore, moves on to freshly cleared forest or shrub, and sets in motion the same processes of destructive erosion over an ever widening area. When the field is abandoned, the development of the gully is unhindered and goes on apace. The loss of the soil layer exposes residual rock fragments, which accumulate to form a rocky surface, whereby

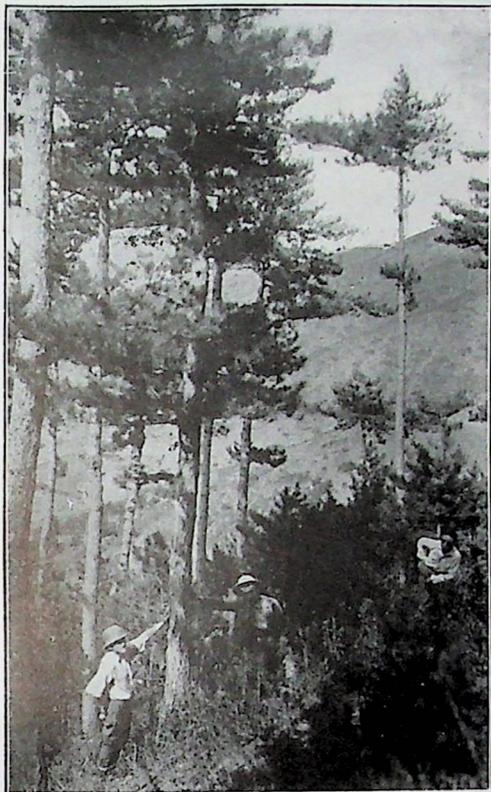


Fig 14. Detail of the Lian Ling Shan temple forest. Under the over story of pine a dense stand of young trees is coming up naturally. A certain amount of selective cutting is going on in this forest. Nature reproduction here is unmistakable evidence that the site is favourable to forest growth; an evidence of former extension of the original forest cover of Shansi and of potential forest growth in similar locations.

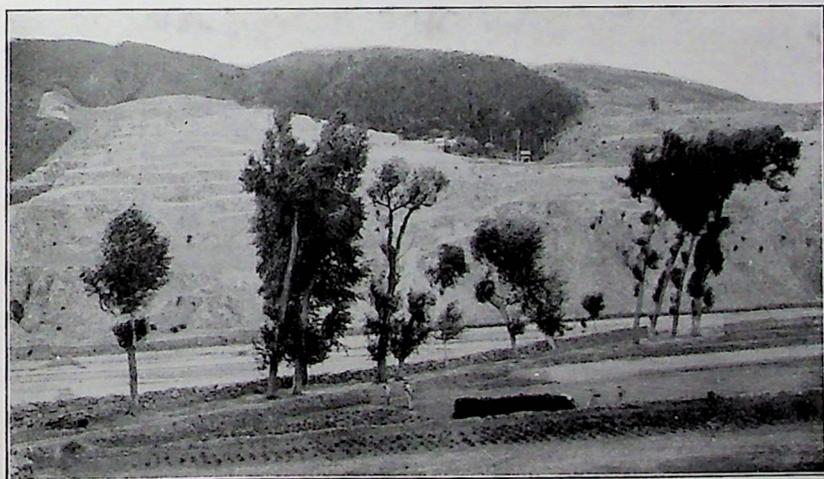
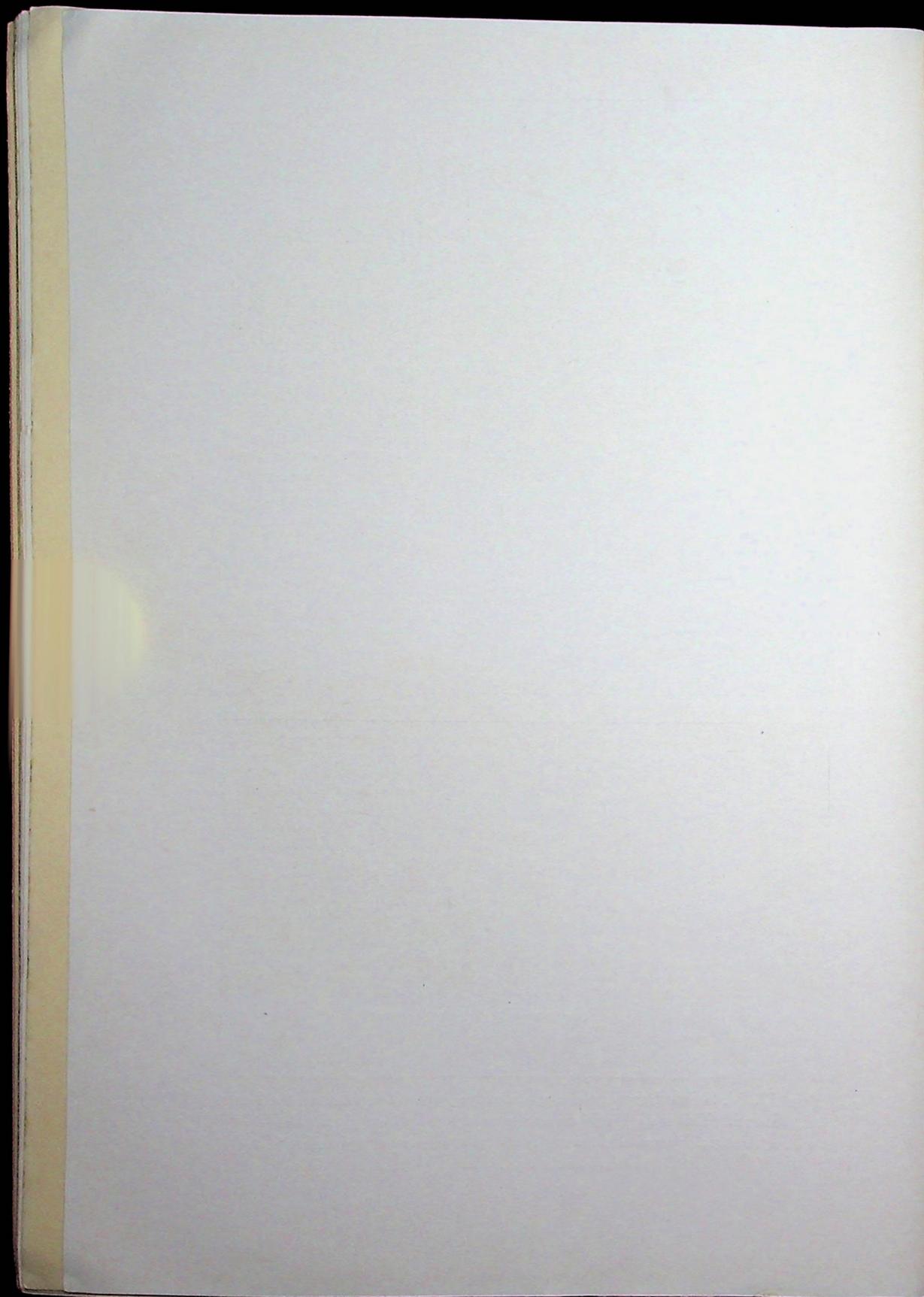


Fig. 13. A temple forest in the loess deposits opposite Tsing Lo, on the Fen Ho, Shansi. This is a splendid demonstration forest for the region. Note that where the forest is removed terracing is necessary to prevent rapid run-off, and to hold the moisture for agricultural crops.



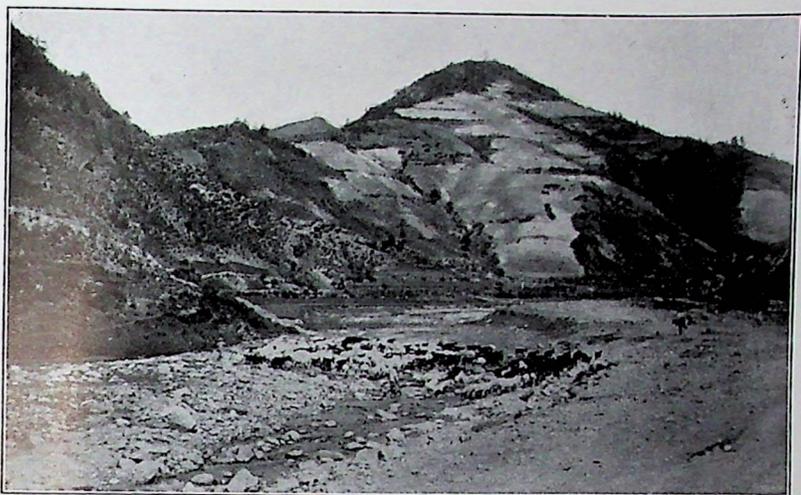


Fig. 15. After the forest is cut off and the fields are abandoned, sheep and goats are herded over the slopes effectively preventing the return of a protective cover. Near Tung Tsai, Shansi.

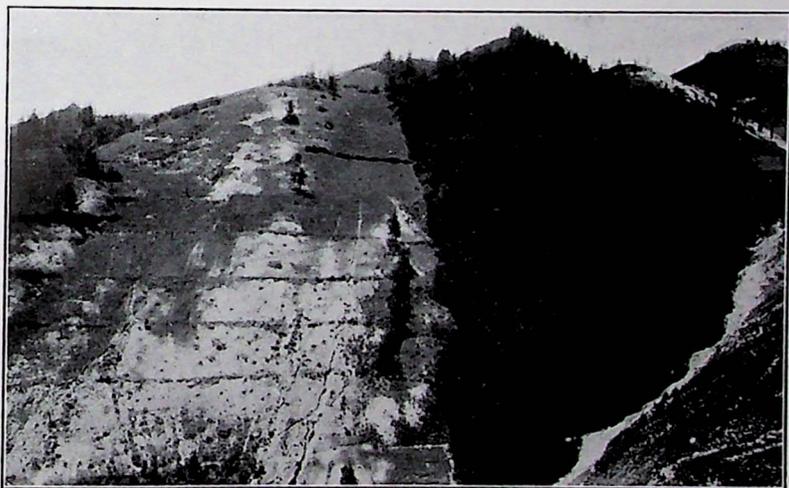
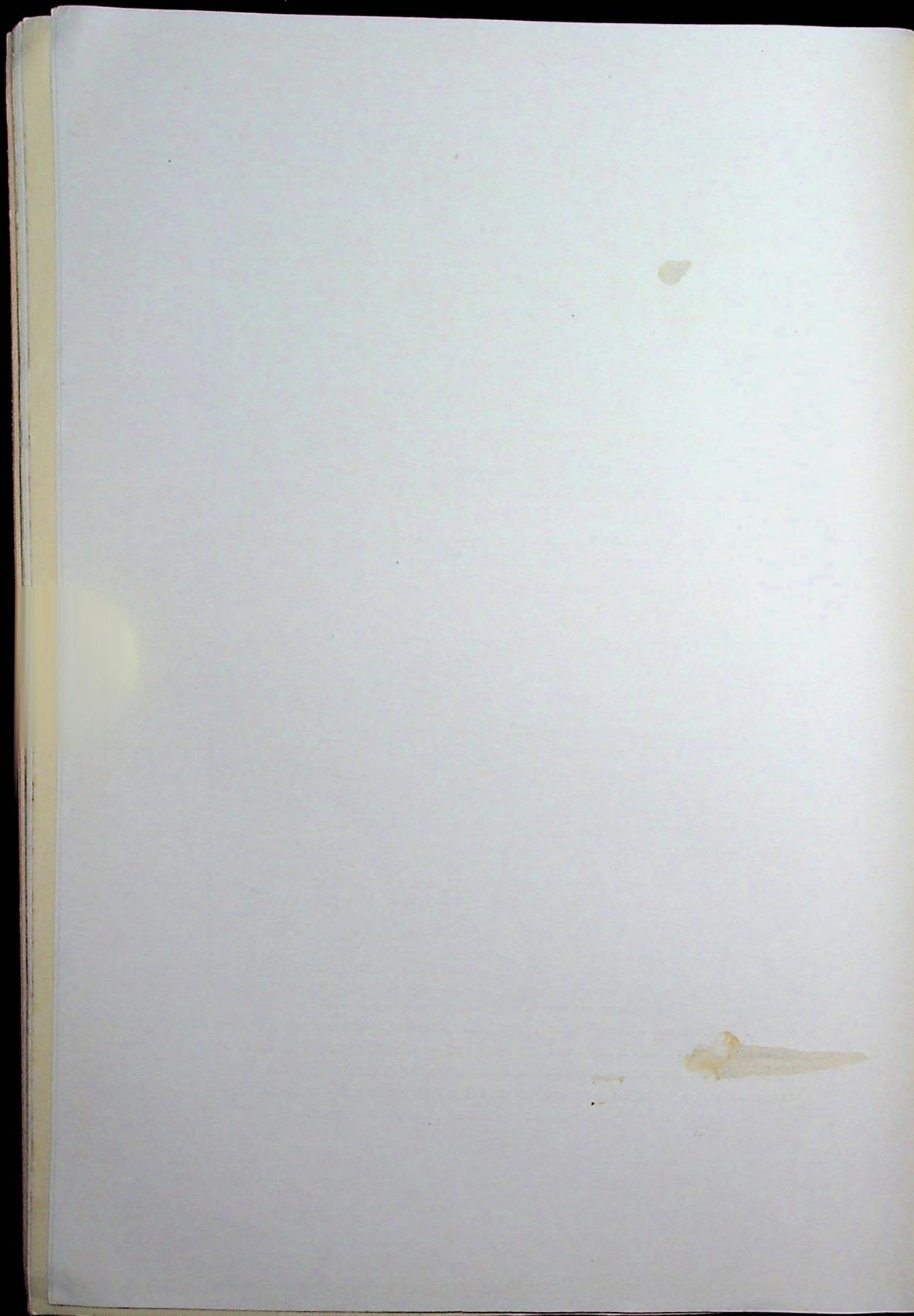


Fig. 16. "Contrast Valley" near Tung Tsai. Here is a remnant of the primeval forest cover, which has been cut over one or more times. The area to the left was at one time covered with a similar forest cover, which, however, was removed to permit the cultivation of the slope. The soils were washed away and gullying is in the process of rapid development.



FOREST DESTRUCTION AND SLOPE DENUDATION

the rain waters are so much the more quickly converted into rills. The rills and gullies swell the run-off to proportions of powerful erosive force. Rocks are torn from the hillside, soil and rock debris are carried along in a raging torrent receiving accretions from all sides until great boulders are rushed along in the mad flood. It requires the contemplation of a torrent in full flood to appreciate the destructive power which is released in raging run-off waters of the steep valleys within the mountain areas.

These torrents carry and roll boulders and rocky debris along to cover and make sterile the agricultural fields in the valley of debouchment, and transport soil material in astonishing quantities, choking up the stream channels in the plains with troublesome silt. The slower currents of the streams in the plains are unable to keep in suspension these large quantities of silt, amounting to 22 per cent. by weight of the water in stream velocities of nearly 10 feet per second, and which the torrents in the steeper portions of the watershed tear off the mountain slopes. In consequence, the extra load is dropped, only to cause the disastrous flooding which is such a persistent occurrence in the plains of Shansi.

The result of these processes is the denudation of the soil layers from extensive areas of the slope region. The character of run-off is changed from perennial or prolonged flows to sudden floods, which leave the stream beds dry until the next heavy rain storm or the next rainy season. This marked alteration of stream flow has been going on within the memory of prominent inhabitants of the regions where the processes of denudation are now at work. A few perennial streams were found flowing out of untouched remnants of the forest cover, and some are in process of being changed to summer torrents. (Lu Yah Shan, Kwan Ti Shan).

If the denuded areas, however, should be left entirely to themselves, natural reclamation would in time heal the wounds so inconsiderately made by eager man. For a succession of hardy herbs and shrubs take possession of the denuded slopes as soon as cultivation ceases. In time a soil is built up and seeds from chance trees find lodgement, germinate, and in time will restore the forest in wide areas above an altitude estimated at between 5,000 and 5,500 feet. Below this level artificial reclamation may be required to assist the return of vegetation due to reduced supplies of soil moisture. But another agency is at work on the abandoned fields, preventing the working of natural forces in revegetation over extensive areas. Sheep and goats are driven almost daily over these areas; and both by their feeding and trampling, effectively prevent or at least hinder the return of the former shrub and forest cover.

If some eventuality causes the migration of the population from a mountain region, or if the population is heavily reduced in numbers, as was the case in Shansi during the great famine of 1877-9, opportunities are created for the natural restoration of the soil layers through the revegetation of the mountains. Apparently, this happened after the

great famine in parts of the Fen Ho, Wen-shui and Tsin-shui watersheds. There is now a general movement of farmers back into the mountains of Shansi to clear and cultivate shrub and forest lands. Numerous evidences of this tendency are to be found in the rebuilding of partially ruined villages, in the formation of mountain land companies, and in the rapid buying up of mountain lands. Our party encountered several villages peopled with former inhabitants of the Tai-yuan plain who had within the past ten years established themselves in the mountains near Fan Shan.

The significance of these processes must rest on the extent of the original forest and shrub cover of Shansi. Evidence of a former extensive cover of forest and shrubs is patent. Sowerby suggests a strip of forests from the Tung Ling across the highlands in a southwesterly direction to the great central highland forests of Asia (10). Huc, even as late as 1844, describes forest stands in Inner Mongolia which no longer exist (4). Hsien histories of Ning Wu and others include references to more extensive forest areas. Perhaps the most trustworthy indications are the existing temple forests. To include all areas of similar altitude, or higher, with the existing temple forests would in itself indicate an extensive forest cover for Shansi (8).

The clearing of the natural vegetation and the cultivation of the slopes of Shansi have been going on at an increasing rate until only remnants and spots of the former vegetation are now left. These are found in the quite well distributed temple forests and in the remnant forests in the higher and more inaccessible parts of the mountains. In some of these areas ideal forest conditions exist. It would seem that such areas should now be made into provincial forests and carefully preserved as specimens of true forest conditions. The eager search for land to produce food has, however, taken precedence in the past and continues to do so. It appears that the cultivation of the slope lands has, in the last analysis, effectively reduced rather than increased the total food production.

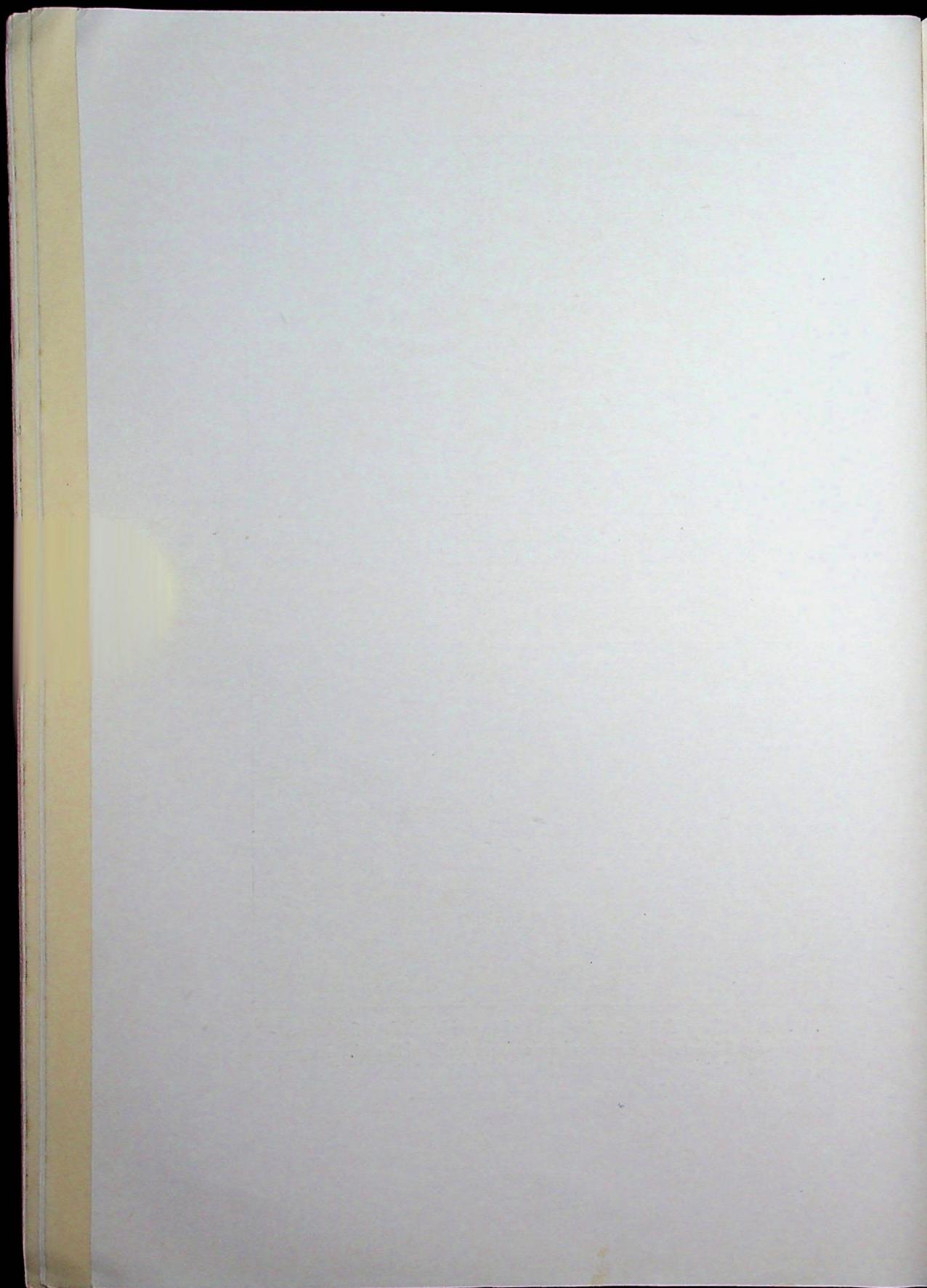
The problem of forest restoration on the slopes of Shansi involves many factors. Watershed protection in its broad sense is the most urgent. For the need of a regular water supply supercedes an additional wood supply in Shansi. Watershed protection comprises the preservation of forest conditions, where they now exist, by controlled cutting, the regulation of slope farming and the management of the ranges for grazing. Range management is perhaps one of the most urgent requirements as well as difficult. Many seriously over-grazed areas were encountered in quite extensive travels into the back country. Tree planting is badly needed in some sections, but the most effective method of restoring a cover sufficient to prevent erosion and to check the development of torrents is to give the native hardy vegetation an opportunity to develop and to render this artificial assistance at altitudes below 5,500 feet. Works of torrent correction and erosion prevention are needed in the gullies and torrents where conditions have developed to serious proportions.



Fig. 17. Tung Tsai, Shansi. A view of the torrent bed draining "Contrast Valley." Note the size of the stones which are handled by the torrential flow.



Fig. 18. Near Kwan Ti Shan. The result of an accidental slash fire in a cutting of a private forest, the property of a prominent family of Shansi. Note the high stumps. It is reported that \$10,000 worth of felled timber was burned in this fire, which was due to carelessness.



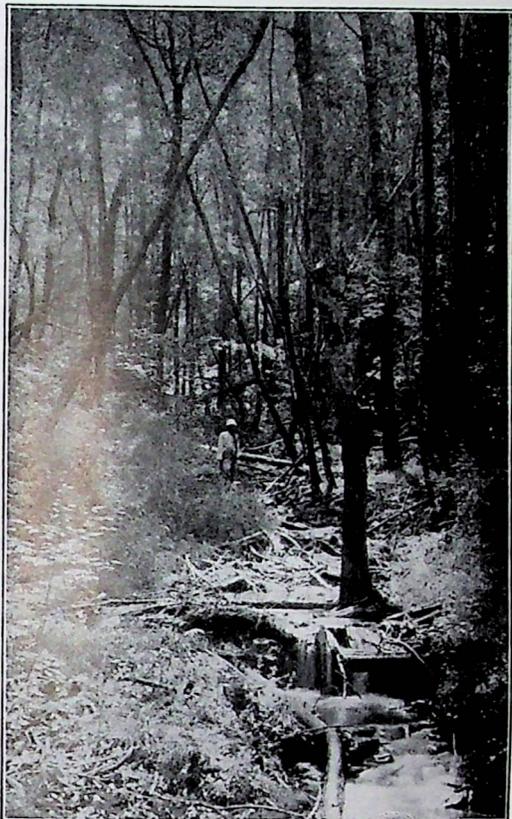
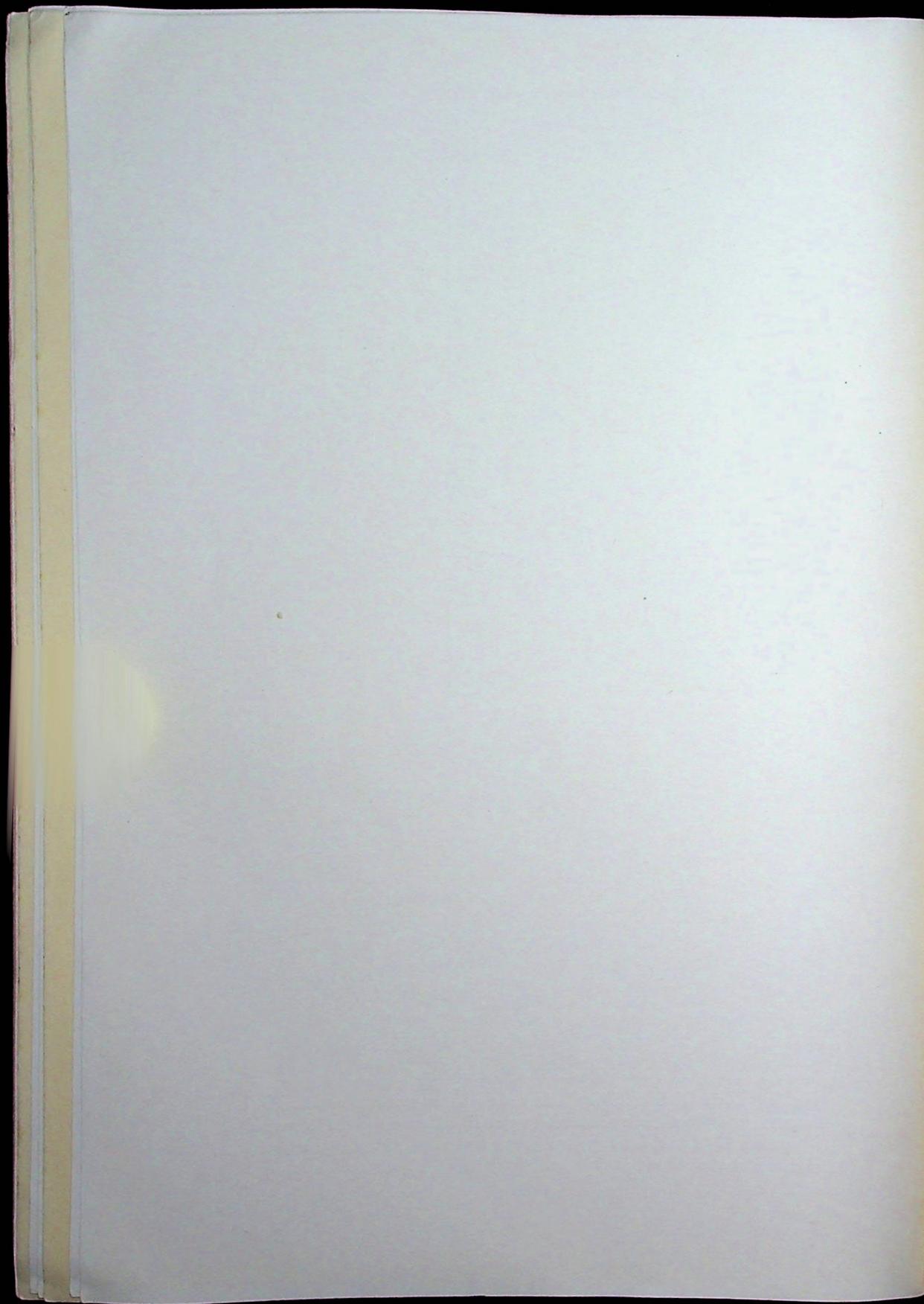


Fig. 19. Kwan Ti Shan.
True forest conditions
where streams are per-
ennial and clear and
lightly reflect the varia-
tions in rainfall.



Fig. 20. Kwan Ti Shan, Shansi. One of the largest remnants of the original forest cover of Shansi, being about 150 square li. The stand in the foreground is pure larch (*Larix dahurica*). The hard wood stands represent a succession of *Populus sp.* and *Betulus sp.*, which have followed cutting of larch and spruce.



FOREST DESTRUCTION AND SLOPE DENUDATION

SUMMARY :

With steep topography and a convectional type of rainfall, Shansi is a stage admirably set for the play of processes of excessive erosion and denudation. The condition of the soil layer is the only factor within the effective control of the inhabitants. Exposing the soils on the slopes to the wash of torrential rains has brought about immeasurable ills to the inhabitants through loss of productive soil resources, in the irregular regimen of run-off and in the reduction of the aggregate food supply. Forest destruction appears in Shansi to have been only a preliminary stage of a more disastrous process of slope cultivation, which is considered essentially responsible for the unfortunate conditions of the mountain lands and river plains.

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DESCRIPTIONS OF SOME FRESH WATER
SPONGES FROM CHINA

BY

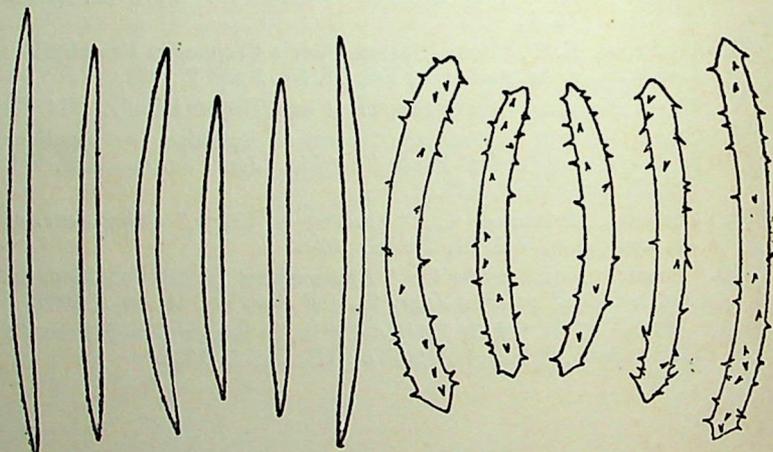
N. GIST GEE and C. F. WU

(CHINA MEDICAL BOARD, PEKING, AND SOOCHOW UNIVERSITY, SOOCHOW.)

SPONGILLA (STRATOSPONGILLA) CLEMENTIS, Annandale.

Habitat.—This sponge was first described from specimens taken from Lake Lanao, Mindano, P. I. at an elevation of 2,250 feet above sea level. The sponge taken from Erh Hai, Tali Fu, Yunnan, at an elevation of 6,900 ft. and described by Dr. Annandale as *Spongilla yunnanensis* is this same species. It is also found to be abundant in Lake Biwa, Japan. It thus seems to grow in lakes. It has not yet been found in Soochow.

General appearance.—In colour, the dry specimens from Japan in our collection are either grey or yellowish-grey. The Yunnan specimens were described as being dull greenish, even when dry. This sponge varies a great deal in its habit of growth. We have



a.

b.

Spongilla (Stratospongilla) clementis, Annandale.

a. Skeleton spicules $\times 250$

b. Gemmule spicules $\times 780$

DESCRIPTIONS OF SOME FRESH WATER SPONGES

some specimens of a very thin flat type and others forming ovoid or spherical masses of from 4 to 6 c.m. in longest diameter. Others of a somewhat similar type were growing on living molluscs. The sponge is very variable also in consistency due to the denseness or openness of the skeletal network. The oscula are generally fairly large.

Structure.—The radiating fibres are distinct but not very regular or very thick. The transverse fibres are much more irregular and much less well defined. The amount of horny material in the skeleton seems to be small, but the lichenoid types have a good dermal membrane.

Skeleton spicules.—The skeleton spicules are short, rather stout and slightly curved. They are often entirely smooth, but are also frequently found with a few scattered spines in the middle of the spicule, they always have their extremities free from spines. In some cases the spiny spicules are densely spined.

Length of spicules	246-252 microns
Diameter of spicules	16-21 "

Flesh spicules.—There are no flesh spicules.

Gemmules.—Dr. Annandale says the gemmules are seldom produced. When they are found they lie at the base of the sponge and adhere to the object to which it is attached. They have not yet been observed in the free or encrusting specimens. They are somewhat flattened in form and have a rather thin granular coat and a short foraminal tubule, which is situated on the upper surface in the natural position.

Diameter of gemmule	325 microns
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Gemmule spicules.—The gemmule spicules are slender and slightly curved. They are armed with minute and irregularly scattered spines. (The spines are not retroverted). Two rather different types of gemmule spicules are sometimes found; one is a bit stouter and the extremities end abruptly and bluntly, another type has its extremities gradually and sharply pointed.

Length of spicules	72-84 microns
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Type.—U.S. National Museum, Washington, D.C.

We have a small cotype of *Spongilla yunnanensis* (in alcohol) and several specimens of the Japanese forms in our collection.

SCIENTIFIC NOTES AND REVIEWS

BIOLOGY

EXTENSION OF RANGE OF MICHIE'S TUFTED DEER: In the *Field* of December 24 appears a report by Captain E. Maxwell West of a Michie's tufted deer (*Elaphodus cephalophus*) being shot in the territory on the north-eastern frontier of Burma. Previously this little deer had only been known as a Chinese species, having been recorded from the provinces of Szechuan, Hupei (Ichang), Chekiang (Ningpo), and Fukien. The species is related to the muntjacs, but differs in having much smaller horns, larger tusks and a pronounced tuft on the forehead. It is dark grey in colour, almost black on the back, and has the rump and under surface of the tail white. In the skull the pronounced bony ridges that run forward from the bases of the horns in the muntjacs are absent. This extension of the known range of this somewhat rare species of deer will prove of considerable interest to students of China's fauna.

NEW SQUIRRELS FROM CHINA: In a paper entitled "Squirrels Collected by the American Museum Asiatic Expeditions" and published in the *American Museum Novitates*, No. 163, April 2, 1925, Dr. Glover M. Allen describes two new species and two new subspecies from China and Hainan Island. The paper lists 49 species and subspecies of squirrels, belonging to the two families *Sciuridae* and *Petauristidae*, collected by various members of the Asiatic Expedition of the American Museum of Natural History. The collections contain 750 specimens from a wide range of territory, and, as pointed out by Dr. Allen, "has helped to make clearer the distribution and relationships of many species."

The new forms are *Citellus obscurus siccus* (p. 3), *Petaurista petaurista rufipes* (pp. 13 and 14), *Petaurista hainana* (pp. 14 and 15) and *Pteromys (Petinomys) electilis* (p. 16). Of these the suslik, *Citellus obscurus siccus*, was taken in Shansi to the West of Tai-yuan Fu, and represents a form that has hitherto been referred to Milne-Edwards' *mongolicus*, from which it may be distinguished by its "longer tail and paler, more pinkish tint." It differs from *C. obscurus* of Western Kansu and Mongolia in being paler and more vinaceous buff above in the summer pelage.

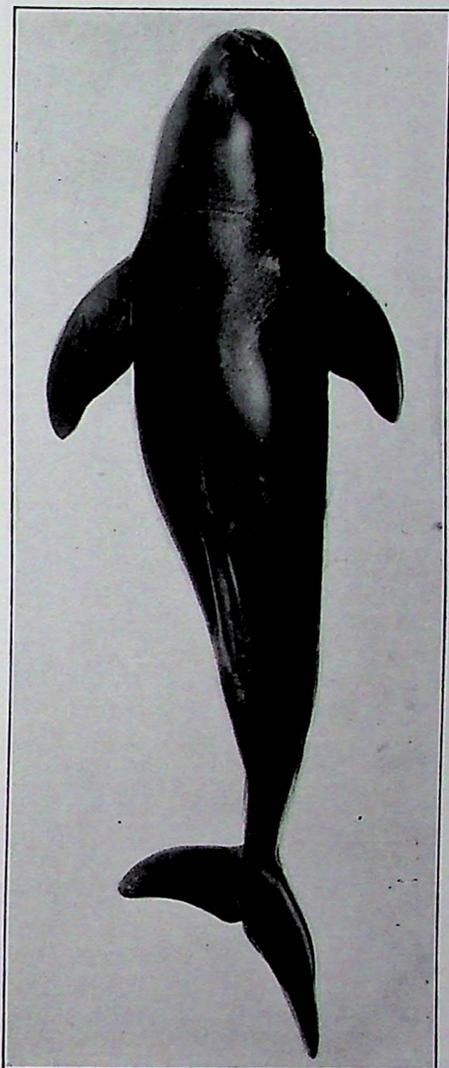
Of the two large flying squirrels described as new, *Petaurista p. rufipes* was secured in Fukien by the Rev. H. R. Caldwell in the Yungan district. This is a northward extension of the range of the typical *P. petaurista* group. It is characterized by the complete absence of all trace of black on the feet, ears and tail tip, which marks the more southerly forms.

Petaurista hainana, as its name suggests, was discovered in Hainan Island, whence no flying squirrel had previously been recorded. It was collected by Mr. Clifford Pope, and is a richly coloured form belonging, seemingly, to the *oral* group.

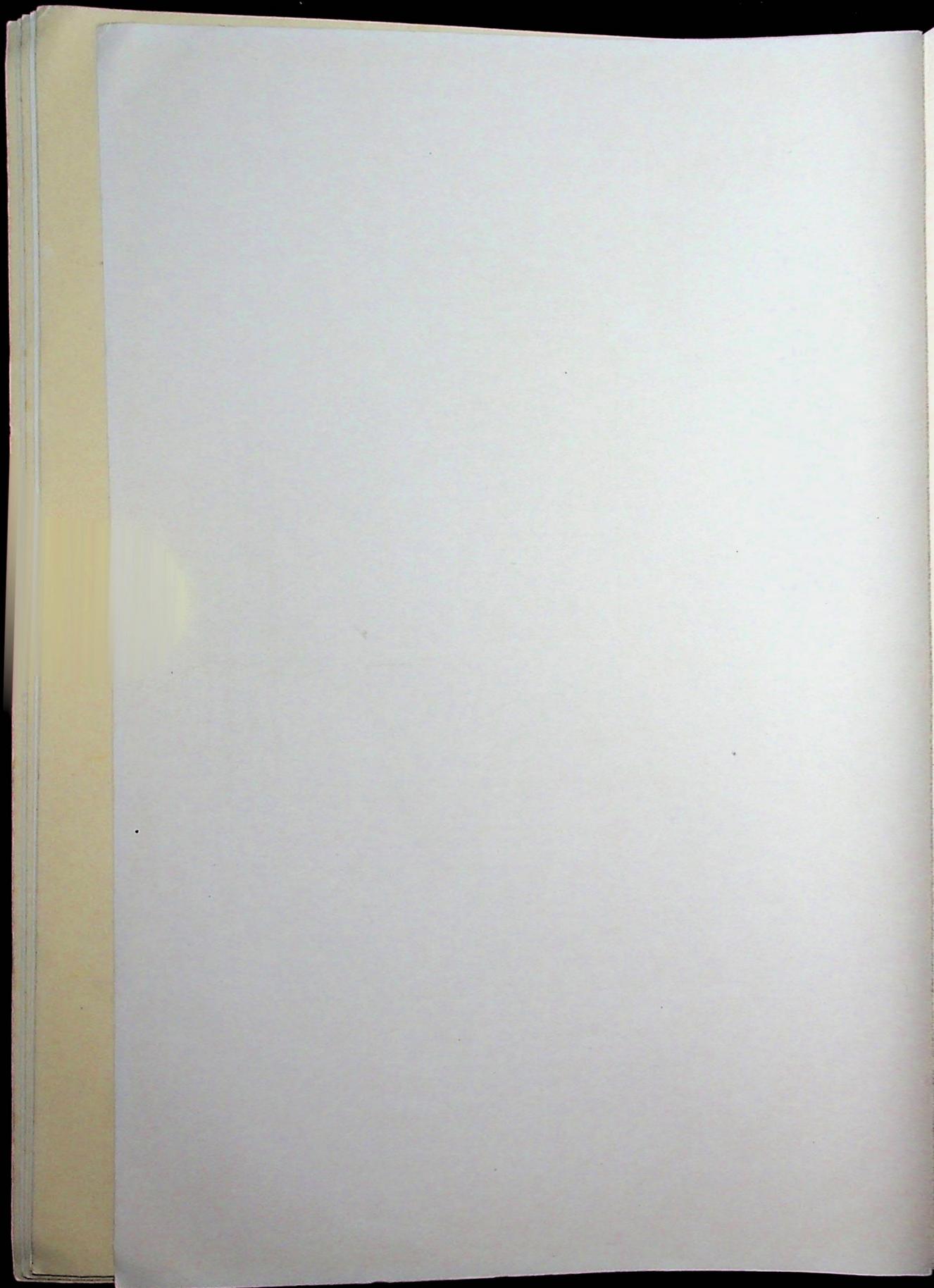
The small flying squirrel, *Pteromys electilis*, also from Hainan Island, according to Dr. Allen, "seems specifically distinct from any of the other forms described from India and southeastern Asia, although agreeing well subgenerically with *Petinomys*."

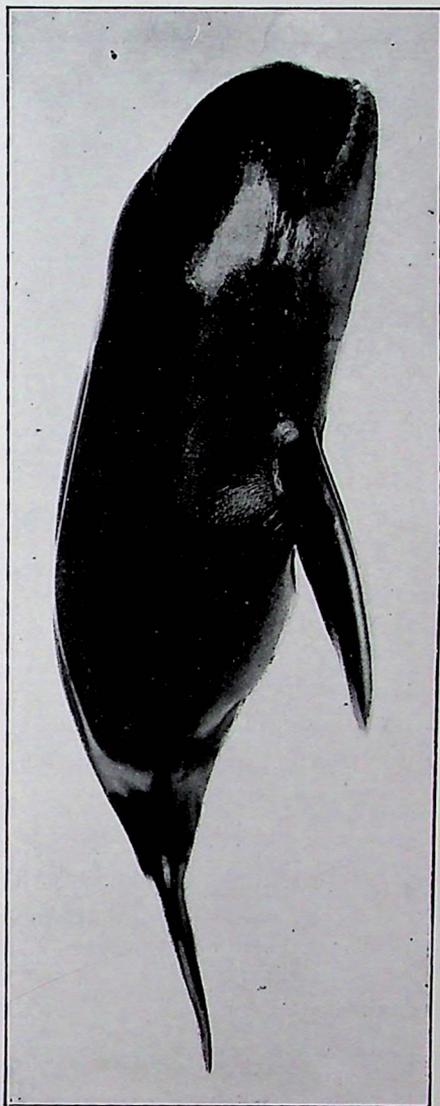
Dr. Allen's paper will prove of extreme value to students of the mammalogy of China.

A FINLESS INDIAN PORPOISE FROM THE WHANGPOO AT SHANGHAI: Early in February a half grown Indian porpoise (*Neomeris phocaenoides*, Cuvier) was captured in the Whangpoo close to the Customs Jetty at Shanghai. This species is characterized by the absence of any dorsal fin, such as is present in most porpoises and dolphins. It is said to be abundant off the coasts of Bombay and Madras, and has also been recorded from the Yangtze and off the Japanese Coasts. It is fairly common in the Whangpoo, especially in the Seven Mile Reach above Shanghai, where it may frequently be seen in schools playing at the surface of the

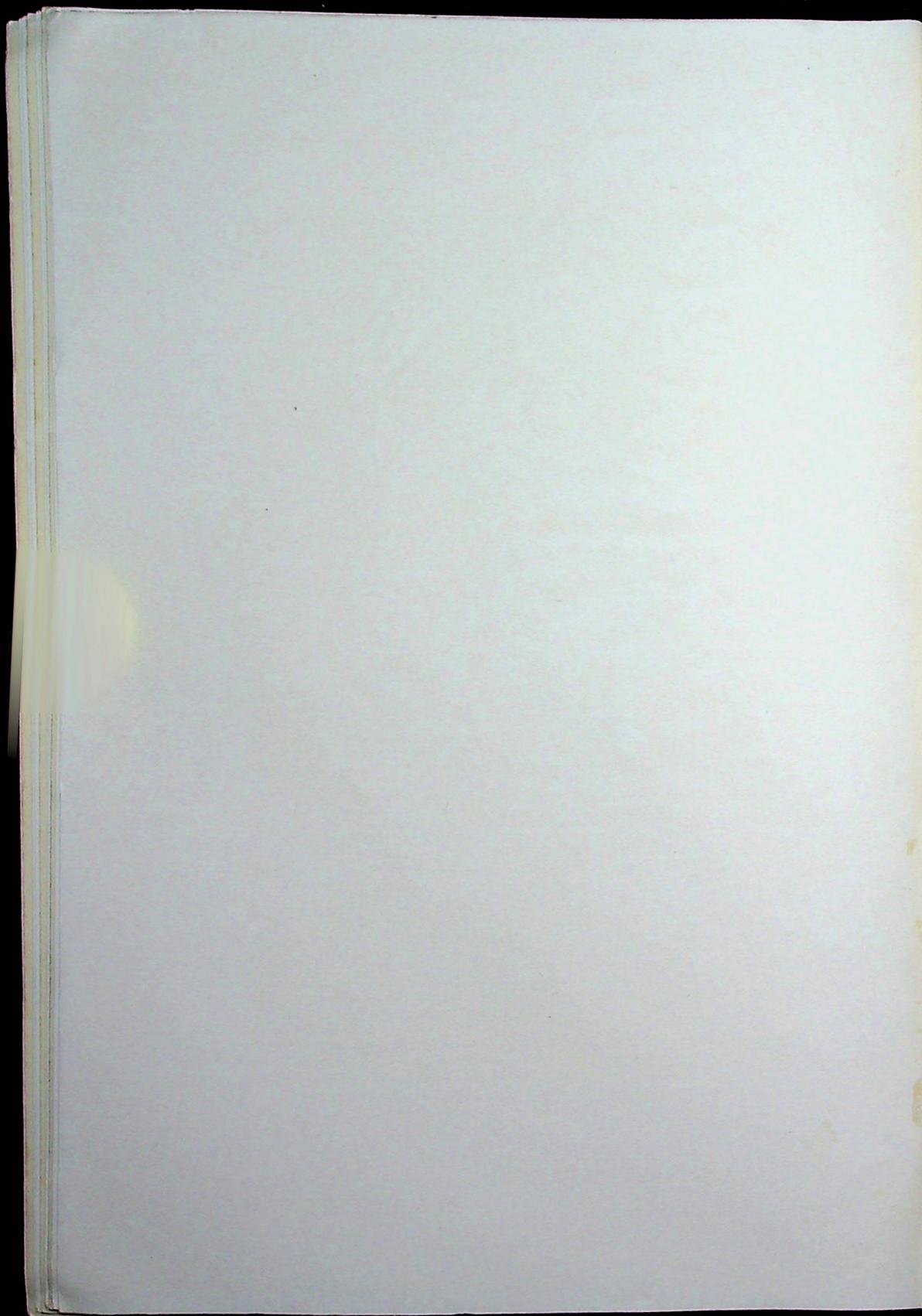


Two Views of the Indian or Finless-back Porpoise (*Neomeris phocaenoides*, Cuvier), recently taken from the Whangpoo at Shanghai. The Upper Figure shows the Porpoise lying on its Stomach, the Lower Figure shows it lying on its Back.





A close up view of the Indian Porpoise, showing the Eye, Mouth and Blow-hole.



SCIENTIFIC NOTES AND REVIEWS

water. In life it is of an almost uniform dark slate-grey colour, but out of the water its skin turns black. There is a little white about the lips. The accompanying illustrations of our specimen give a good idea of its general shape and appearance. Our specimen measured $36\frac{1}{2}$ inches in length from the tip of the snout to the fork of the tail flukes, and $23\frac{1}{4}$ inches in girth at its thickest part. In the Shanghai Museum there is a stuffed specimen with mounted skeleton on exhibition. This also was taken from the Whangpoo.

In regard to the name of this species of porpoise it may be noted that Mr. Oldfield Thomas, the well-known mammalogist, has recently pointed out in the *Annals and Magazine of Natural History*, Ser. 9, Vol. 16, No. 96, p. 655, that the correct generic name is *Neomeris* of Gray, 1846. Palmer's name *Neophocæna*, 1899, which has been used considerably, must be considered a synonym, since *Neomeris* antedates it, as well as Gray's *Meomeris*, 1847, and Coues' *Nomeris*, 1890. He points out that the name *Neomeris* of Lamouroux, 1816, has been found to have been given to an alga, so that when Gray used it for the Indian porpoise it was not, as has been thought, preoccupied in zoology. This species was originally described by Cuvier under the generic name *Delphinus*. Its correct name, then, is *Neomeris phocænoidea* (Cuvier). The Chinese name for this porpoise is *Hai Chu* or sea pig.

LA TOUCHE ON CHINESE BIRDS: Part II of Mr. J. D. de La Touche's new work on the birds of Eastern China is now to hand. This includes the families *Cinclidæ* or dippers, *Turdidæ* or thrushes *Muscicapidæ* or flycatchers, and *Laniidæ* or shrikes. It contains descriptions of two new subspecies of birds, namely the North China dipper (*Cinclus pallasii wilderi*) and the pale Siberian flycatcher (*Hemicheidon sibirica incerta*). The former is described as being intermediate between true *C. p. pallasii* of Siberia and *C. p. soulei* of South China, being smaller and darker than *soulei*. The subspecies is described from specimens taken at the Eastern Tombs, N. E. Chihli, and is named after the Rev. G. D. Wilder who collected them. The pale Siberian flycatcher is described as follows: "Shape of bill and under-wing like *H. s. sibirica*, under parts of same pattern, but browner; upper parts as in *H. griseisticta* Swinhoe." The description is based on two males taken at Chin-wang-tao and Chinkiang, respectively, both late in May, and apparently migrants.

Some interesting comments are made on the distribution of the Eastern blue rock-thrush (*Monticola solitaria pandoo*) and the red-bellied rock-thrush (*Monticola philippensis philippensis*), which have been thought by some to interbreed, apparently owing to the fact that in some specimens of the blue rock-thrush red feathers occur on the lower parts which normally are blue, and in some specimens of the red-bellied rock-thrush blue feathers occur on the lower parts which are normally red.

Particularly useful are the notes upon the eggs, nests and nesting sites of the birds described.

FORESTRY

FOREST DESTRUCTION AT TSINGTAO: The accompanying letter has been received from Mr. Rufus H. Lefever, who, our readers will remember, wrote in this Journal some time back* regarding the destruction of forests in the Tung Ling area of North-east Chihli. It is significant that we publish in the present issue an account by Professor W. C. Lowdermilk of forest destruction in Shansi.

DEAR MR. SOWERBY,—As I am here at Tsingtao for a few days, I thought you would be interested in knowing something about the forest. I found numerous soldiers with long hooks pulling down limbs, and I supposed the idea was to take the decayed ones. However, I noticed that they were pulling and breaking off the good ones also. In fact, they took some nice sized good limbs—nearly all good ones. I then went over several of the mountains on

* The Eastern Tombs, Vol. III, No. 5, May, 1925, p. 274.

an observation tramp. Viewing the forest from a distance it looks as if it was undisturbed, but when one is within it one sees tree stumps everywhere. Young trees have been cut for about an inch and then broken off. At places one finds about fifty feet of irregular plots that have been completely cut down. I tried to explain it as a thinning out of the trees. This, however, did not work; for trees that were not near others and the cutting out of which left an empty space were gone. There have been a large number of trees cut down over a wide area, but it is being done so cleverly that viewing it from a distance it is not noticeable.

My companion on one of the tramps was quite indignant about the numerous tree stumps which showed broken off trees. In fact if any one who has walked over the mountains during the past years does so now, it is enough to rouse his indignation. The forest has in no sense been destroyed, but if things continue as they have been during the last four months it will not take long completely to denude the mountains.

Sincerely yours,

RUFUS H. LEFEVER.

Tsingtao, January 21, 1926.

PHYSICS AND CHEMISTRY

At the annual session of the American Association for the Advancement of Science, held in Kansas City in December last, some important discussions occurred respecting the two great scientific hypotheses of the war period, Bohr's theory of the atom and Einstein's relativity theory. By a curious coincidence, the new evidence was in the one case strongly confirmatory and in the other case strongly contradictory.

THE BOHR THEORY OF THE ATOM: As is well known the peculiar virtue of Bohr's hypothesis is that it reconciles the position and number of the lines in the spectrum of a substance with the electronic atom constitution discovered by Rutherford. The extraordinary power of the theory was further demonstrated by Millikan from his results with "stripped atoms." By passing a very high potential spark across a small gap in an highly exhausted space containing only a few test atoms, Millikan and his collaborators have found it possible to remove from those atoms all the valency electrons except one, and have observed by means of a spectroscope the vibrations proceeding from this one valency electron as it falls from one orbit to another. In the case of elements Nos. 3 to 8 (Lithium to Oxygen), the structure of the nucleus and the residual electrons is sufficiently simple to permit a fairly accurate computation of the spectral frequencies in the manner which Bohr employed so successfully with elements Nos. 1 and 2 (Hydrogen and Helium). Millikan now announces a very good concordance of the experiment and computed values, and has obtained a further check by results obtained with elements Nos. 10 to 18. (Neon to Argon). This is a very remarkable advance in the confirmation of the theory and indicates that it will probably play a tremendous part in solving the mysteries of atomic structure.

THE EINSTEIN THEORY: Prof. Miller has announced the results of some new observations made at Mt. Wilson Observatory, as to the drift of the earth through the ether. The failure of earlier experiments by Michelson, Morley and Miller to detect any relative motion of the earth and the ether is the basis of the Einstein special theory of relativity, and has also been adduced as a reason for abandoning the concept of the ether. Miller's new results seem to indicate that perceptible differences occur at a height above the sea level, implying that the nominally zero values previously found in the Michelson-Morley experiment were due to the ether above the earth's surface being dragged by the earth.

If these new results are certain, the Einstein special theory is seriously undermined, but it is as yet difficult to reconcile them with the ordinary astronomical features of the observation of light. Caution should be exercised in fully accepting

SCIENTIFIC NOTES AND REVIEWS

destructive deductions from these new data, but they will undoubtedly revive the controversy. The bearing on the *general* theory of relativity is already being much discussed, some holding that this remains unimpugned, especially as the third test, the shift of the spectral lines in an intense gravitational field, has proved confirmatory.

The following table of the results on ether drift is of interest:—

Date	Observers	Level	Computed velocity of drift ; kilometres per second
1887	Michelson & Morley	Ground	Less than 7.5
1905	Morley & Miller	do.	Less than 3.5
1905	Morley & Miller	{ 300-ft. above Lake Erie	} About 3.5
1921-5	Miller	{ 1731 metres above sea level	

NOTE:—The peripheral speed of the earth's surface due to rotation is about 5 kilometres per second. The earth's speed in its orbit is about 30 kilometres per second. This is the one supposed to be measured. The earth also has the sun's speed through space.

NEW ELEMENTS: One of the most interesting discoveries of the year 1925 is that by Neddack and Tacke of elements Nos. 43 and 75 in certain platinum ores and columbite. They only occur in very minute quantities and were found by means of X ray analysis. No. 72 (Hafnium) was discovered in 1923 in a similar manner. Outside of the radio-active group, there now only remains the rare earth No. 61 to be found.

HERBERT CHATLEY.

A CORRECTION: In the report of Dr. H. Chatley's lecture on the Solar System given before the Quest Society on January 18, which appeared in our February issue, page 101, the phrase "by the use of *acromatic plates*" should read "by the use of strictly *monochromatic light*."

MEDICINE

LOBELIN (HYDR. CRYST. INGELHEIM): To the large number of therapeutic agents designed to increase blood pressure by stimulating the vaso-motor nerves, is now added *alpha lobelin*, isolated in 1915 by Dr. Henry Wieland, Professor of Chemistry at the University of Freiburg, in the form of a crystalline alkaloid from *lobelia inflata*.

It is a noteworthy addition to the media already at the practitioner's disposal in that it is the first specific remedy for disturbances of the respiratory centre, its action, being unattended by any secondary effects, strongly stimulating respiration without influencing other central or peripheral regions.

Injected subcutaneously or intravenously, according to the rapidity of action desired, it has given great promise in pneumonia, as well as in acute and chronic alimentary disturbances where paralysis of the centre at times has a fatal termination.

Lobelin lends itself to great advantage in respiratory disturbances where circulation is well maintained or affected only secondarily. Where circulation is markedly affected as well, however, it must be supplemented by other stimulants.

Being specific in action upon the respiratory centre without the disadvantages attending the use of strychnine, camphor or caffeine, it is worthy of serious consideration as a therapeutic agent, the more so since trustworthy records of clinical experience with it in a diversified field of pathogenic phenomena appear to substantiate the claims made for it.

A NEW STEP IN CANCER RESEARCH: Dr. Josef Schumacher has communicated to the Berlin Microbiological Society his location—by means of a new method of staining—of a microbe limiting tumours to one tenth of their present extent. The microbe appears in mass formation on the border demarking cancerous, diseased and healthy tissues.

LEAD IN TREATMENT OF CANCER: Professor F. C. Wood, Director of the Institute of Cancer Research at Columbia University, recently returned from Liverpool after inquiring into the Bell treatment of cancer by lead. He reports that the new therapy is still largely experimental and that while one out of every five treated with colloidal lead enjoyed temporary relief, the remedy is extremely dangerous. The medium is difficult to prepare, impossible to keep and can be employed only by those thoroughly familiar with its properties.

Professor Wood regards the treatment, nevertheless, as the most important advance since the advent of radium and the X-ray and as one which gives great promise of future usefulness.

REPORT OF ISOLATION OF A VITAMINE: The Tokyo Institute of Physical and Chemical Research communicates the isolation, by Messrs. K. Takahashi, Z. Nakamiya, H. Kawakami and T. Kitasato, of a substance termed by them "Biosterin," containing in high concentration the so-called vitamins "A" and "D". The substance, one pound of which was ultimately obtained from two tons of cod-liver oil, is itself a reddish yellow oil corresponding, chemically, to the sterols. It is stated to be present also in spinach and in other vegetable matter.

Since the precise nature of a vitamine—in the sense of a single, concrete substance—is still unknown, it were well to stress, in connection with the above discovery, that the investigators have succeeded merely in obtaining a concentration of several vitamins. Their work, nevertheless, marks an important advance in the study of these obscure substances and leads to the hope that they may ultimately be isolated, *per se*, and their constitution determined for all time.

ADVISORY COUNCIL OF THE LEAGUE OF NATIONS HEALTH BUREAU AT SINGAPORE: Dr. Wu Lien-teh, head of the Manchurian Plague Prevention Service, who had been sent by the Chinese Government to attend the meeting of this Council, passed through Shanghai on his return early in February. He gave a glowing account of this second conference held on January 3-8 and which was attended by noted experts from twelve territories.

The greatest cordiality prevailed among the experts in view of their common interests in reducing the ravages of such diseases as smallpox, cholera and plague. Much attention was given to a lecture on pneumonic plague by Dr. Wu and Dr. Rajchman's proposal that the League of Nations be asked to send an expedition to Siberia and North Manchuria and assist Dr. Wu in investigating the epidemiology of this scourge, was agreed to. Mass immunization from cholera by means of mouth vaccine was also determined upon, the experiments to start in Korea, North China and Annam simultaneously.

Dr. Wu was able to announce a contribution of \$8,000 from China to the Health Bureau for the next three years.

R. R. L. F.

SHOOTING AND FISHING NOTES

SHOOTING

SAND-GROUSE SHOOTING AND PARTRIDGE POISONING IN THE CHIN-WANG-TAO DISTRICT: An interesting letter, excerpts of which are given here, has been received from the North. It will be seen that the correspondent refers to the great sand-grouse year of 1907, which has only been rivalled since by that of the winter of 1922-23. We refer our readers for notes on this subject to the Rev. G. D. Wilder's "Migration Notes" in this Journal, Vol. I, page 57.

DEAR SIR,—.....this last two years have done little shooting: in fact, now the country is all over-run with soldier brigands it is not safe to venture into the country. I have used a 20 bore gun for the last five years, and I can do perhaps better shooting with it than with my 12 bore gun. . . .

I will narrate to you one of many shooting experiences I have had in North China with the very rare birds called sand-grouse. I had never seen these birds before 1907 and I was then putting in an installation of Acetylene Gas at Tang-ho Railway station, the branch line of the P.M.R. which used to branch off to Chin-wang-tao, and on which as many as twenty trains of coal were shipped every night. This was a very cold snowy winter. These birds arrived about the end of December and I was greatly puzzled what they were and whether they were good to eat or not. They came in thousands in flocks and would fly from five to as many as fifty in one covey. Some well known sportsmen came from Tientsin when I was staying at Shan-hai-kwan and they used to come back with fairly good bags, at most 10 to 15 birds. As soon as I became aware they were sand-grouse I went after them also; but found the shooting difficult and came back with about 15 to 20 birds at most. I am an old sportsman and always believe in generalship rather than in tramping after the birds, so I made up my mind to study their habits, location and time of flight and at what places they flew over. I noticed that one flight occurred at about 10 a.m. to 12 (noon) and one from 2 or 3 p.m. to 4 p.m. I left my gun at home and hired a pony, and away I went. When I came back in the evening, I told the sportsmen that I had given the birds best and had not killed any that day. One fellow swaggered away and said he had killed 22 birds. Next day I put 150 cartridges in my bag and away I went on a donkey right out of the usual shooting grounds of the Shan-kai-kwan district. I had selected my station and was well in time. At about 11 a.m. the birds came fighting over with the wind at about 80 miles an hour—tremendously fast, the fastest bird I had ever shot in all my life. I could not hit them until I found out I was not giving them enough lead. I shot at the first bird and killed the third, so fast they flew. I very soon got to kill every time, sometimes I would kill two or three at one shot, so well in line they flew. I killed on the first flight 55 birds with 60 cartridges, and these birds can carry a tremendous load of shot, their feathers being set so close. I made the acquaintance of another sportsman, a small well-to-do Chinese boy, who possessed a bow gun and shot marbles. He told me he had killed several on flight, or wounded them sufficiently to catch them. Quite a sport this kid. He greatly admired my 12 bore gun. Later in the day on the second flight I lent him my gun and he shot right into them and killed at the first shot. He said he knew a dodge. He said the birds very often dipped or chased his marbles and he suggested that he should get behind a grave about 30 or 40 yards away and shoot at them, and when they swooped down I should shoot into them. Well I knew it was not sportsman-like, but I also knew the birds might quit the district any day, so I made up my mind to go in for quantity. They dipped all in a bunch and I started a proper slaughter, and killed during the second flight 85 birds, which, with the 55 in the morning flight, made 140 birds, about as much as my steed could carry. I took the birds back with me on another two donkeys I hired from

the lad's father on the farm. I laid all these birds out tied in pairs in the billiard room and all the Tientsin sportsmen were greatly surprised. I killed more birds in one day than they had killed in one week altogether. Next morning I took 150 more cartridges and got away without the sportsmen seeing me, for I knew they were bent on finding out how I managed it. I came back that night with 195 birds, 2 hares, 2 mallard, and the tail of a cock pheasant which I captured next day. The bird got up when it was quite dark and I shot at close range and knocked two feathers out of his tail. Next day I got him none the worse for my shooting at and missing him. The third day I brought up my score to 131 birds, one partridge and a tremendous sea eagle. Altogether 446 sand-grouse in three days. I was bruised black from shooting heavy cartridges. I found Nos. 5, 4 and 2 shot the best. No. 6 the birds carried away. Nos. 4 and 5 were the best. The other sportsmen, numbering about ten, never found out how I did it. I gave my sporting boy \$3.00 for a present and he surely thought he had made a fortune. I had warned him to keep his mouth shut—him and his bow gun! I think this is surely a record bag for sand-grouse. I killed all from one place, a sunken road not far from Chin-wang-tao.

Another amusing experience I had one day in this district was when I saw some wild turkeys (bustards) right in an open field. I thought that by sneaking round to a grave I could run out fast enough to get a shot at them, for they rise very slowly. I braced myself up for the final effort and putting on full speed got within 60 yards of the birds and fired. Out popped a Chinese from under some bushes. I had shot at his stuffed decoy birds. He laughed heartily and so did I.

Right west from Tong-ho Railway Station, in towards the low-lying hills, good bags of hen pheasants can be got at from about 6 to 8 in the morning, though not a cock is to be seen anywhere. I found the latter right away in the wooded hills, back of the Hot Spring baths. Common partridges and chukar, or red-legged partridges, were plentiful in 1907-8.

Again when I was working extending the Gas Installation in 1912 I found plenty of hen pheasants in October and November in low-lying rolling hills, and the cocks as per usual in the woods in the mountains. Partridges had disappeared and I could not see or hear one. One day I bought two from a Chinese. I noticed how white the flesh was and I could not see any mark to account for the bird's death. Later I found out, by getting some Chinese sports drunk at my expense. When I was told in great secrecy and in a whisper that the Chinese had poisoned all the partridges and sold them to the ships in Chin-wang-tao. They had hollowed out the rocks on the tops of mountains, and put water in these holes. When the sun melted the water, which froze over-night, at mid-day, the partridges would drink it. When the Chinese had got the birds used to it, they would then charge it with strychnine and so kill the lot and sell them. I had vomited after eating one of the birds I bought and this accounts for it. . . .

There is quite a well wooded country inside the mountains in this district and a little farther north are some anthracite coal mines, now worked by Japanese. The coal has been heated and found not valuable—poor heating quality. It is singular that I have never killed a sand-grouse before or since I made the record bag mentioned above. It was a very severe winter. Sand-grouse will most likely be plentiful in this district this year, they only come here in very severe winters.

Yours faithfully,

F. H. WILLIAMS.

P. S.—The sand-grouse's chief food seems to be wild seeds,—the very small yellow Shiao-mi or wild canary seed. It grows on very small shrubs that look like weeds. Another seed is three cornered and the shrub smells. They also eat beetles, and grasshoppers. All these can be obtained on the sand hills and plains of this district, not far from the sea.

Peking, January 2, 1926

SHOOTING AND FISHING NOTES

PHEASANTS AT HAIEE : The following letter which was received some time ago is interesting as it confirms our observations regarding the present habits of pheasants in the low-lying country along the coasts of Kiangsu and North-eastern Chekiang and reported in our January issue.

Dear Sowerby,—I have just read the account of a shooting trip in the Haiee district in the January number of the China Journal of Science and Arts, and as I have just returned from a ten day trip up country, part of which was spent round about Haiee and Basuli, I thought you might be interested in hearing that I confirm exactly everything which appears in the printed account. I saw quite a number of pheasant, but nearly always, at any time of the day and not only early morning and evening, sitting out in the open amongst the beans. It was very seldom I got anything but an extremely long shot, they seemed on the whole very much on the alert and were up and away before one could get near them, though a few I am sure lay low in the furrows and probably let one pass by—though I did not probably pass very many as I had two dogs out most of the time. The only time I found any number of birds in cover was on wet days, of which I had two, then I put quite a lot of birds out of copeses and sword grass covered graves. I did not find the covers near Haiee any good and saw very few birds actually near Haiee but many more closer to Basuli. I only saw two woodcocks and one hare and it was not for want of working or beating : there were practically no quail. I found pheasants near Bingwoo on the Chapoo creek and on the other side and nearly always flushed birds out of any reeds I came across. I saw quite a lot of wild fowl at Bingwoo but in the still weather they came in too late and left too early to get any shooting, though I tried both morning and evening flights—I saw very few down at the Haiee Sea Wall. The number of pheasant traps was amazing as many as 5 or 6 in one small cover—I was offered a live pheasant for sale and paid \$1.00 and let him go—I hope to furnish sport another day ! My bag was a poor one, a great deal owing to bad shooting—I struck a bad patch for 3 or 4 days when I could do nothing right—what I *did* get, I shot and did not purchase out of traps as one of my 'friends' suggested ! At this time of year I am sure there is a tremendous lot of luck required to make a 'bag,' especially when there is only one gun.

Yours sincerely,

"SPORTSMAN."

THE CHINA NEW YEAR SHOOTING : The shooting during the China New Year holidays in areas within reach of Shanghai sportsmen was not as good as might have been expected. This was probably due to the fact that the early part of the season was so good that more sportsmen than usual were tempted to take the field. Especially was this the case in regard to pheasants, for all reports agree that the birds, though fairly plentiful, were excessively wild, indicating that they had been much shot at. The weather during the holidays being cold, bleak, and at times wet, may have had something to do with the poor pheasant shooting. It also must have been partially responsible for the great scarcity of woodcocks, the general dryness of the season being another contributory factor. Snipe appear to have been scarce. In only one instance that has come to our knowledge were they found in numbers. This was in the Chapu district where one sportsman put up about 20 birds from a small patch of reed-bed on the day previous to the heavy fall of snow which occurred on February 14. This snow storm gave several sportsmen a good chance at wild duck, as it brought them in from the sea early in the afternoon, the flight continuing off and on till dark. Quail were far from being as plentiful as they usually are, a fact to account for which we are entirely at a loss. Only one party appears to have enjoyed any bamboo partridge shooting.

Reviewing the whole winter's shooting we may say that the outstanding features have been the considerable increase of pheasants over previous seasons and the comparative lack of other birds.

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Following are details of bags made by parties on various houseboats.

"Bee," One gun.

Owing to a breakdown at the last moment in the arrangements for a party, the owner of this fine motor houseboat was forced to proceed on his trip alone. He first went to the Sitai Lake district in the hopes of getting snipe, but was disappointed. He next proceeded to the Haiee district, where he was just in time to take advantage of the snow storm already mentioned, piling up in two days a nice bag of wild fowl.

Bag : 29 duck and teal. (5 gadwell, 4 falcated teal, 4 Swinhoe's ducks, 6 common teal and 10 mallard)

4 pheasants
1 woodcock
2 snipe } Sitai Lake.
1 quail }

Total 37 head.

He also got a wild cat at the Sitai Lake entrance.

"Sequoia." Two guns. Huchow District.

Bag : 12 bamboo partridges
5 pheasants
5 woodcocks
2 hares
2 snipe
2 quail
1 duck

Total 29 head

"Merganser." Four guns. Huchow District.

Bag : 10 snipe
8 pheasants
8 doves
7 quail
2 teal
1 hare
1 duck (mallard)

Total 37 head

"Bessie" and "Princess Alice." Three guns. Chapu.

Bag : 8 pheasants
3 ducks (2 falcated teal, 1 mallard)
3 snipe
2 quail
2 doves
1 woodcock

Total 19 head

Several parties have reported failure in getting any shooting at all, while others had to be content with a few birds only. The Soochow district seems to have been a complete failure. The above records show very mixed bags, but little else can be expected at the China New Year, which comes at the tail end of the pheasant season and before the snipe and duck seasons are really on. Perhaps the best birds to concentrate on at this period would be wild duck, especially if the weather be favourable.

One party shooting in the Nanking district (about 20 miles to the south) found pheasants very scarce but deer plentiful. Two river deer and one muntjac were bagged.

SHOOTING AND FISHING NOTES

Another party of two guns shooting in the Ningpo district bagged 16 head of mallard and Baikal teal and one goose. They report the country there hopelessly dry.

Several sportsmen who visited the hills in the Chinkiang vicinity made a bag of one wild pig, two deer and numerous pheasants.

A PROTEST : While on the subject of shooting we wish to make a vigorous protest against a practice that is tending more and more to mar the sport that might be enjoyed in these parts. Shooting in the Chapu and Haiee districts is frequently spoilt by the habit of the children of the villages of following sportsmen in order to pick up the empty cartridge cases. No sooner does one fire one's gun than from every hut and farmstead in the vicinity the children come running to the scene of action, disturbing the game and running serious risk of getting accidentally shot themselves. The only way to combat this is for every sportsman to retain his empty shells. This will prove tiresome at times, especially to those who have ejector guns, but it will not be nearly as annoying as being continually followed by mobs of small boys and girls, to say nothing of the risk of shooting one of these youngsters. It might be suggested that shooting coolies be ordered to gather up all empties and take them back to the boats.

A POINTER'S CLEVER WORK : A particularly clever piece of work on the part of a small pointer bitch was witnessed by the party on the "Sequoia." A cock pheasant was shot and fell into a creek about 70-ft. in width. The pointer saw the bird fall and immediately dived in after it. The pheasant was only wounded and commenced to swim for the opposite bank, a race between dog and bird developing. The bird reached the bank first but had not scaled it before the dog was ashore, and, pouncing upon it, dived back into the creek and brought it to hand.

SNIFE AND MALLARD IN ONE SHOT : Another remarkable incident was when a sportsman shot at and dropped a snipe. He thought he saw another bird some distance beyond fall, and, walking on, found a mallard fluttering on the ground, apparently killed by the same charge.

A SECOND SEROW FROM TUNGLU : In January another Shanghai sportsman secured a fine female serow in the Tunglu district. Unfortunately we have been unable to obtain details regarding this, our only knowledge of the capture being derived from the Chinese taxidermist at the R.A.S. Museum, to whom the head was sent to be mounted.

FISHING

LARGE IDE FROM THE ANGLER'S CLUB POND : We have nothing to report in the matter of fishing except that some Chinese, netting the pond that used to be rented by the Shanghai Angler's Club, captured an enormous ide weighing 35 lbs. and a common carp weighing 19 lbs. We hope to have notes on fishing in our next issue in preparation for the season which begins about the middle of April.

SOCIETIES AND INSTITUTIONS

THE CHINA SOCIETY OF SCIENCE AND ARTS

LECTURE ON HEREDITY

On February 26, Professor W. M. Porterfield of St. John's University, Shanghai, delivered a highly instructive and interesting lecture before the members of the China Society of Science and Arts entitled "Heredity." The meeting was held, as usual, in the Lecture Hall of the R. A. T. building, 5 Museum Road, and was well attended. The lecturer traced human conceptions and ideas of the principle of heredity from the time of the Ancient Greeks to the present day, going into considerable detail in regard to the Mendelian Theory and Laws. The whole lecture was a very clear though necessarily somewhat lengthy exposé of a subject that is far from easy. Excellent diagrams and charts were exhibited.

PEKING INSTITUTION OF FINE ARTS

The Peking Institute of Fine Arts has announced a series of Monday afternoon lectures dealing with various phases of Chinese culture, to be held at the rooms of the Institute during February, March and April. The first of the series is a lecture on "The Temple of Heaven" by Madame Munthe, after which come three lectures on "Three Chinese Heretics," by Dr. Lucius Porter of the Yenching School of Chinese Studies, the heretics in question being Mo Ti, whom he has characterized as a "prophet of love and logic," Yang Chu, "advocate of individuality and happiness," and Wang Ch'ung, "critic of tradition and superstition."

During March and April there will be a lecture by Madame Lauru (Juliette Bredon) on "Six Great Festivals of the Chinese Year," a recital of Chinese Classical Music, including reproductions of the music used by the Manchu emperors on various ceremonial occasions, and other lectures on Chinese drama, poetry, and painting.

ROYAL ASIATIC SOCIETY

AN ASPECT OF THE TAIPIING REBELLION

Mr. John Hermann Teesdale presented a new angle on the Taiping Rebellion in the course of his lecture early in February before this Society, in which he dwelt principally on the autobiography of Chung Wang, famous as the Taiping general who achieved the major victories during this struggle.

Emphasizing the difficulty of obtaining the book referred to, the lecturer detailed the circumstances under which it was written by Li Sin-cheng, afterwards ennobled and called Chung Wang, or "Faithful Prince." The lecturer evolved a fascinating picture of the Rebellion from this autobiography which was written in prison; and he exhibited a number of relics of the time, among them the chair and catechism of Tien Wang, a map of Shanghai and vicinity prepared and annotated by General Gordon, and two woodcuts of Chung Wang. The latter's sword was also shown.

BUDDHISM IN CHINESE ART

Under this title Miss Helen B. Chapin delivered a lecture before the Society on February 25, in the course of which she described the life of Buddha, and gave the history of the advent of Buddhism to China, pointing out the latter's influence in Chinese art. It was claimed that Buddhism's first resting place in China was the Pai Ma Su, or White Horse Monastery, at Loyang, and thence it spread, with its art, throughout China. Previous to the advent of Buddhism, Chinese art might be divided into three periods, namely, (1) that of the ceremonial and sacrificial bronze vessels used in the worship of heaven and earth in the Shang, Chou and Han Dynasties, (2) that of the jade tokens of rank and commission used in pre-Han and Han periods, and (3) that of the stone slabs erected to men of note in the Han Dynasty. A new element of Indian origin came in with Buddhism. The lecture was illustrated with lantern slides of pictures and stone carvings in the Boston Institute of Fine Arts.

SOCIETIES AND INSTITUTIONS

CHINESE ENGINEERING SOCIETY

With the object of directing public attention to scientific development and to engineering in China, members of this Society gave a tiffin at the Great Eastern Hotel, Shanghai, on February 6, in honour of a number of local Chinese journalists.

First organized in the United States in 1917 by Chinese students anxious to benefit their Country by applied science, the headquarters were removed to Shanghai in 1922 and at the same time branches of the Society were established throughout China and in America and in Europe.

The membership to-day numbers over 800, of whom 130 reside here and to whom the laboratory of the Nanyang College of the University of Communications has been thrown open by Professor H. H. Ling, Principal of the College.

A campaign will be undertaken to raise a half million dollars for the Society and for the advancement of engineering.

THE NATIONAL MEDICAL ASSOCIATION

The sixth biennial conference of the National Medical Association closed on February 22, after a session of unusual interest. The achievements of the Association become yearly more and more noteworthy, and this latest conference was distinguished by a number of brilliant papers on a diversity of medical topics.

In the nature of a climax to the session came the expression of the Associations preparedness to lend its moral support to the anti-opium movement. A resolution of seven clauses, specifically defining the Association's attitude in this matter, was passed. Certain changes in the constitution of officers were also voted, notably the inclusion of the English and Chinese Editors-in-Chief in the Executive Committee and the increase of Vice-Presidents to four in number.

The officers chosen for a period of two years are President, Dr. J. H. Liu. Vice-Presidents, Drs. U. K. Koo, Holt Cheng, S. P. Chen and H. P. Chu, English Secretary Dr. C. E. Ling, Chinese Secretary, Dr. C. L. Kao, Treasurer, Dr. K. Chow, Business Manager, Dr. L. S. Woo, Editors-in-Chief, Dr. J. H. Chun (English) and Dr. C. L. Kao (Chinese), Executive Members, Drs. W. L. New, E. S. Tyau, C. V. Yui, T. K. M. Siao and D. C. Chang. Honourary membership in the Association was conferred on Dr. C. J. Davenport and Dr. J. L. Maxwell.

R. R. L. F.

EDUCATIONAL NOTES AND INTELLIGENCE

THE CHRISTIAN COLLEGE CONFERENCE

Representatives from Peking University, Shantung Christian University, Canton Christian College, Yale-in-China, Fukien Christian University, Central China University and West China Union University (Chengtu) met on February 12 at Shanghai College for the biennial conference of the China Association for Christian Higher Education organized to discuss problems common to teaching and to formulate policies for the betterment of instruction.

In the absence of the president of the Association, Dr. Harold Balme, the chair was taken for the session by Dean Francis C. M. Wei, of Central China University. The major portion of the session was devoted to meetings of sections. At the general meetings such pertinent topics as Higher Education and Cultural Contacts

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(Mr. W. B. Nance, Soochow University), The New culture Movement in China (Dean T. T. Lew, Yenching University), Synthesis of Cultures of East and West (Dean Francis C. M. Wei, Central China University), Report of Statistical Study (Mr. E. H. Cressy, East China Christian Educational Association) and The Need of Making Christian Colleges more Chinese (Mr. F. J. White, Shanghai College) were discussed.

ARE SCHOOL EXAMINATIONS A FARCE ?

Speaking at the Conference of the Science Masters' Association at King's College for Women, Kensington, Professor H. E. Armstrong disparaged the value of examinations for higher certificates, contending that a successful "pass" was no criterion of intelligence. His restrictions are worthy of note in so far as they embody the criticisms of employers of those trained in science respecting the deficiencies of science school graduates. It is nothing new to hear a manufacturer complain that the newly-graduated scientist engaged by him is not practical; and the plea for tests based on laboratory experience only is quite in line with the cry for purely vocational training. It is strange that Professor Armstrong and the other British educators who argued along the same lines as he at this conference, should fail to interpret aright the experience of other lands in which intellect is being sacrificed in favour of the eminently practical.

COMMENDABLE SHOWING OF LOCAL SCHOOL BOYS

The announcement, early in February, by the Shanghai agent of Hongkong University that 31 students in 5 local schools had qualified in the December local examinations of the University, is worthy of more than passing notice, indicating as it does the excellence of the instruction provided by the schools of the Shanghai Municipal Council. It is of further interest that the majority of successful candidates were Chinese, the remainder comprising youths of several Occidental nations.

There is a tendency to regard a Council school, be it in Shanghai or London, as inferior in point of quality of instruction to the privately endowed secondary school. This showing of the pupils of our local institutions is therefore all the more gratifying.

R. R. L. F.

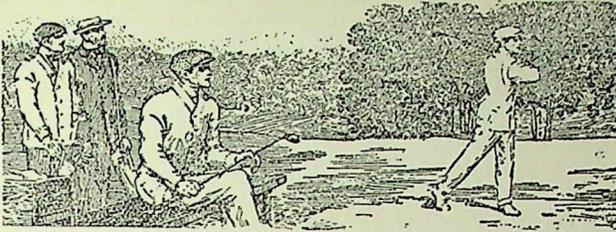
BOOKS AND PERIODICALS RECEIVED

BOOKS :

Tibet, Past and Present, by Sir Charles Bell ; Oxford University Press.
Poems to Wu, by Emma Service Lester : The Commercial Press, Ltd., Shanghai.

PERIODICALS :

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



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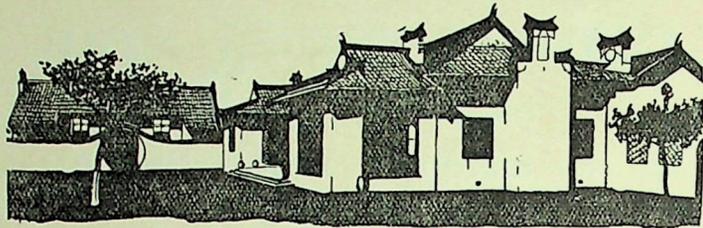
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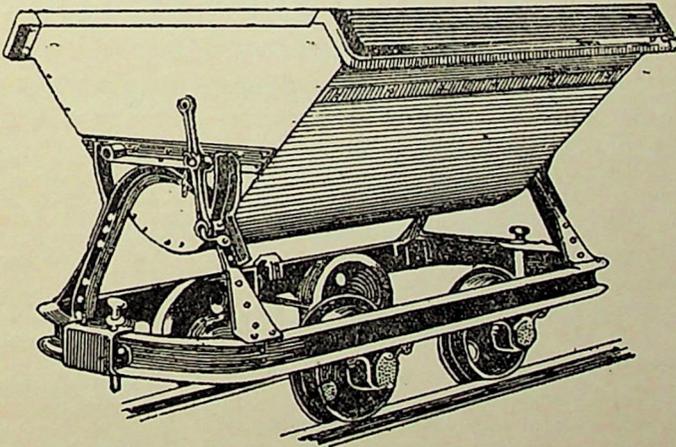
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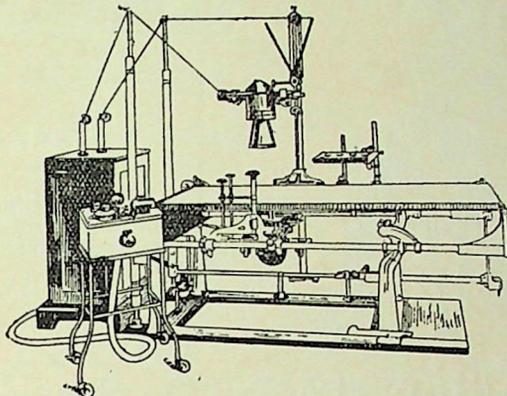
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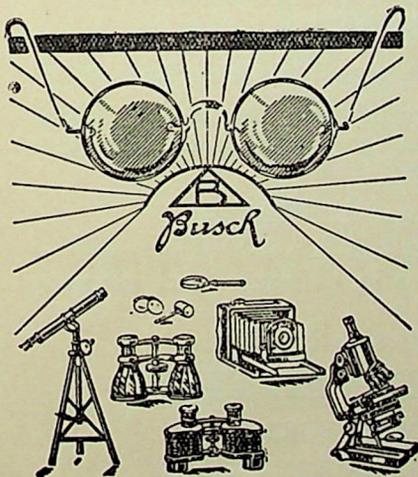
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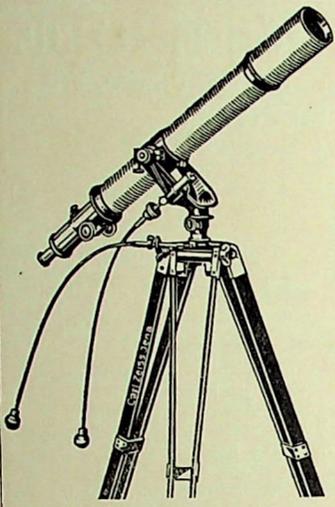
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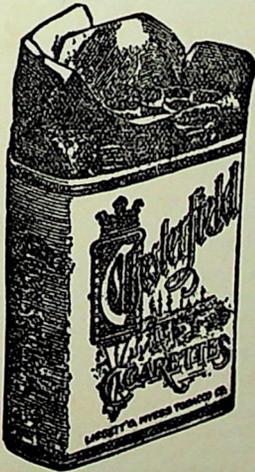
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