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ERRATA.

p.6,l.6 : Australian, not Anstralian.

p.65,l.6 : Maori, not Matri.

p.69,l.15 : 3.3 cm., not 4.4 cm.

p.71,l.36 : both, not Goth.

p.74,l.12 : Lamaists, not lamaists.

p.75,l.26 : Insert "scarcely" before "suggests".

PURPOSE AND PROGRAM

PURPOSE:

In the words of the constitution of the West China Border Research Society "The purpose of this society shall be the study of the country, peoples, customs and environment of West China, especially as they affect the non-Chinese. To this end, the Society shall promote study by the encouragement of investigation, loans of equipment, meetings, lectures, papers, the publication of a journal, and by any other means decided upon by members. The headquarters of the society shall be Chengtu.

This Journal, the Program, the Museum, and theLibrary suggest how nearly this purpose has been adhered to since the publication of the 1922-1923 Journal.

PROGRAM OF OPEN AND CLOSED MEETINGS:

An Amateur Naturalist in West China,—D. C. Graham, Suifu.
Notes on Travel and Equipment,—G. G. Helde, Chengtu.
Mount Omei Geology,—C. L. Foster, Chengtu.
The Tibetan Devil Dance,—A. G. N. Ogden, Chengtu.
The Wheel of Life,—A. J. Brace, Chengtu.
Opportunities for Study of Religions in W. China,— D. C. Graham, Suifu.
Collecting in Yunnan and Szechuan,— Joseph Rock, Washington; D. C.
Geographic Control and Human Reactions in Tibet,—J. H. Edgar, Tatsienlu.
Lolo Tribes and Territory,—J. C. Humphreys, Chengtu.

MUSEUM AND LIBRARY:

The Society's Exhibits now constitute one department of the West China Union University Museum. A worth while beginning has been made with photographs, utensils, tools, clothing, writing, etc. from the Chino-Tibetan Border. The Curator of the University Museum is the curator of the Society's exhibits.

The Society has made the beginning of a Library. This is in charge of the Librarian of the Union University, Chengtu, and is subject to the rules of the same.

Both Museum and Library are essential to the purpose, work and growth of the Society.

EXECUTIVE COMMITTEE FOR 1924-1925:

G. G. Helde, *President;*
J. Beech, *Vice-President;*
D. L. Phelps, *Treasurer;*
D. S. Dye, *Secretary, W.C.B.R.S., Chengtu, W. China.*

(To facilitate delivery of mail through the Chinese postoffice, the name of the Secretary should be used.)

GEOGRAPHIC CONTROL AND HUMAN REACTIONS IN TIBET,

J. Huston Edgar, F.R.G.S., F.R.A.I.

Tachienlu, West Szechuan.

Geographic Control, or the relation between the organic and inorganic, is to the nation what the childhood influences are to the man; and everywhere at all times must be recognized when we try to explain why a people work, think, worship, and unite socially in a given manner.

The Eskimos have, perforce, a circumscribed outlook: a limited experience and a simple philosophy. They are a coastal people living in ice houses with a blubber diet and fur wardrobe. An invisible but seemingly omnipotent Will so dictates and any defiance or non-conformity would seem at first fatal to the rebel. A marooned settlement in the Ross Dependency would be the victims of a control even more pitiless. Here penguin culture would stand between them and death; the winds and the blizzards would suggest malignant spirits; their hells would be realms of eternal night, with wastes where mundane inconveniences would be exaggerated and the heavens would be zones of everlasting day with areas suitable for penguins and with beings capable of controlling forces adversely affecting the life and comfort of the unfortunate inhabitants. Coming nearer home we may positively assert that a threat from the Tibetan navy, even if commanded by Swiss or Bolivian admirals, would not perturb the League of Nations, and we can understand how H. E. Chao's vision of rice fields on the Tibetan plateaux did not engender unusual enthusiasm in the hearts of Chinese or Tibetans. In the two former illustrations we find an adequate explanation in the operations of Earth and Sky and Seas; and similarly in Tibet types, customs, and religions must be directly and indirectly related the Geographical peculiarities of the land.

But man is no pithless slave. He will never, indefinitely, submit to tyranny of any kind without putting forth an effort to free himself. And the time will surely come when the most degraded savage will suspect that the Earth and Seas and Skies are not omnipotent, or their will final and unalterable. Sooner or later he will set himself in opposition to Nature and by perseverance and ingenuity will, eventually, bring her in countless ways into conformity with his will, and day by day enslave his once triumphant Despot. The Eskimo by the use of fire, boats, weapons, and unending stores of ice has

vastly improved a rather hopeless condition; and with America and Europe not far away, a more pronounced amelioration might well be taken for granted. Even in Coat's Land we could imagine a similar result. Fire would be produced somehow; penguins would supply men with fuel; houses would be built with ice or shelters appropriated; a social organization would evolve, and man would make gods and anti-gods in his own image. Naturally the civilization would be antarctic. But if ships came from Australia, and the inhabitants were able to exploit mineral or other resources the indirect participation in a new and undreamt-of control would enable them to limit the power of the antarctic tyrant and relegate penguins to a position of importance similar to kangaroos.

It is hoped that the relation of this introduction to the different sections of the discussion which follow will be apparent; and that the writer will be enabled to show how in the case of Tibet a tyrannical will moulded the embryo and infancy of a nation, and seemed omniptent and final until the perseverance and wisdom of manhood began its work of curbing and redirecting the threatening forces.

I. The Land.

Tibet is one of the most amazing features on the planet and probably apart from areas in the Frigid Zones the most unapproachable. Its rugged frontiers frown over the plains of China, India and Turkestan; and the interior plateaux are crossed and criss-crossed by interminable spurs always near, or above, a very high snowline. As a consequence, at least nine of Asia's mighty rivers have their springs in the unknown centre, and on their ways to distant oceans have deepened or in other ways modified the irregularities of an ancient crust into the amazing gorges which now confine the waters of these gigantic mill-races. One result is that in some places an altitude of 15,000 feet may separate the highest peak from the lowest flat, a fact which suggests climatic changes equivalent to those experienced between the poles and the 24th parallel of latitude.

Naturally, we would not look for the human birthplace in such a land, but would be justified in assuming that his advent and domicile there was the outcome of some gigantic mistake, astounding accident or dire necessity. A glance at the histories of China will emphasize this isolation and suggest the reason. About 484 B.C. Tibet was unknown to Herodotus, and Sze Ma Chien writing about the time Ceasar landed in England, treats the region as an inconvenient terra incognita. Chang Ch'ien, one of his heroes, it is true, mentions that he saw the products of Szechwan in the markets of Bactria but they had come from Yunnan by a smuggler's track to India, and later when this remarkable man got permission to open up direct routes between Szechwan and the Oxus, repeated expeditions failed disasterously; and later, embassies and armies reached Transoxania far to the north of Tibet. Indeed, Sze Ma Ch'ien makes mention of a

region south of a line from Lob Nor to the great wall as "Ch'iang country closed to China." Seven hundred years later we come to an inportant period in Tibetan history. A Chinese princess was sent to the Lhasa court. But until that event Tibet had not permitted communications with China. If any further proof was needed we would point to the fact that the routes of famous pilgrims to India either kept clear of all Tibetan territory or only touched its most western fringe. And even after 640 A.D. the pilgrims continued to visit India by the more circuitous routes. The Polos, also, were no exception to this Law of the Land, although about 1400 A.D. we must assume roads from China to Lhasa, the main official highway from Tatsienlu to the capital via Batang and Chamdo was only surveyed at the beginning of the 18th century.

We must infer from the above historical items that Tibet was inhabited from the very earliest times. Tradition, indeed, claims that the Emperor Shuen drove the San Wei into Tibetan country about 2,225 B.C.; and we are told that this land at a later period was the home of all the Ch'iang and the Yong. About 2000 years from the days of Shuen it seems to have been well populated for we hear of fugitives from China multiplying there, and finally setting up a kingdom among the indigenous Chi'ang "who flocked" to the fuling Prince" like the masses to a market". About the beginning of our era we hear of similar migrations from India, and four hundred years later of another one from China. In the two latter cases, as in the former, we read of the submission of hordes of natives to the conquerors. This large indigenous population is confirmed by Sze Ma Ch'ien, and the records of the T'ang dynasty, more than once; mention armies of many hundreds of thousands and threatening hordes harried the western frontiers of China for centuries. Morever it is clear that China was forced to make treaties, and endure marriage alliances with her virile and uncompromising neighbours.

The same references indicate that Tibet was a natural fortress, and fugitives from many lands were constantly taking advantage of the privileges it offered. It became the home of the non-comformist and the outcast, who obviously would not encourage the usual racial intercommunications. This attitude, however, would not prohibit a non-fugitive element, which forced by dire necessity would filter in along the lines of least resistance. From the north, pastoral communities for various reasons would trek south over low passes to new grazing grounds; and the deep warm valleys would offer similar inducements for remnants of races in Yunnan.

The earlier migrations we assume had conformed to their environment with its severity scarcely mitigated by the kindly controls of the plains around them and of the later immigrants and sojourners the same relentless terms were demanded. No doubt new, ideas and customs as different as the racial types were introduced, but only those useful and suitable would survive; while many local ones at first objectionable, would demand attention, acceptance, and applic-

ation. The local control would setttle such matters quickly enough. We are forced, also, to mention other probabilities of interest to anthropologists. Immigrants to such lands would consist mainly of males, and the scarcity of females would suggest polyandry. An alternative would be the wholesale intermarrying with women of the older stocks already moulded into a type consistent with the natural controls. In this way the different elements would be swallowed up like so many streamlets in the main river. Again just as climates demand certain clearly defined occupations, altitudes insist upon lungs, hearts, and limbs of a fixed type. Any immigrant or the offspring of the same, not suitable in any way would labour under a disadvantage or cease to exist. This simply means that in a few milleniums a type eminently suited to very unusual conditions would exist on the Roof of the World, and because assailants would always be the products of totally different controls, the Tibetan would be in no great danger of conquest or absorption.

For the sake of clearness we way sum up the situation in Tibet as follows: The Tibetan first reached the land as a fugitive, and the strong alone remained to possess and exploit it. It was a wild land, isolated, difficult to approach and of limited productivity; and the Tibetan's non-conforming ancestry made intercommunications fitful and precarious. This simply meant that being of necessity a slave to the geographic control, he developed a character as wild and unique as the land. Inside his fortress he found enough to wear, ample to drink and something to eat; but his country denied him education. culture, a wide vision, and the benefits of controls different from his own. He was in a back-wash. Real progress seemed impossible. But he did progress, and the secret will be explained as we proceed.

II. The Hierarchy.

In this section we shall examine the means employed which partially, at least, modified the tyranny of the Tibetan control. Nature seemed to say: "Here are my terms, conform or stay away. Otherwise you die." This decree of course applied to customs, religions, and politics as well as to human types.

What this result without modification would have been might be inferred from the study of a former mission servant Patr'ng by name. The word means "Piggy", and the bearer is like a serious mistake in chronology. Ordinary arrested development, or any other pathological condition, would not explain him; but geographical controls would undoubtedly. His name might be analagous to our "Kid", "Lamb" or "Sonny". But it suggests no surname, or anything equivalent to our Christian appendages. Change was as necessary to him as migrations are to certain birds. The simplest act of calculation puzzled him and "payday" became a profound nuisance. Indeed, it was necessary to have a third person near to assure him that he was not being duped. He seemed also unable to connect a given

sum of money with needs a year hence. Finally, $20. was accumulated and the dominating impression seemed to be that he was independent for life. The result was that his manner became condescending and his services of indifferent value. Dismissal followed, but neither my displeasure nor his lack of employment gave him any anxiety. Altogether he was about as hopeless as our Australian native, and we may expect the product as the outcome of unmodified Tibetan control. So with Pat'rng before us as an arc of the Tibetan physiography, we should expect to find a social organization there very similar to that connoting South Sea Island Savages; a welter of internecine wars, a multiplicity of dialects, and little or no racial solidarity.

But judging Tibest by its social organization alone we must dismiss Patr'ng as an anachronism and admit that the Tibetans are a highly civilised people. In Australia a social organization with human units limited to 150 is the rule; and we know of no power capable of uniting a score of such hordes for concerted action. But in Tibet something has federated myriads of clans into a nation of five or six millions, and given them a solidarity which has defied a cordon of nations for 1,500 years. It requires no apology then to state that we must examine the causes behind such a miracle with respect. Let it be granted that ages ago, warriors, statesmen from China and India formed nations from the elements at hand, but we doubt if the present extent was ever imagined or a permanent unifying principle suggested as possible. A reversion to the isolated clan, a diversity of dialects, endogamous marriages, and tribal wars would seem an almost certain and unavoidable reaction. But today this is not so. Men have been drawn from their isolation over formidable barriers and are kept united over an area of one million square miles.

The cause of this unexpected solidarity is explained in only one way: the government is a theocracy and its agents are priests and magicians who come from the huts and castles of the Tibetan land. In many ways this amazing system reminds one of Old Testament Judaism; again it might represent a heathen counterpart of the Chiliastic Christocracy; or perhaps a government in which a Manicheistic Paraclete of Light, wisdom and love works for the salvation of an elect nation. But whether this resemblance is real or imaginary matters little or nothing.

The Tibetan system of government is the result of Fear; the child of a pitiless control which dominates the Roof of the World; and the progress which will so often demand our admiration is undoubtedly owing to a valiant effort to conquer the men, the Nature, the Demons, and the Karma which make life a nightmare. That the Tibetan has been able to conquer so much and turn even his mistakes to advantage is an eloquent testimony to his foresight and adaptability.

In China we have a perfect field for expressing the patriarchial idea. The vast plains made the federation of families, clans, and states a reasonable dream, and a united universe a possible consum-

mation. But in Tibet a horizon of limited extent, impassable mountain barriers, and unproductive lands were in favour of clan isolation and misanthropic dispositions. But what the land could not promise the mind could suggest. So in due time we find their highest conceptions of what was most necessary for this world and the next credited to one who was to be their Ruler and their God. And to obviate all possibility of mistakes his agents were to be a priesthood drawn from all the families of the Tibetan Earth.

Many nations have suggested and practised useful and startling forms of government, but surely a working hypothesis suggested by "Fratriarchy" and "Theocracy" should be as effective as it is unique! Naturally, in such a system, the God, who may be born in the poorest family on the edge of the Tibetan world, would be expected to conform to the peoples' idea of highest Righteousness and exhibit the most useful virtues. He would be the Incarnation of Love, Pure Light, and Perfect Wisdom. Love, He would deliver them from purgatorial fires and ice packs; Pure Light, He would illumine the gross darkness; and perfect in wisdom, He would guide the ignorant into all Truth. But above all, He alone, would know how to elude the dogging Karma and cancel Being, and lead them, finally, to a state where "ache of the birth, ache of the helpless years, ache of hot youth, and ache of manhood's prime, ache of the chill grey years and choking death" will be endured no more for ever. In other words men were to be saved from an eternity of suffering in the worst world possible.

But the idea embodied in what we call a "heathen Theocracy" could not alone unite Tibet as it is today. Something that might be suggested in the term "Fratriarchy" is necessary. To millions the Incarnate God of Love might mean little more than a pleasing abstraction, but to everyone the lama is, like Nietzche's superman, midway between the gods and humanity. Moreover, he is a brother.

The Tibetan has totally misunderstood the operations of nature and is consequently a slave to a million fears. Tibet is a cold, hard land. Its "time" is like an avalanche thundering on. Many, adepts in the art of dodging, may for a season escape, but who can defy its wrath and live? High altitudes often produce startling results which react on the mind. Indeed, at 15,000 feet we may suspect a normality different from that at sea level. In any case, most of us can testify that barren peaks and frozen wastes excite unusual fears; and a dogging presentiment of evil is not uncommon. Again storms, low temperatures, avalanches, earthquakes, fatal diseases, widespread brigandage, heartless neighbours, and callous officials make "living" and "misery" synonomous terms. Naturally, the spirit world is the counterpart of this, and in a large measure the cause of the Tibetan's suffering now, and with ample in reserve for the future. Hence the discovery of any power that could deal with the spiteful spirits and callous humanity would be of prime importance.

This is exactly what the lama claims to be his special function. Without the magic of Lamaism and political power of the hierocracy the Tibetan is the tool of a capricious spirit world! Here is a field which callous officials may pitilessly exploit, for it seems to the Tibetan as if there is no emancipation apart from Lamaism. But we have not yet mentioned the immediate cause.

It has been pointed out that the Incarnation of the god of love and pure Light might have produced no practical results; and it is possible that the lama may have been as negative as the Buddhist or Taoist priest in China. How then did a hazy hypothesis became a working one of incalculable value? How were the mercurial units of an enormous area amalgamated into a body as permanent as the hills and as omnipotent as the natural forces? The answer seems to be: By the magnetism of a Holy City,—the Capital of the God, the God, the Training Camp of the Clergy, and the rendezvous of adoring pilgrims from north, south, east and west of the Buddhist world. In ancient days Lhasa was chosen as a government centre because of its distance from Chinese enemies. This was sound policy for fugitives but it might have worked against Lamaistic aspirations. By adroit manipulation, however, the danger was obviated by charging it with the Lama magnet until like iron shavings the human materials were drawn into its field, and the whole welded into mass that could defy the fury of man and nature. Indeed, Lhasa became a Heaven on earth: the cynosure of millions of eyes. It was, and is, the centre of all Tibetan humanity could imagine—arts, wealth and beauty; joy and mystery; knowledge, salvation, justice, and authority. Here was the abode of the god par excellence, and here, too, were rich colleges which gave dignity to the quasi-divine units of the "Fratriarchy". But this is not all.

Because it was the ideal settlement in a land where towns in the strict sense were unknown, the graduates from its seminaries, could, on their return to distant homes, think of nothing better than giving to their Homeland a miniature Lhasa bearing the same relation to the local centres as Lhasa did to Tibet as a whole. Hence the lamaseries, reflecting the Lhasa culture, and imitating its worship, and copying its trade methods, and inaugurating pilgrimages, pageants of pleasure, and opportunities for instruction, became half-way houses between the nomad and the Dalai god. A Holy City is a necessary adjunct to a living god, but one suspects that these miniatures are the chief means by which the Tibetan unification is effected and retained. Because they directly propagated the Lhasa ideals, and put the priest in touch with the people, and made it pleasant, profitable and necessary for all to keep in touch with them, the masses were drawn out of the back-washes into the main streams that went to, and came from, the Tibetan "Jerusalem." The great reaction of Lamaism has been discussed at some length but it will still be necessary to mention specifically some of the more important minor ones

The lamas claim to be mediators between men and the spirit world. Here the geographical influence is very evident. In a land like Tibet once nature is misunderstood interesting developments may be expected. The Tibetan there has decided to believe that everything is either alive or possessed; and that all that happens is owing to the activity of some unseen Personality. It is the function of the lama to find the cause and control, outwit or placate the Agent. The result is that prayers, charms and talismans of all kinds abound everywhere; and booming drums, wailing flutes, and incessant mutterings never cease. The Tibetan now believes with all his soul that his present safety and future salvation depend on magic. Hence, we may hopefully speculate on the fate of lamaism when scienific facts replace the magical formulae.

The celibacy of the lamas is also a result of geographic control. In a land like Tibet with poor soil, limited productivity, imperfect communications, and neighbours with a different control, the risk of overpopulation was a serious one. What could the Tibetans do with the surplus man and woman? Expansion by conquest was a solution in some lands but not in Tibet. Brigandage was never seriously suggested, and unsuspected opportunities for further exploitation seemed out of the question. But lamaism unable to conquer compromised. She decided to keep the population stationary; and while intensifying the concentration in unproductive areas not only relieved the congestion in the productive ones, but gave an opportunity for a class to provide and exploit new opportunities. And free from the duty of procreation, and ousted from competition on the farm and steppe, the lama began to look upon Trade as part of his heritage; and under the guise of a religious retreat the lamasery was to become the town and market where necessities and luxuries from afar would be popularised and bartered for the products of the land and local monopolies.—

A people for generations under the Tibetan skies would develop a temperament which would yearn for an expression of an unusual kind. But this nature seemed to disallow. Lamaism, however, brought out what was churning within it as unmistakeable signs of genius on wood, stone, paper, and other materials emphatically proclaim. Just imagine for a moment, also the effect of the arresting beauty of temple art on men and women who roam through mountain scrub-bursting with something they cannot explain; or squat in sooty tents saturated with the pungent smell of cow byres and yak manure fires dreaming of Devas in mansions on the Mount Sumeru. The ritual and worship, too, may be an imitation of Nature: nature less elusive, composite, and under control. The great halls at times give the impression of forests alive with the denizens of a shadowy spirit-world; and the music suggests sighing winds, raging storms, and the mystery of sight and sound in high altitudes. Indeed if you would know the rattling fury of Celestial conflcts; or the malevolence of skulking foes in spiritual places; or the pertinacity of uncanny

presentiments of evil; or the indescribable joy of nothingness in Nirvana, an approximation of one and all may more nearly be found in lamaseries in Tibet than any other place. "Nonsense". I hear someone say. "Well, have it your way; but lamasaries have more in them than the Yidam (Demon kind) groups!"

The lama in the interests of an urgent demand has given the Tibetan a rampant and sinister spirit world. His models are either drawn direct from, or modified by the Tibetan land. In the following we cannot fail to detect a geographic influence: The ideas of Reincarnation and the Transmigration of Souls are very common. There are many who claim to remember experiences in former lives. We may doubt, but the Tibetan does not. No one would dream of asking the question; If we die shall we live again? Man has lived and must live. He cannot die. Nature forbids any other conclusion. The clear-cut seasons come and go. The trees die in winter and live in summer and animals surely hibernate. Death then is only a suspension of animation or change of abode; it is no more final in men than in larches or marmots in winter. Now the lama is the seer who is an authority on this mysterious subject and he exploits his opportunities to the fullest extent.

Again, their gods and anti-gods are the good and bad, the happy and unhappy with abodes in varying counterparts in an imaginary world:—Tibetans in surroundings of exaggerated bliss or woe. The joys of the heavens, however, do not seem to be final or perfect, at least conflicts between the gods and anti-gods are assumed. And we may suspect the reason. The rainbow tinted clouds may suggest the Celestial mansions; and the tumultuous storms, with flashing lightening and rattling thunder the results of the savage sorties in the Heavenlies. In the hells we have sure signs of geographic control. Confinement in atrocious realms where the cold in so intense that all is a dead silence except for blizzards whistling through the teeth of the frozen victims. If the Tibetan was unwise, or an educated Chinese, he would, no doubt, claim for his race the discovery of temperatures capable of liquifying hydrogen. But the lama artist only endeavors to show you by a painting how cold it is; and by implication how wicked a Tibetan may become; and how disagreeable his country has always been.

But the heavens and the hells are not final. Nirvana is. What of it? Lamaism did not invent it but adopted it readily and nurtured it carefully. A pitiless climate, a rapacious government and a malevolent spirit-world would hardly induce the Tibetan to view eternal existence as a blessing. Indeed a suggestion that eternity might end sometime would be eagerly entertained. And this is what the Nirvana salvation implies. At times everything speaks of this mysterious and elusive state. The heavens are so vast so inspiring, so calm, so mystifying! The earth, too, with its expanses of enthralling green, brilliant flowers, and fragrant shrubs are like sweet opiates to the senses; and the towering peaks of virgin snow and crystal ice

suggest the stern purity of endless Death. Somehow, it is always pleasant to rest on the soft sward and allow one's self to be immersed in the welling silence of a scented atmosphere as soft as velvet and as clear as glass. And it is no uncommon experience to feel a dimming of the sense of time and space, and a hazy consciousness of a gradual uniting of all that is material in man and nature with the Nirvana of golden ether around you. That is; the negation of all that is material seems possible, and the absoprtion into one great Impersonality partakes of the nature of an experience being realised. Friends deny the writer the privilege of calling himself a mystic, but the Tibetan heavens on such occasions, like the angel at the waters of Bethesda, disturb the wells that should contain mysticism! "The heavens", you tell the Tibetan, "are nothing but intangible space." But he will point out that they are all-knowing, all-seeing, all-covering, all-fertilising: the great ocean to which all reality is reverting. And man's entire absorption into this great non-Existent may be behind the Tibetan's idea of final Salvation.

III. The Customs.

It is thought that thousands of years of Tibetan history have weeded out harmful customs from the land. Naturally those that remain would be clear-cut and characteristic. Many of them would not appeal to us because our needs and means of conquering Nature are different. However progressive we might be. the Tibetan would of necessity remain conservative, because any interference with the established equilibrium might be fatal. *He* could not afford to experiment or be carried away with suggested innovations. They might adversely affect clan, class and principality: hence, flirtation along such lines would be dangerously immoral. Perhaps this explains his attitude towards Christianity. It might overthrow Lamaism, and that would wreck Tibetan solidarity. It would be against polyandry, and would offer no solution of the over-population menace. He doubts if Christianity would admit a good principle in Lamaism, and even if it did could Christianity apply it as beneficially as Buddhism? But these are objections that may not be controverted here.

Our aim will be to follow the Tibetan in his every-day life and show how he is a child of necessity. An iron will has been and is forcing him along inevitable lines until he has courage to accept new ideals, and the benefits of new controls. In other words we shall study the shackles that remain in spite of Lamaism. Some occupations and their demands leave us in no doubt about the urge behind them, operating directly or indirectly. The Tibetan is officialy a herdsman, farmer, or a trader. The former two are a faithful comment on mountain geography; the latter on its child, Lamaism. In Tibet most of the lands although far above the cereal limit are covered with thick swards of nourishing grass suitable for stock.

This, no doubt, had some bearing on the widespread domestication of the yak, a survival, probably from prehistoric times, which has become the dominating factor in the Tibetan's choice of an occupation and habits generally. The food quest drove the yak up and down through regions of differing temperatures and over great distances. Diet, clothing, and personal peculiarities followed inevitably. The Tibetan diet especially is interesting. It consists of barley meal, butter and tea. Small in bulk, it is easily prepared with mountain scrub or yak manure and few utensils. Salt or soda is used with the tea, but a more nourishing, mildly stimulating, and palatable mixture could hardly be imagined on the bleak plateaux and unproductive steppes. The leaves of rose bushes and certain mountain shrubs may replace the tea, as this article probably took the place of the wine and beer of an earlier age. In some regions the water is boiled in wooden churns by the means of red hot stones, a hint that iron is not as necessary as some might think. Perhaps also the Tibetan preference for raw meat may be explained as a former absence of suitable fuel. But the nomadic regime has other peculiarities.

The Tibetan layman is lavishly ornamented, but has little variety of clothing for his body, or no great amount of ornamentation on his tent or dwelling. But the lamasery is ablaze with gildings, paintings and decorating of all kinds while their bodies remain unadorned. It is enough to state that the Lama is not now a nomad. The ordinary dress of the Tibetan is made from skins and the pattern is so simple that the garment may be wrapped around him or discarded partially or completely as suddenly as the changes of climate demand. Again; the explanation is at hand: cloth is scarce and unsuitable for what is practically a transition from one into many latitudes during the day. Travellers insinuate that he is first cousin to the wolverine; others associate with him a permanent suggestion of smoked hams and asafoetida. Certainly, no sane person would assert that cleanliness is, with him, next to godliness. But he is not free by the law of circumstances. Enormous mops of uncombed hair are not only a culture ground for vermin but an excellent protection against inclement weather. His skin robes do not admit of cleansing, but they may last for a generation. Up there, also, the burning sun and the arctic gales demand some protection for the skin; and abstention from washing and additions of soot and grease are efficient remedies for a sensitive face. Such peculiarities have been associated with yak culture but both the brigand and trader would, in a general way show a similar reaction. The Tibetan is never a true farmer, but the need of cereals, some appreciation of vegetables, prohibitive transport, and unsympathetic neighbours have forced him to cultivate small areas in the main and subsidiary valleys. But we only mention this in passing.

Brigandage and trade require a more detailed treatment. Both the above accord with his migratory instincts fostered by his dependence on the yak. In Tibet brigandage resembles a legitimate pro-

fession and must be associated with Tibetan civilisation. Directly and indirectly it has a geographic origin. Among the causes apart from forced migrations, may be mentioned atavism; a population out of proportion to the sources of supply; clan isolation and rivalry, alien suzerainty; insufficient central civil authority; and the ease with which loot may be removed to inaccessible and uncontrolled regions. And when we find a covert, if not an overt, lama sanction for it in many places, it becomes necessary for us, as missionaries, when dealing with Tibetans, to stress the Eighth Commandment as being specially applicable to Tibetans on the "Roof". In case my remarks may be taken as a joke it is only necessary to say that the Golo robbers are not without the consolations of religion; and the large Litang lamasery was suspected of being the patron of brigands. This, if true, raises an interesting question. It is thought that the Lhasa training enables the students to develop the local resources. If so, it would be interesting to learn how Dr. Ts'e Ring, Professor of the Theory and Practice of Brigandage in Lhasa deals with the subject! The frequency of such habits would naturally produce a suspicious people, and a number of customs calculated to protect them against strangers. So swords and firearms become part of the Tibetans' dress. The salutation is "Peace", and both hands are spread out to show that no weapons are secreted; and simulated asphyxiation suggests that the visitor is at the mercy of the chief or the settlement. The tents are in the open and not easy to surprise, while the houses, by the arrangement of stairs and doors, leave an intruder at a dangerous disadvantage. Then ferocious dogs guard the approaches and when loose are capable of putting a band of horsemen to flight, or of misdirecting the aim of their guns. One night we were camped in a village ruined by an earthquake, and where fierce bands of Golos were operating. About midnight dogs began an attack with an amazing vigor. At first near our tent, we were gratified to hear the hubbub receding down the valley and finally ceasing altogether. Rifle shots gave us a clue and next morning we learned that our suspicions were correct. The dogs had saved us from brigands who had intended to cut our tent ropes and sabre us while we floundered.

The Tibetan now is a first-class trader. Why? The migratory nature had already been created. But lamaism saw the necessity as well as the possibility of making himself more than ever indispensable to conservative laymen. He soon took himself very seriously and by creating at suitable centres, industries and monopolies dominated the innovations connected with tnade. Indeed, the lamaseries became busy towns mutually interlaced like a grand piece of chain work. A few points alone will be emphaized here. Trade gave a new value to transport animals. Horses, mules were needed to carry men and often merchandise over difficult mountains to and from centres widely separated. But the yak, an animal impervious to cold, altitudes and ill-treatment, is the "wind jammer" of the steppes! Slow it cer-

tainly is, but infallible as regards destination. Moreover, even when dead its duties as a trade agent are not at an end. The crossing of great rivers is a stern necessity. Their size, the currents, and approaches make bridges and boats of wood unpopular. But the light yak hide coracle surmounts the difficulties admirably. When water journeys are made they are on mountain rivers full of rapids bends, and snags, with abundance of gorges, canons and jungle-clad banks. Manifestly, such waterways require no ordinary type of boat. But the coracle, really a light framework, skin-clad, is as buoyant as a cork. Circular in shape it can manipulate crags or corners, and avoids swirls and currents with the least effort and ordinary skill. And above all else it is so light that it can be *carried* back to the starting point.

The home of the Tibetan may be a tent or a house. The latter is flat roofed in apparent defiance of geographic requirements. A land of snow would naturally suggest the tent shaped roof, as the other would retain the snow, and divert the rain in wrong directions. But the reason of the Tibetans perversity is simple: he probably carried his architectural plans from a desert home and the small annual precipitation of the steppe made a change unnecessary. Again, apart from never looking upon the house as absolutely necessary, the value of the flat roof to the Tibetan-fort, threshing floor, and recreation ground,—and the difficulty of procuring lumber, would off-set such inconveniences as leaks in summer and snow accumulations in winter.

The marriage customs of Tibet, if not a mass of contradictions, are very involved. As a consequence man is able to acquire property in women and children in ways that seem to us peculiar. The best types of marriages are exogamous and patri-local: but the geographic conditions demand that they approximate closely to the requirements of Endogamy. In the case of temporary marriages where Tibetan and Chinese strangers from afar, unaccompanied by their women, avail themselves of the privileges, the unions may be matri-local and at times matri-lineal. A more intensified and general application of such unions may be hinted at in the absence of family names in Tibet. The isolation of the settlement, also, and the geographical difficulties against its extension, making it more like a family, has produced a tendency for men to be known by the clan name. Tibetan marriage is, as usual, closely related to its physiography. The ideal Chinese society begins with the family and ends with a united Universe. The wide plains and circumscribing vault of heaven suggest the ideal, and exogamous marriages are powerful agents in expressing it. But in Tibet the small and isolated clans and imperfect communications would work against federation. And the evils of such conditions would be increased by the necessity of what is, in effect, endogemous marriages. Hardly anything could so interfere with human federation than this simple principle. Exogamy means that girls go out from their clans to others, and girls from afar become the wives of their

brothers. In this way prejudice, insularity, diverse dialects, suspicion, and ill-will are removed and the family ideal becomes a reality. In Tibet we insist earth and skies are against such a consummation. Again, in regions where Exogamy is the rule the girl's character is of great importance because in an alien clan moral defects detract from her value seriously. Moreover, once she is adopted, any mistake will put her at the mercy of unsympathetic strangers.

But endogamy is by no means so exacting. In such cases she is amongst friends and a standard different from the exogamous one is possible; and where the marriages are matri-local the unfortunate man must in some way conform to the alien standard. Polyandry which requires a few remarks is usually patri-local, and patri-lineal in the fraternal type. But where it is associated with temporary marriages it may be matri-lineal. It is difficult to procure reliable information about polyandry but safe to say that one woman may be legally married to several men concurrently or consecutively. But just now an explanation of it alone interests us. Is it a relic of group unions? Or does it not suggest marriage by capture and the common share in the loot by the capturing group? Infanticide does not explain it nor does the excess of female births. It is well again to remember that in the days of the early migrations more men would arrive than women, and during the periods of acclimatisation more would arrive at maturity. This state of affairs would give a new value to human females, and suggest such accommodations as polyandry and temporary marriages. And now apart from its being a check on overpopulation, it curbs the individualistic spirit which would tend to split up the grazing grounds into sections too small to be of use. It also sets free a large number of women for the streams of quasi-migratory Tibetan traders, the Chinese who for various causes reside in Tibetan countries; and the many lamas who are able to ignore the rules of their order. There is no necessity to explain further how polyandry has its root in geographic surroundings.

It would be interesting to study fully the physical and mental development of the Tibetan. But this is impossible now. Moreover, it is unnecessary, because once we understand the altitude and the climate we are forced to assume strong bodies with lungs, hearts, limbs, and other organs suitable to unusual conditions. Again they could hardly be other than conservative, superstitious, very clannish, and wanderers over wide areas. But we find them both the most servile as well as the boldest of men. The hard and dangerous life explains the latter; and the government, patriarchial in form, and for centuries the victim of Chinese tyranny, has relegated authority to the few, and suggested undignified servility in the masses as the only safeguard against extermination. But their political independence today; the wide-spread brigandage; and ordinary lives full of risk and danger show that the servility is simply a means to an end. The reverence for, and dread of, the spirit world, lamas,

and operations of nature, is explained by the fact that the Unseen world is the counterpart of the seen; and gods and men must be placated, hoodwinked, and exploited in the same way. But let the prince, the lama or the god go beyond a certain limit and he will find great forces underneath the crust of servility which may rend the earth and the heavens.

The Tibetan woman is perhaps even more than the man, a distinct geographical product. The same may be her position in society. Travellers generally incline to the belief that she is relatively, if not absolutely, stronger than the man. Psychologically she seems to resemble the male with some physical approximations as well. To explain what we suspect is not difficult. She is the manager and working partner of the Tibetan's affairs. Among the nomads she is the mistress of the yak, and day and night mixes unblushingly with coarse men, and is often closely associated with unwomanly details of stock-rearing. Indeed, she has more than her share in much that is morally unhealthy. Consequently modesty, female reserve, and delicacy in sex matters, as a rule, suffer. As a result, also, she readily condones polyandry, temporary marriages, sexual hospitality, and frequent suggestions of promiscuity. Her physical development seems the result of ages of geographical elimination, for the climate, altitudes, and the necessity of her braving their severities would make it impossible for types below a certain standard to survive in, and profit by, such unusual conditions. And that standard would be one more frequently associated with the male sex. But is she, as some think, on the average stronger than the man? We dismiss questions of a very late puberty and early menopause as not proved and of doubtful value in the investigation; but there seem to be reasons for answering the question in the affirmative. Climate and altitudes have no regard for sex; and as woman is not only in the same struggle as man, but really required to endure more labour and exposure, the fact of her survival seems to confirm our suspicions. Beyond this point we are at sea without a chart; but if she could in any way pass on these acquired characters to her female offspring only, the fixture of a female type that could survive in, and profit by, an environment fatal to the Tibetan male would be assured. But we must leave her to the mercy of trained biologists of the future who may be able to gauge the effects of functions of the pituitary gland, matriarchal anomalies, migration difficulties, endogamous dynamics, and controls not suspected by scientists now.

The Burial customs of Tibet may be explained by Tibetans differently, and the true meaning missed or denied. In a general way we should not expect coffins in a treeless land; and nomads and roving clans would not specialise in cemeteries. Hence, cremation and the feeding of the dead to fish and vultures would seem to accord with local requirements. The former practice, too, might suggest a departure to the illimitable vault of heaven in chariots of flame and

clouds of smoke, and a union with the Azure Blue. But feeding remains to vultures is also common. And the vultures live in the pure sky high above filth and molestation; and follow the herds and caravans faithfully. In settled communities, where vultures are scarce, and the land valuable, fish would perform the necessary duties.

IV. The Future.

This section will deal with the future of Tibet. Has the Tibetan the ability, and his land the means to conquer more completely than he has done in the past? And will the great waves of American and European altruism react beneficially or otherwise? More simply stated;—Can Tibet use the results of other civilisations to direct the forces of earth and skies in her favour? For instance, will Science replace Magic?

We think her future is not to be one of unfair exploitation forever, because there is a World Conscience, scientific progress, and man shows no signs of becoming vegetarian. The prevailing view at present looks upon the earth as the Lord's and mandates have been given to Tribes and Peoples to develop it for man. The nation with a dog-in-the-manger spirit is now out of date. No land may shut her doors and live for herself. Men must free themselves from fortresses and backwashes. They must profit by other controls and be guided by customs and laws which have met with universal approval. No nation will be free to remain backward, and Tibet will not be neglected. For centuries an unapproachable land, her people, the human survivals of desperate conditions, had become suspicious, selfish, and misanthropic. The great stream of human progress had thundered past as she circled in her backwash. Or to change the metaphor, her people were prisoners in a fortress doomed to live dangerously. Whatever their former occupations had been in native lands, or daydreams in the adopted one, they were moulded perforce, into hunters, shepherds, and herdsmen. In other lands progress from savagery would be along well known lines. Surplus products and lack of others would suggest barter between clans, and in due time would include races of different customs, languages, and controls. In this way friendship would be proved better than hatred, and reciprocity than isolation. Year by year, decade by decade, the horizons would be expanded; wealth would be accumulated; populations would increase; new wants would be created; and, finally, there would be a broadening of sympathies, and a vague notion of univeral brotherhood. But Tibet might easily have experienced no such development. She was a fugitive nation neither receiving nor exercising friendship. But her social organisation, a sign of a high civilisation proves that she did develop uniquely and marvellously. We have shown the part Lamaism has had in the wonderful work: a living god, a holy city, a representative hierocracy, and miniature Lhasas, united clans and races, and made a relaxation of the fortress conditions possible. In plain language Tibet was in a position to deal with other lands and

so far China has been the neighbour to profit by the Tibetan solidarity and enterprise.

This brings us to a consideration of Tatsienlu, commercially the most important town in Tibet, and next to Lhasa the most powerful of all magnets, which by the lure of temporal benefits, draws men *to* China as the spiritual quest drawns them *from her*. We are told that Minyag and China gave Tibet mathematical science and works of Art; and laws came from Yugera and Hor. We pass these hints of a cultural quest without comment, for it was long ago and probably of no radical importance. But now, Tatsienlu, the capital of Minyag owes its unique position to the fact that it supplies Tibet with a very large amount of her tea. Why is the Tibetan bound to this beverage almost as strongly as to idols? The high altitudes may demand a constant stimulant, and tea is more suitable in many ways than wine. But whatever the explanation may be Tibet has become the slave of China in proportion to the power of the tea habit. Her sacrifice of liberty however, has given not only tea, but new opportunities for obtaining and enjoying wealth. It would be hard to exaggerate the benefits of the Tea trade. Next to Lhasa in power, Tatsienlu began to exert a magnetic pull; and when new centres sprang up, and new trades, monopolies, and occupations were demanded, Lamaism ignored none of the suggestions to profit thereby. The fact, too, that the tea quest sent men to and fro over the Tibetan earth is of importance. Dull wits would be sharpened; the wealth increased, the language unified, the larger life suggested, and a conscience more in accordance with the universal one demanded. And by such means is a race's solidarity intensified and its national existence safeguarded.

But it might mean also that the bargain was as bad as Esau's and that the Tibetan birthright had been bought for a bowl of tea. Had it become forever necessary for Tibet to dance to any tune China plays? We hesitate to imagine such a programme as part of the Lamaistic ideal. Her allies the earth and skies will drive her on, dire need will demand experiments, and the universal conscience may yet champion her cause. Part of what the future has in store for her depends on the question whether China can help her further or not. Frankly it may be questioned if she can. A barrier called "contrary controls" is right across the path of progress. The Chinese and Tibetans are far apart in temperament and physical needs. Tibet, after all, offers a poor market for the teeming millions of Szechuan, and the province views with contempt the staple products of the dependency, which are always unduly expensive owing to transport difficulties and long distances. Here is the case. Nature says Tibet must specialise in stock, but China retorts "Your stock and the products of the same we do not greatly want." The result is that the land is put to an unnatural use, and her true possibilities and means of wealth and development ignored. In other words: China would conquer by demanding an accord with an unnatural control. Such a

course for Tibet would be equivalent to the surrendering of the Magic Sword which has made her invulnerable in the past. But she has no such intention. We infer that the leopard cannot change his spots. But can China change her policy? Which means can she assist Tibet to devolop her true resources, (stock) and assure her outlets to the nearest and most profitable markets? This is a hard question for China. She is so obsessed with the agricultural idea that she views regions where farming is impossible as mistakes of nature. The Litang plain, perhaps 120 sq. miles, with 40,000 yak, 60,000 sheep and some horses is credited with labouring under a lama curse. An intelligent official, also, on one occasion suggested the making of enormous ponds for fish which were to be fed on the prime beef and mutton of the grasslands! But if China really takes her position of controlling-neighbour and suzerain seriously, what then? We shall find improved grasses, reserves suitable for winter grazing, routes over which living mobs could be driven, and factories to deal with interior supplies at places like Yachow and Kwanhsien. She will, also, probably subsidise Chairs of Agriculture and Veterinary Surgery in the Union University in Chengtu. But this sounds too much like a millenium. Students of Chinese History still doubt if the Ethiopian can change his skin.

The next question is: Can India take up the burden? Here at least appreciative markets for her staple products might be found as long as England controlled routes to the ocean. But can India give Tibet tea, and the kind she wants? Pessimists may question this also. If so, the situation is truly serious, for Tibet is conquered: she must remain forever in her great fortress without opportunities for developing vast resources which would bring her wealth and freedom from the calculating mercies of neighbours; a tyrannical control; and the magic of a powerful but unscientific system, which up to the present has been a valuable working hypothesis.

THE DEVIL DANCE AT TACHIENLU (DARTSENDO)

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(An Address delivered to the Border Research Society, Chengtu, December 1st, 1924)

When at Tachienlu this summer I had the good fortune to fall in with a Tibetan who had travelled much, and who, having sharp eyes, a keen interest in everything he saw about him, a retentive memory, and a knowledge of English, was able to give me, during the three months I spent there, some very interesting information regarding the manners and customs of the people. For an hour or two every evening Mr. Sherap discoursed on this subject and when, towards the end of my stay, he had exhausted his store of observations and reminiscences, I was more or less prepared to appreciate the part played in Tibetan life by such religious ceremonials as the so-called "Devil-Dance". Handicapped by ignorance of the language, I am indebted to the Rev. R. Cunningham, of the China Inland Mission at Tachienlu, for revising my romanisation of Tibetan words and transcribing them phonetically according to the Lhasa dialect.

"The plot and motive of 'The Mystery Play of Tibet' seem never to have been very definitely ascertained, owing doubtless to the cumbrous details which so thickly overlay it and the difficulty of finding competent interpreters of the plot, as well as the conflicting accounts current amongst the lamas themselves in regard to its origin and meaning."

Thus Waddell, the authority on "Lamaism"; and in spite of his efforts and those of previous writers to disentangle meaning and personality among the apparently incoherent mob of masked figures, the mystification still exists to fascinate every traveller to Tibet. So when I learned that the Dorje Drag lamasery, a Nyima foundation situated about one mile outside the town, proposed to hold a devil-dance, I instructed Sherap to get into touch with the lamas and from the actors themselves discover its meaning. He endeavoured to do so, but brought back the bare report that the dances were performed in accordance with traditional custom and were in honour of Saint

Pedma Sambhava; there was no "book of words"; and while the designation of the dancers was known, and what they were expected to do, the reference behind the impersonation was seldom realised, the special as distinct from the general significance of the performances having been forgotten. The particular lama who, being a tall fellow, was to take the leading role, that of Purba, admitted that he did not know what much of it was about. "For example," he enquired pertinently, "why introduce a cowherd and his wife?"

The Badsi are certainly somewhat ridiculous creatures and seem very much out of place, although they supply a comic element in what would otherwise be an entirely gruesome business. Both are fresh from the country, what I believe Americans would call "Rubes", with straw in their hair so to speak; and they wander about the courtyard, trying every now and then to milk their cow, and offering a spoonful to Pedma Sambhava in his several forms.

As a matter of fact, the Saint has got a long memory and exacts homage from those who were enemies in his earthly life. He does not forget that, when he was at Lahore he won the affections of a beautiful princess who, deeming none of her suitors worthy of her hand, had retired to a nunnery; and that their amours were spied upon by a cowherd and his wife, who carried the tale to the king; whence much trouble.

Nor does he forget Hashang, the fat man who is known to every foreigner in China as "The Laughing Buddha", whose brass or porcelain figure is bought in the foreign market as a mascot, and who represents Maitreya. But historically Hashang is identified with the Chinese priest, ho-shang, who tooth and nail contested Pedma Sambhava's teaching, who denied that the wizardry of Kashmir had anything in common with Gautama's message, and who, as one of the Saint's most bitter enemies, was eventually expelled from Tibet. He too figures in the dance, as paying homage to the Maha Guru; it is he in fact whose proper part it is to present to his former enemy, now recognised as "The Second Buddha", the "Eight Glorious Offerings".

These stories may be forgotten by illiterate lamas, but the dance continues to follow the tradition of centuries. Perhaps the head lama in the monastery knew the exact significance of each of the cast, for he was old and erudite; perhaps, as Sherap suggested, he feigned ignorance lest, if he imparted to foreigners the secrets of his religion, he should incur the wrath of Purba. However that may be, and I incline personally to the illiteracy theory, after a long and patient inquisition among lamas and laymen of all sorts, not unaccompanied by *douceurs* and "refreshers", although still many of the masks remain mere names, their special significance undetermined, yet on the whole a fairly comprehensive and coherent account of this particular play was obtained.

Much of the fearsome quality that attaches to the devil dance is due of course to the mystification of the onlooker. "Omne ignotum pro magnifico" observed Tacitus in explanation of the panic of the troops the night before they went "over the top" into Caledonia; and the epigram is particularly apposite to phenomena like the devil-dance. For after following the rehearsals of the performance and being coached in what to expect, when at last the play is staged, instead of having the mind purged by terror and pity, as Aristotle would have it, one is inclined to be increasingly critical of both the dance and the dancers, and finally to charge the demons with downright amateurishness, for which after all many of the poor devils are not to be blamed considering the shortness of the call to play that role.

The festival begins on the 10th day of the 7th moon, which fell this year on August 10, the anniversary of the day on which, Waddell informs us, the blind king of Udyana found on the pure bosom of the sacred Lake of Kosha a lotus flower of matchless beauty, on whose petals sat a lovely boy of eight years old, sceptred and shining like a god, who was come in accordance with the prophecy of Shakyamuni to deliver all beings from misery, and whose name was Pedma Sambhava, the lotus-born.

The morning of the 10th broke fine; and about 9 o'clock we joined the happy throng that wandered leisurely out of town and up alongside the mountain torrent to Dorje Drag. The level sward in front of the lamasery was already covered with tents, the Tibetans being quite unable to resist the idea of a picnic; and the brightly striped canvas and gaily coloured clothes of men and women made a pretty picture against the rows of sombre poplars in the background. As we made our way through the crowd, now and then one more polite than his neighbours would stand aside, bow with out-stretched hands, and protrude a tongue of monstrous size and usually healthy colour, the polite form of salutation in Tibet. At a stall near the lamasery gateway we found a friend of ours, a modern George Borrow, busily handing out Christian tracts to the curious. When I mention that this picturesque figure was clad in a blue Chinese gown, wore straw sandals and no hat, you will have no difficulty in recognising an F.R.G.S. who is an esteemed member of this Society.

Passing through the vestibule with its great Mani drums, revolved by devotees as they go by, and entering the courtyard, we saw stretched opposite to us, concealing the entrance to the main temple, an enormous painting on cloth of Pedma Sambhava. On all four sides of the yard the verandahs and galleries of the lamas' dormitories up to the third storey were a blaze of colour. Chinese and Tibetan ladies vying with each other in the display of fine clothes and glittering jewellery. With their usual courtesy the Chinese officials had placed at my disposal a room alongside theirs in one of the upper storeys, but on Sherap's advice I had taken care to

book one on the ground floor. It was as well that I had done so, for during the first day of the dance the whole courtyard was protected from the sun by a thick awning, and persons who at first were disposed to congratulate themselves upon being elevated above the "profanum vulgus" were obliged to descend the stairs in order to see what was happening under the awning. The room we used as a "box" (for a fee of $10) was on the same side of the courtyard as the entrance and it faced the Saint's picture, from the temple behind which the dancers emerged.

Unfortunately for the lamasery, the date of the ceremony coincided this year with political trouble, the Border Commissioner taking advantage of a temporary truce with his enemies of Szechuan to proceed to Peking in order to lay his case before the President of the Republic. Unable to use the Szechuan route, he had tried to go south through Yunnan, but the Governor there proved unexpectedly hostile and he was obliged to come back to Tachienlu and try the north road through the country of the wild Golok. As he was looked for at any moment, all the officials, with perhaps the single exception of the Magistrate, had left town on horseback to meet him on the other side of the Jedo. Consequently the scene in the lamasery was deprived of much of its accustomed pomp and splendour, and the lamas of not a little profit also, for each official who honours the occasion with his presence is expected to contribute liberally, not only for the "boxes" provided to them but also by way of presents of brick-tea for the use of the lamasery. This particular performance suffered further from the fact that many of the lamas were absent on pilgrimage to Lhasa and on business in the Minyag country, so that the cast was greatly depleted, the participants numbering only 94, inclusive of the band, instead of considerably over 100. To my personal regret Hashang, who I had particularly looked forward to seeing, was one of those cut out of the programme; but I might have been disappointed in him, as I understand that he does not always appear in his fat form. Sherap in fact tells me that he has never heard of his supposed connection with Maitreya, the authority for which is Waddell.

The number of dances or acts is eleven, six on the first and five on the second day. The first four are not devil-dances at all in the strict sense of the word: the participants are celestial beings come to pay homage to the Saint. The fifth act is merely an introduction to the sixth, wherein the terrible Gönbo Ma-Ning arrives and, with fourteen attendant demons, dances in honor of the Guru. Similarly the seventh and eighth are occupied with the advent of the still more redoubtable Purba with his birdfaced janitors and other strange-looking demons; but while these two dances are going on, the chief wizard is occupied in compelling into the Ling-ga the devils that during the past year have broken their promise to the Saint and done their best to destroy his religion. In the Ninth and Tenth

The Stag cuts up and eats the Ling-ga, distributing portions of it also to Purba and his followers; I was unable to learn why this duty was allotted to a stag. In the final act the sacrificial dorma and the dorma invested with evil spirits are carried down to the river edge and burned with much "beating of the drum".

DRAMATIS PERSONAE

(arranged in alphabetical order)

ADSARA, 2, demonic attendants on the Gönbo Ma-Ning. They wear a wooden helmet with flags on it and a short gown.

AGBA, the chief wizard: black hat surmounted by peacock feather fan: richly embroidered robes; carries purbu in right and skull-cup in left hand; is provided with special tent in courtyard, to which he retires periodically to rest from his spirit-calling activities. Two other Agba accompany the Gönbo. The Zhanag (q.v.) are also Agba. All Agba carry purbu and skull-cup.

BADSI, 2, cowherd and his wife, with their cow: the man carries a sling, the woman a milk-pail.

BAMO, 5, also called GADROMA, goddesses from Lha, consorts of the Bawo, highest conception of female beauty; wear the Jelwa Rignga (q.v.) and carry drums; part is taken by small boys.

BAWO, 5, in Chinese "chün-tzu", spirits of heroes from Lha.

DRAJE, 10, demonic attendants of Purba, in bird and other animal-masks; carry axe and sword.

DRASHIDSEJE, 8, masks representing the 8 Glorious Offerings, namely, the Mirror, Calculus, Milk Curds, Darba Grass, Cocoanut, Conch Shell, Minium and Sesame. (Sherap tells me that the Calculus is a stone, or pebbly concretion, found in the brain or stomach of oxen and men; and that minium, which dictionaries give as red-lead, is a kind of paint of an orange colour.) The Drashidseje usually wear animal masks and are led in by Hashang but on this occasion they were not present.

DU-DSEN, 2, demonic attendants on Ma-Ning, armed with bows, clad in red, monkey masks: perhaps the ghosts of discontented lamas.

DU-MO, 2, devils' wives, accompany Ma Ning: long black hair and black gowns.

DURDAG, 4, graveyard ghouls, dressed in "tights" as skeletons with white bones on red ground: perhaps represent the scavengers who carried off King Langdarma's corpse after his assassination.

GARBA, 8, spirits from Zangdobelri, Pedma Sambhava's paradise in the south-west: wear the Jelwa Rignga and carry damaru (q.v.) and bells: aprons, necks, and wrists decorated with human skulls and bones.

GELONG, 2, attendants on Ma-Ning, in lama dress and flat gold hat.
GING, 8, spirits from Zangdobelri, carry drums
GOMA, 4, janitors attendant on Purba, with bird masks; carry purbu and skull.
GURUTSENJE, 8 : the eight forms assumed by the Maha Guru Pedma Sambhava, of whom six are 'mild' with human faces and two 'malignant' : the latter occupy the seats at either end of the row, what we might call corner-men, and represent the Duru in his aspect of fighting the Bön demons : they have pig masks and are accompanied by pigling sons.
HASHANG, the Master (Jintag), big head and big belly, a priest from China accompanied by two small boys; styled "The Dispenser of Gifts". He did not appear.
JEBA, 2, spirits of laymen, attendant on Ma-Ning; wear helmets with flags and carry swords.
JELJIN, one of the two kings of Lha; carries a biwang (a sort of banjo); probably the Hindu god Indra (Jupiter).
MA-NING, the chief Gönbo (Lord Demon) of the Nyimaba : snakes on his mask and rosary of human hearts.
PEDMA SAMBHAVA, the Guru Rinboche, from his paradise of Zangdobelri : wears gold fan : sits in middle of row of Gurutsen in "living statue" posture; right hand raised holding katam (q.v.), left hand holding skull-cup with tsebum (q.v.), inside it.
PURBA, Yidam (Demon King) of the Nyimaba, Dorje Shönu by name.
SAINTS, 14, in pig masks, attendant on Purba; purbu in right hand, skull-cup in left.
SHENBA, 2, the Merciless Killers, attendant on Ma-Ning; they are bare-legged, wear red night-caps and "shorts".
SOGJU, 10, bird masks attendant on Purba.
TROJU, 10, sweep demons out of courtyard with branches of bamboo.
TSANGBA, one of the two kings of Lha; has four faces; probably the Hindu god Brahma.
ZHANAG, 16, "Black Hats"; carry purbu and skull.
ZHIDAG, evil spirits of the mountains; invisible.

In addition to the above are Purba's favourite attendants, the Crow and the Owl, the Deer and the Yak, and the Wolf, each of whom carries purbu and skull; and most important, The Stag, with sword and tö-trom (q.v.)

PARAPHERNALIA

BUMPA—the baptismal kettle, usually of brass, with metal mirror attached to spout, peacock feathers or kusha grass (i.e. grass from the sacred lake) as stopper; used to purify Pedma Sambhava.

DAMARU—small hand-drum made of two inverted skulls, like double egg-cup, usually covered with human skin; sometimes made of wood and covered with snake-skin; the skulls should be those of boy and girl (representing Bawo and Bamo) of not less than seven or more than ten years of age; has tasselled streamer and is sounded by twirling in hand, the tapping being done by little knobs of wood at the end of short strings which are tied round its waist and flap over; used to attract the attention of gods, particularly when "giving power" at baptisms etc.

DORMA—(1) made of dough, with black umbrella over it surmounted by skull; entwined with intestines; during the seven days previous to the dance the lamas, invoking Purba, have invested it with evil spirits; (2) three dorma representing a man, a woman, and a lama, who are to be sacrificed as a substitute for the people to the evil spirits of the country.

JELWA RIGNGA—the five Jinas or Celestial Buddhas worn on the head in the form of a crown by Garba and Bamo.

KATAM—small trident decorated with three human heads; carried in the Guru's right hand.

LING-GA—mud or tsamba image of a man, lying on his back with feet bound and arms above head; about 1½ feet long; invested by chief wizard with the hostile spirits of the past year; is cut up and eaten by The Stag, and the remains finally thrown to the four quarters.

MELONG—mirror of brass or silver attached to Bumpa; used to catch the reflection of Pedma Sambhava when being purified.

PURBU—wooden thunderbolt-dagger used for stabbing demons; is three-edged, the handle being a dorje surmounted by three demon heads with small horse's head on top representing Tamdin; used by Agba and Purba's followers.

T -TROM—skull-stick, a dorje (thunder-bolt) surmounted by skull, a weapon carried by Stag.

TSEBUM—vase of life, made of brass or silver; holds the god of life, Tsebame (Aparmit), who is figured on the lid, with horse's head in front of him representing the tutelary demon Tamdin; round it is a rosary of tse-ril, pills of life; carried by Pedma Sambhava as emblematic of his having introduced tse-wang, life-power, into Tibet.

With these details out of the way the description of the show becomes much simplified.

We had been told that it would commence somewhere between 8 and 9 o'clock but, making allowance for oriental customs, we arrived some time after 9. Nothing happened until some time after 10, when a number of lamas who had not been cast for parts filed out of the temple and offered chöba before the picture of Pedma Sambhava and purified him by baptism. By his kind visit to the

world of men the Saint is held to have run the risk of contamination with evil; and such chances are obviated by a lama who catches his reflection in a metal mirror, melong, and pours a little saffron water on it. The drabas then proceed to the left hand side of the courtyard, that is the Saint's left and our right, where they sit on the ground in rows and during the next two days keep up a constant din, blowing trumpets and horns, large and small, beating drums and clashing cymbals almost without interval. Of the drums the most picturesque are those known as lag-nga, green drums perched on short poles and struck by a sickle-shaped stick with a knob at the end. Some of the trumpets are over ten feet in length and require two men for their use.

The stage is now set and the performance begins.

Act I

Ten Troju masks come out of the temple and perform a slow dance, purging the courtyard of evil spirits by sweeping them out with branches of bamboos. When this has been done, the first of the celestial visitors, the Garba, of whom only six appear, dance in honour of the Saint and sing his praises. It is not a dance in the usual sense of the word but rather a posturing in slow time, and one could not hear any singing on account of the lama's orchestra. The Garba are followed by the eight Ging who give a similar performance and, when it is finished, the Garba return and petition Pedma Sambhava to appear.

Act II

Enter the Eight Gurutsen and with them an extra form of the Guru who occupies the middle position when they all sit down with their backs to the picture, ready to receive homage, The first act of homage is usually performed by Hashang, who comes in with his two boys and, as dispenser of gifts, leads in the masked figures who represent the Eight Glorious Offerings. These of course stand, while Hashang is given a seat. The act was cut very short, as Hashang and the Drashidseje did not appear. The presentation of the Offerings was made in a modified form by kings Tsangba and Jeljin at the end of the next act; meanwhile the Gurutsen remained seated, waiting for further homage.

Act III

The five Bawo from Lha, who were down in the programme to to open this act with a dance of homage to the Saint, did not appear but their consorts, the Bamo, came in and duly performed their turn. The cynosure of the crowd, however, is the cowherd and his wife who

come on in this act and are just as ridiculous as the clowns in a travelling circus at home. In a clumsy, bucolic way they keep offering milk to the Gurutsen and looking round for applause and they remain on the stage throughout several acts, in fact until even this unsophisticated audience loses interest in them. At the end of the Bamo dance enter King Tsangba and his colleague King Jeljin from Lha, being the Indian gods Brahma and Indra, present Saint Pedma with a picture of the Eight Glorious Offerings, and thank him for the favour of his presence.

Act IV

In recognition of the homage thus paid, in rather curtailed form it is true, the Gurutsen now rise each in turn and dance a dignified measure, finally all treading the fantastic toe together. The central figure does not dance; he remains seated, gazing straight in front of him, his right hand raised holding the katam. His mask presents an extraordinarily beatific, not to say fatuous, expression but he never moves hand or head the fraction of an inch during the performance and doubtless feels relieved as well as proud when at last with the eight others he files back into the temple to a tremendously increased furore from the lamas' band. For the third and last time the Garba come in and dance and, although one cannot hear it for the orchestra, sing a hymn of praise and thanks to Saint Pedma for his attendance.

Act V

Two Shenba come in and walk round the yard, blowing small trumpets and announcing the approach of the Gönbo Ma-Ning with his fiends and fiendesses.

Act VI

Enter Ma-Ning, Gönbo of the Nyima sect, with fourteen attendants in pairs, namely, Du-Dsen, Adsaras, Du-Mo, Gelong, Agba, Jeba and Shenba. All are devils and hold their jobs as Guardians of the Faith from Saint Pedma, in whose honour therefore they have come to dance. This is really the first devil-dance, properly so-called; and as, when it was finished, time was getting on, a halt was called to the first day's proceedings.

When we all flocked into the courtyard next morning we found that the Guru's picture had been removed. In the middle of the yard was a tall mast, hung with black flags of the Yidam, Chöjong, and Gönbo, some square, some triangular; but, as there was a strong wind blowing, all were made fast with ribbons of the usual five lucky colours, red, yellow, white, blue, and green. Like our maypole the mast may originally have had a phallic significance. In

front of the mast was a table, on which was placed the dorma that the lamas had spent the previous week in investing with evil spirits. Under the table were three more dorma, representing a man, a woman, and a lama. Beyond the mast lay the Ling-ga. In the courtyard a special tent had been pitched for the Agba who was chief wizard, to save his fine clothes from the dust; for he was too busy always to be going into the temple, and the clothes used in the dance are of great value and are preserved in the lamasery for years against this annual festival.

The second is the Agba's busy day and, while we wait for the actors to get ready, he comes out of his tent and performs a dignified dance.

ACT VII

This act is a preparation for the advent of Purba, the chief tutelary of the Nyima sect, a much more powerful personage even than Ma-Ning, who is one of his Lord Demons.

First enter four skeleton forms, Durdag, whose white bones stand out on a red ground. They are graveyard ghouls, have large ears, and in dancing round find devils in all sorts of unexpected places and are energetic in their pursuit.

Next enter sixteen Agba, wizards or sorcerers, cunning at detecting demons where the ordinary man sees nothing, popularly known as "Black Hats" (Zhanag) from the colour of their broad head-gear. As they perform their dance, two lamas come from the temple, one with a tray of silver bowls from which he hands a bowl to each Black Hat. The other carries a silver tea-pot, from which he fills the bowls with tea or with beer. While the lamas at the side of the courtyard with renewed vigour beat their drums and blow their trumpets, the Black Hats hold the bowls on high and call upon the Zhidag to accept the offering (serchem). As the latter remain invisible, the Black Hats throw the serchem into the air, returning the bowls to the lamas. They then conclude their dance and retire.

Then come in, led by a small boy, two of Purba's pets, masked as a Deer and a Yak, who perform a dance.

Next came four bird masks, Purba's doorkeepers (Goma), who also dance; and finally his special janitors, the Crow and the Owl, who dance.

The eight last-mentioned creatures, as well as the Black Hats, all carry the devil-stabbing purbu. Finally enters the chief wizard who, with forefinger and thumb in his mouth, calls up the evil spirit by whistling.

ACT VIII

Enter Purba (Dorje Shönu), accompanied by his 6 doorkeepers, 14 saints (mostly in pig masks) the yak, the deer and his pet wolf, 23 attendants in all, each with a purbu. Purba thanks Saint

Pedma for his presence and begs for continued help in the coming year. All join in dance.

A man brings in a low table, which he places behind the mast and on it lays the Ling-ga, with a skin-rug in front of it. The chief wizard whistles the disobedient and hostile spirits into the Ling-ga.

ACT IX

The Stag comes in, with tö-trom in his hand. He slowly approaches the Ling-ga and, laying down the tö-trom on the skin, picks up a sword. He sharpens the sword in the air and dances round, a long, slow dance. Eventually he returns and, sitting on the skin, cuts up the Ling-ga with great zest and eats its flesh and drinks its blood with gusto, finally throwing pieces to the four points of the compass. There can be little doubt that this is a relic of the human sacrifices, attended with cannibalism, which were made to the Bön devils whom Saint Pedma drove out or won over. Each year brings forth evil spirits; the more docile are incorporated with guardians of the faith, the obstinate and rebellious are either cut up with the linga or burned with the dorma. The Stag ends his performance with contortions on the skin-rug in an ecstasy of blood-drunkenness.

ACT X

Re-enter Purba and his 23 attendants, who all join in a dance and while dancing, receive from the lamas remnants of the ling-ga, which they hold for a while and then cast to the four quarters, signifying that the evil spirits that sought to work harm to the Guru's religion have been thrown to the demons.

This is the last act within the lamasery and presents are now brought in and exhibited at the foot of the mast. On this occasion they formed a very small heap, owing to the absence of the local officials. However, 20 packages of brick-tea arrived from the British Consulate and 15 from the Magistrate, each of which yamens sent 94 kadas or ceremonial scarves. From the number of kadas sent one can estimate more or less accurately the number of lama participants in the show.

ACT XI

The sixteen Black Hats lead a mob of lamas and onlookers in carrying off all the dorma, both the one in which evil spirits have been invested and the three which are substitutes for the lamas and laity, to a straw hut near the river. While the lamas read incant-

ations and blow their trumpets, the chief wizard slings three stones and shoots three arrows into the hut, which is then set on fire. So to the wizard's whistling and the lamas' drumbeating the dorma go up in smoke to the evil spirits of the country. Like the cutting-up of the ling-ga, the burning of the forma seems to be a relic of the human sacrifices of pre-Buddhist days.

* * *

The above is a description of the dance as given by the Red or Unreformed sect, whose creed is descended in the direct line from Saint Pedma Sambhava, the founder of Lamaism in the 8th century. It is not always exactly as described; variations are constantly introduced. The Geluba or Yellow sect, the established church of Tibet, has a very similar dance on the 28th of the 6th moon (29 July, 1924), the feast-day of Jelje Dorje Shugden and Baldan Lhamo. Shugden was a very learned lama who, having displeased the Tibetan Government, was condemned to be thrown into the river; his angry spirit had in due course to be placated by being made a Jelbo, and he is now worshipped by the Geluba and the Sachyaba as one of the greatest of their Chöjong. Baldan Lhamo, the terrible Magorma, is the goddess who was supposed to be reincarnated in the late Queen Victoria. The dance, which also lasts two days and differs from the other chiefly in the fact that all the actors represent real devils, was held at a lamasery in the Minyag country over the Jedo, several days' journey "outside the barrier", and, while unable to attend it personally, I succeeded in obtaining the following particulars from the Geluba lamas who staged it.

In the courtyard on the first day was displayed a portrait of Tsongkaba, the lama who, after hearing the gospel of "the man with the big nose", apparently a missionary from the Occident, about 1400 A. D. reorganised the Kadamba and brought about the predominance of the Yellow sect. It is not invariably Tsongkaba who is thus honoured by the Geluba; sometimes it is Jamba (Maitreya), the Coming Buddha. The Geluba take small account of Saint Pedma.

As in the other dance, the initial ceremony consists in cleansing the courtyard of evil spirits by four Adsaras, who wear the masks and dress of Hindus.

Following this, enter a number of Shugden's attendants. Two Du-mo, fiendesses with black faces and dress and long black hair, armed with swords, come in from an apparently successful raid on demons, whose lungs and hands they bring as an offering to Shugden: and two Black Hats, with purbu and skull-cup, offer tea to Shugden. Other attendants are 2 Tiger masks with swords and lances, 2 Goma, the Owl and the Crow, 2 Garudas or Phoenixes, who are numbered among the minor deities, with swords and skulls, 2 Jelbo, angry spirits that have been deified, and 2 Tsemara carrying umbrellas and lances. Shugden then appears holding human lungs and heart, with

4 servants equipped with swords and hammers. All dance together. Shugden joining in, and Shugden's kangso or sacred book is read by lamas to the accompaniment of drums, cymbals and trumpets.

The attendants then file out in pairs, leaving Shugden and his 4 servants to welcome Baldan Lhamo, who enters with tö-trom and skull-cup full of blood, accompanied by five Lhamo. She is an unprepossessing, formidable creature, the only sign of the weakness of her sex being that she sports a peacock's feather. Twelve more Thamo arrive from the snow mountains and perhaps the sex is again betrayed by all accepting tea from the lamas. All then retire, except Baldan Lhamo and her five attendants.

The first day ends with a dance of seven Gönbo.

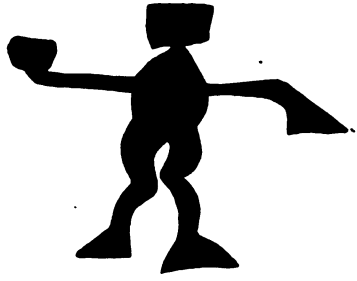
On the second day the courtyard is furnished with a Chöjong-mast, Dorma, and Ling-ga in the way already described. During the seven days of preparation the lamas had invoked the assistance of Damjen Chöjel in investing the Dorma with evil spirits.

Enter the great Chöjong of the Geluba, Damjen Chöjel, with his consort, 4 servants, and 8 Adsaras. After they have danced a lama recites from Damjen's kangso.

Damjen then proceeds to put the evil spirits into the ling-ga, as the chief wizard had done at Dorje Drag, and, while he whistles, a lama helps to attract them by waving a black flag. When this ceremony is completed to their satisfaction, they all leave and the Stag comes in and cuts up the ling-ga.

16 Black Hats with purbus and skulls enter and dance; the lamas bring them tea, which they offer to the Zhidag, and give each Black Hat a piece of the ling-ga.

On the departure of the Black Hats, the lamas perform a dance with cymbals and drums. After the dance, the Black Hats again join them and the crowd helps to drag out the dorma and commit them to the flames.



A TRIP TO TATSIENLU

DAVID C. GRAHAM, SUIFU

During the summer of 1923 it was my privilege to take a short trip to Tatsienlu, where one can see something of the life and customs of Tibet.

The road to Tatsienlu is so difficult that many do not care to undertake the journey. Two high passes must be crossed, each over nine thousand feet in altitude. The inns are bad and full of fleas. The roads are rough, and the weather hot. This year there was civil war in the province, and the road was dangerous because of brigands.

On June first we left Suifu for Mt. Omei, where Mrs. Graham and the children spent the summer vacation. From Mt. Omei I started off with four Chinese helpers to assist in the collecting and with thirteen coolies, twelve to carry loads, and one to "boss" the others. The road to Yachow was through some excellent farm country. I shot some attractive birds, which were skinned and later left at Yachow to dry. Noticing that the Chinese were very anxious to get empty shotgun cartridges, I occasionally gave the empty cartridges to the ferrymen as pay for taking me across the river. At one place there were two ferrymen on one boat, and I gave them two empty cartridges. They got into a qurrel about the cartridges, after which one ferryman stole both cartriages and ran away, the other chasing him as fast as he could run.

At Yachow I called on the Border Commissioner, Ch'en Shia Lin. He received me with much courtesy, approved of my taking the trip, and said that he would guarantee my safety during the entire journey. The next day I started for Tatsienlu, which is eight stages away.

On the afternoon of the third day after leaving Yachow, I reached the top of the first high pass. Looking westward I saw one of the most wonderful views that I have seen. There were rivers that had carved out irregular valleys, beyond which were snow-clad mountains rivalling the Himalayas in height and grandeur. I said to myself, "If I should see nothing else, this sight alone would pay me for taking the entire journey."

At Lu Ting Ch'iao there is a chain bridge across the river. It is composed of about ten large iron chains, with thin boards underfoot on which to walk. The bridge sways and wobbles as one goes across.

Wa Si Keo is about seventeen miles from Tatsienlu. It is five thousand feet high, while Tatsienlu is 8500 feet above sea level. In these seventeen miles the river falls, 3500 feet, and everywhere is a rushing torrent which no one dares attempt to cross excepting on a bridge or on a strong bamboo cable.

The population of Tatsienlu, which is on the border of Tibet, is about five thousand. The city is situated at the junction of two streams, and is surrounded on all sides by high mountains. There are about one thousand Chinese, many of whom are merchants, and the rest are mostly Tibetans. Large caravans of yak, horses and oxen are constantly bringing medicine and hides from the interior of Tibet and taking back loads of tea and salt.

I was met outside of Tatsienlu by Mr. Cunningham of the China Inland Mission and by Dr. Andrews of the Seventh Day Adventist Mission. Dr. Andrews welcomed me to his home and made me feel quite comfortable. Later Mr. Cunningham helped me in aranging my excursions, entertained me in his home, and accompanied me on important trips so as to render such aid as was needed.

My main object in going to the Tibetan Marches was to collect natural history specimens for the Smithsonian Institution. I therefore spent most of my time, not in Tatsienlu, but in the outlying districts where specimens were more plentiful. Four excursions were made, one northward to Tsong Ku, altitude 12000 feet; one northwest across the Cheto pass, height 14500 feet, to Ngan Iang Ba, which is at the edge of the steppes or grass lands that extend hundreds of miles to the border of India, and two to U Long Kong, where specimens were most plentiful.

Some few people are attracted to this country because it is an ideal place to spend a vacation. There are numerous hot mineral springs in which to bathe. Standing at one place at U Long Kong one can see in three directions three snow-covered mountain ranges, varying in height from 21000 to 25000 feet. The beauty and variety of flowers is almost unbelievable. There are wild peonies, anemones, carnations, and poppies, several kinds of buttercups, blue and yellow violets, and a wonderful variety of blue, white, yellow, red, and pink flowers. There are different kinds of flowers at different altitudes, but everywhere an abundance of them. Meadows are generally so covered with flowers that they resemble beautifully colored quilts. Delicious strawberries grow wild all over the hills. Wild gooseberries and wild rhubarb are to be found. There are pheasants in large numbers, and not a few wild animals. There are lamasaries to visit, curio shops where strange things can be purchased, and caravans with long-haired yak and not less interesting Tibetans.

I had several interesting experiences, one of which was that of interviewing a Living Buddha. This great lama who is worshipped as a deity, is head of one of the great religious sects of Tibet, and is

thought to be the ninth reincarnation of the chief disciple of Padmasambhava, who founded Lamaism in Tibet. I had the privilege of interviewing this great person, and of taking his picture.

I also had the experience of temporarily losing some of my belongings. One morning I awoke to find that a thief had visited my tent during the night and had stolen some clothing. Mr. Cunningham went to the city to secure the help of the police. By nine o'clock the thief had been caught, punished, and all the goods recovered.

I made four different attempts to reach the snow line, the last attempt being successful. One can hardly appreciate some of the difficulties encountered unless he has faced them. This Tatsienlu trip has enabled me to appreciate better than I ever did before the sacrifices of those who have secured some of the specimens in our great museums. The reason for seeking the higher altitudes is that there varieties of birds, insects, and mammals are often found that can not be secured on the lower levels. There were no paths near the snow line, the thickets of rhododendrons were so hard to penetrate that one often had to cut his way through them, fields of large boulders covered long stretches of ground, and sudden winds and fogs or storms of rain or hail occurred at inconvenient times. The day I made the second attempt I got as high as the snow, but a dense fog came along making it impossible for us to find our way, so that we did not actually find the snow. It was four o'clock in the afternoon, so we had to give up and start home. I was wearing straw sandals because they do not slip as badly as leather shoes on rocks, and just at this point one of my straw sandals wore in two, leaving nothing but a stocking between my foot and the ground, and the ground was quite rough. After walking five miles over the stones and shrubbery I found a discarded old straw sandal that I was able to use for the rest of the way to camp, which we reached two hours after dark. It was fortunate that the moon came out at the right time, as we had no lantern with us. The third attempt would have been more successful, but as we were nearing the snow line we caught sight of a strange animal, and turned our energies to hunting it instead of the snow. The fourth time I went determined to reach the snow line no matter what happened. I took two Tibetans along, one as guide and the other to carry back snow with which to make ice cream. A storm came up, with wind, fog, rain and hail. In a little while our clothes were soaked, but we kept on climbing. It was icy cold. Some of the boulders were over ten feet high, and we had to leap from the top of one boulder to another. The Greeks could not have been more pleased to reach the sea than we were when we finally reached the snow, I stood in the snow bank and ate the nice, clean snow, the first that I had touched for several years, and it did taste good! We secured some excellent specimens that day, and that night had ice cream for supper, a great luxury in West China.

Many of the social customs of the Tibetans are quite different from those of the Chinese. The women do not bind their feet, and on the whole are quite attractive and pretty. There is no education for women in Tibet. The men do the easy tasks, such as riding horses, tending the flocks, etc., and the women do the heavy work, such as carrying loads. Most of the Tibetans are nomads, living in tents, depending on their flocks, and moving wherever good pasture can be found. Polyandry is as common in Tibet as polygamy in China.

I was much interested in the religion of the Tibetans. I visited lamasaries, and talked with priests and other Tibetans. All Tibetans are Buddhists, but their religion is a mixture of elements brought by the Buddhists from India and of other elements that were probably pre-Buddhist and are now absorbed by Buddhism. Two customs that are probably native of Tibet are the practice of throwing a stone on a pile while crossing a high pass, probably to prevent disturbing the mountain spirits, and that of worshipping the white stone. The white stone is white marble. It seems that because of its hardness and attractive color it is thought to have magic power and is considered sacred. Every family gives one son to be a lama or Buddhist priest, so that one fifth of the Tibetans are lamas. None of the Tibetans but the lamas are educated, the purpose of the schools being to enable the lamas to read the sacred books. The Tibetans have a written language of their own, but the sacred language is the Sanskrit. It is all the more sacred because so few understand it. In one district the missionary found that the Tibetans were anxious to purchase the Gospel of Matthew. It was found that the first chapter of the Gospel of Matthew was so unintelligible to them that they thought it was sacred or had magic power, and bought copies to hang up like their prayer flags.

Prayer holds a very large place in the life of the Tibetans. Many carry rosaries and use them a great deal. One will often see a Tibetan mumbling to himself as he walks along, and on enquiry will be told that the Tibetan is praying "Om ma-ni pad-me hum." Long prayer flags may be seen hanging from poles in front of temples, on the tops of houses, on the tops of high peaks, or hanging from the branches of trees. The prayers consist mainly of the sentence "Om ma ni pad-me hum," or of parts of the Buddhist classics. Every time that the flag is waved by the wind, the person who owns the flag is thought to have prayed every prayer that is written on it. Little hillocks are often seen beside the roads, and the hillocks are covered with mani stones on which is written the prayer "Om ma ni pad-me hum." By merely walking around the stones, one can pray all the hundreds or thousands of prayers written on the stones. Another way of praying is by means of prayer wheels. Small wheels are used by individuals in their homes Inside the wheel are numerous written prayers. At every turn of the wheel the operator of the wheel is

supposed to have prayed once every prayer that is inside. From ten to a hundred large prayer wheels are to be found at the main entrance of the lamasaries. The worshipper turns each wheel once before entering the temple to worship the idols. Each wheel contains several thousand prayers. I saw one prayer wheel containing thirty thousand prayers. Other prayer wheels are placed over or beside streams of water, and are run by water power. The most common prayer used in these prayer wheels is "Om ma-ni pad-me hum," Every time you turn around a prayer wheel once, you pray all the prayers written inside. "Om ma-ni pad-me hum" means "O thou Jewel that dwelleth in the lotus, hum," and is said to be addressed to Kuan Yin Pusah, the goddess of mercy. NOTE: Some of the best authorities on Tibet state that this prayer refers to another god, but I insert this as the consensus of opinion of the Tibetans with whom I talked. This phrase should be repeated at any time, but especially in times of danger, and is apparently used as a charm.

The great event of the year among the Tibetans around Tatsienlu is what some foreigners have called the Devil Dance. This festival is held for several days in a large lamasery near Tatsienlu, then at points near the Cheto pass, and finally at Ngan Iang Ba, where it lasts for about two weeks and attracts visitors from distant portions of Tibet. There is much folk-dancing by the lamas, some of these dances being significant of religious practices or events, like the chanting of the Buddhist Classics or the coming of Buddhism to Tibet. At Ngan Iang Ba horseracing and other amusements are added, and both men and women wear their finest clothing. The whole festival is a combination of the social and the religious, the central purpose being the exorcism of demons from the temple and from the city so that all will be peaceful and prosperous during the coming year.

What I was able to see of the Tibetan religion convinced me that its main purpose, like that of the Taoist religion or of popular Buddhism in China, is the exorcism of demons and the securing of happiness and prosperity through the use of magic power, this power being located in charms, priests, idols and temples.

The road was more dangerours when we returned from Tatsienlu than when we went in, but by securing a heavy escort, and making a two-days' journey in one day, we reached Yachow in safety. The summer's catch included about thirty-five boxes of insects, snakes and frogs, about twenty-five mammals, and three hundred and fifty bird-skins. From the above account it will be evident that I found the trip interesting, pleasant, and profitable, and at times even exciting.

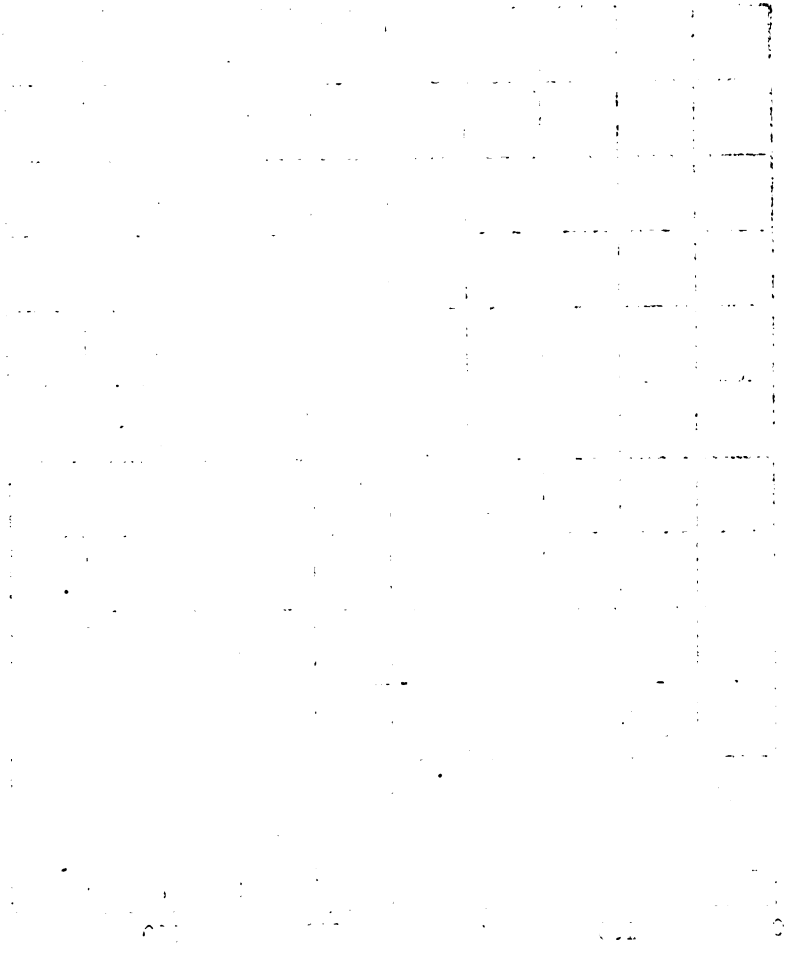
SOME UPPER YANGTSE ELEVATIONS.

W. M. Hardy, M.D. Batang.

I do not know what the Yangtse River is called at its source in Tibet. The Tibetans here at Batang, and as far north as I have been, call the river the "Dri-Chu". From the point where the river enters this province, and probably from even a more distant point, the Chinese name is "Chin Sha Kiang", which name is used almost to Suifu by the Chinese. The only "Golden River" mentioned in Das is on the other side of Tibet. So far as I can learn there is no gold mined in the Tibetan portion of the Yangtse, hence the Tibetans do not call the river by a name which would indicate the presence of gold. In the Chinese portion of the river in Yunnan, gold is found in the sands, and the name "River of the Golden Sands" is retained by the Chinese, although there is no gold in the sands near Batang so far as I know.

In its upper reaches the river is unnavigable in the ordinary sense of the word. At various places there are ferries, at other places there are skin boats which are used to cross the river or to go down stream a short distance. After making the trip down river in these boats, the boatmen carry the boat back as the current is so swift that it is impossible to row the boat upstream. When I left Batang for America in 1917, we used these skin boats (or coracles) between Lipa and Chupalong (C.I.M. map, or the Lewa and Drubalong Druka of Teichman.) This little stretch of "navigation" lasted for an hour and forty minutes, while our chairmen, carrying empty chairs along the bank of the river, took three hours for the same distance. As the oar is used only to keep the coracle in the middle of the stream, and adds nothing to the speed of the boat, I believe I am safe in saying that the current here is 8 miles an hour. Below Drubalong, rapids prevent farther "navigation", but there are other stretches similar to the one from Lewa to Drubalong,.

Around Chi Tien and Shiu Gu they have large flat bottomed boats which will carry ten or fifteen horses across the river. Here they also use long narrow rafts which will carry two or three persons at once. The only boats I have seen, at places where I have travelled along the river between Gangto Druka and a little below Shiu Gu, were flat-bottomed ferries, coracles, and small rafts. I cannot claim to know the river thoroughly as I have merely followed along its banks or crossed it at various places between the limits mentioned.

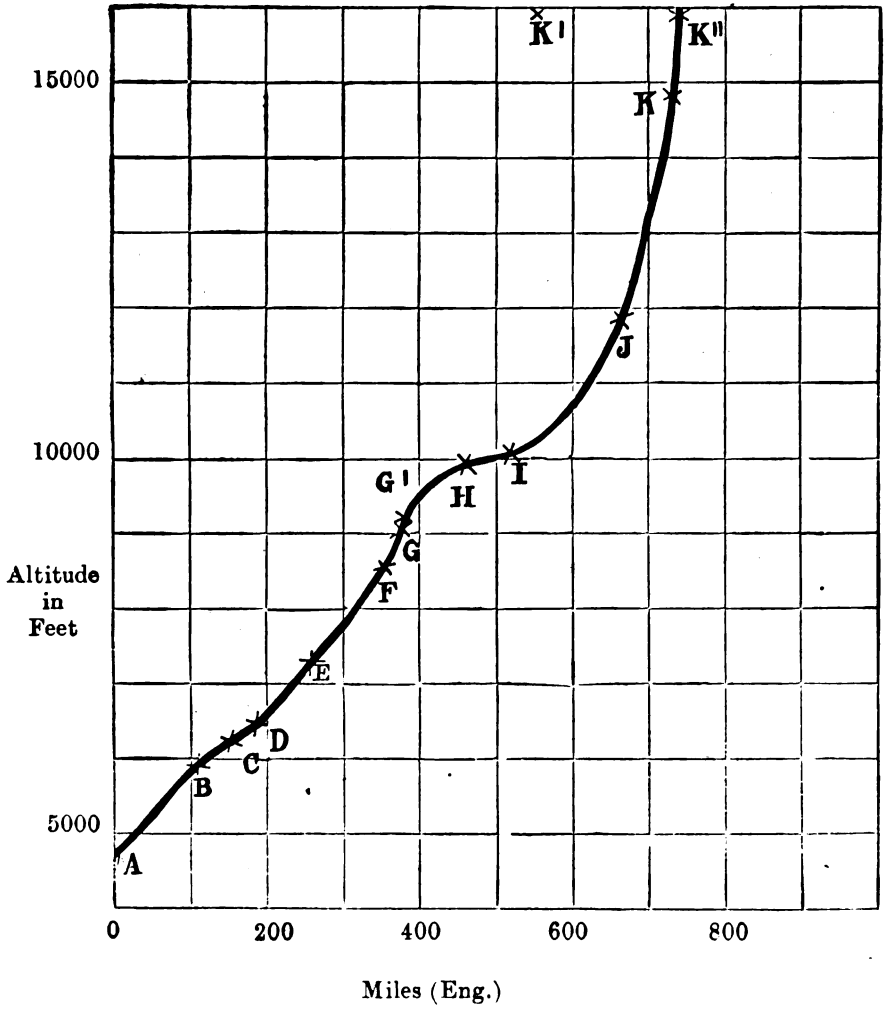


SOME UPPER YANGTSE ELEVATIONS.

COMPILED BY W. M. HARDY.

DISTANCE-ELEVATION CURVE

for the Tsi Li Kiang-Sogangompa Section of the Yangtse River in English Miles and Feet.



SOME UPPER YANGTSE ELEVATIONS.

Miles	Place	Chart	Authority Feet
0	Tsi Li Kiang	A	4570
	C.I.M. Map.		Gregory
110	Ta Ku	B	5905
155	Shiu Gu	C	6200
185	Chi Tien	D	6400
255	Pang Tze La	E	7250
			Teichman
360	Drubalong Druka	F	8500
380	Batang	G	9000
			Hardy
380	Batang	G^1	9200
			Teichman
465	Rushi Dranka Druka	H	9900
520	Gangto Druka	I	10000
660	Dresbonda	J	11800
	Bell		Bell
705	Sagon Monastery	K	14810
	Heidenstam		Heidenstam
550	Sogon Gomba	K^1	15900
	C.I.M. Map.		
755	Sogangompa	K^{11}	15900

C.I.M. Map: Atlas of the Chinese Empire.

Teichman: Travels in Eastern Tibet, and Journal Royal Geographical Society, January 1922.

Gregory: Journal R.G.S., September 1922.

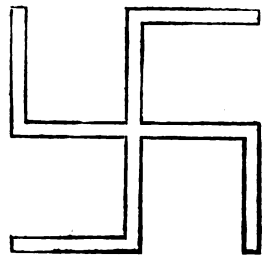
Bell: Grammar of Colloquial Tibetan.

Heidenstam: North China Branch Royal Asiatic Society Journal, 1922.

The Lower Yangtse has been travelled and repeatedly measured; but the same cannot be said about the Upper Yangtse. Both altitude and distances are still only approximate. The seasonal variation in the barometer and the extreme difficulties of continuous travel around the various turns do not favor the making of observations that are final and assured. Where there is more than one "authority" there is certain to be disagreement, and observations have not been made is such numbers that reliable "means" can be calculated.

An average drop of 15 ft. per mile between the extremes plotted suggests the swift current. Even between Gangto Druka and Tsi Li Kiang there is a drop of 10 ft. per mile.

The data of the chart is taken from several sources. The C.I.M. map in the "Atlas of the Chinese Empire" furnishes the data for the Distances. The altitudes are taken from Teichman's "Travels in Eastern Tibet" and article in Journal Royal Geographical Society, Jan. 1922; Gregory, Journal R.G.S., Sept. 1922; Bell's "Grammar of Colloquial Tibetan"; and von Heidenstam, North-China Branch Royal Asiatic Society Journal, 1922.



A COLLECTING TRIP TO SONGPAN

DAVID C. GRAHAM, SUIFU

My 1924 vacation was spent by taking a trip to Songpan, a twelve day journey northwest of Chengtu. As was the case on the Tatsienlu trip in 1923, my object was to collect natural history specimens for the Smithsonian Institution.

We left Suifu on June twenty-third. After six days of travel by by boat, we reached Kiating whence my wife and children went on to our bungalow on Mt. Omei. and I started overland to Chengtu, which I reached in four days. Through the kindly assistance of the British Consul, Mr. Ogden, and of Rev. Geo. Franck of the British and Foreign Bible Society, I was able to leave Chengtu on July third, the day after my arrival.

We reached Kwanshien late on the fifth of July. The inns and temples seemed to be full of soldiers and travelers, so that we had great difficulty in finding a lodging-place. After our own efforts had failed, we appealed to the magistrate, who kindly found a place where we could pass the night, before pushing on again.

On July seventh we saw some wild boars and a bear across the river, but we could not get at them because there were no boats or bridges. Finally, in the afternoon, I shot a 48-pound mountain goat on a cliff across the river, a distance of about two hundred and fifty yards. A Chinese crossed the stream on a bamboo cable and brought back the goat. The coolies and the soldiers were allowed to help themselves to the meat, and there was very little left next morning.

For several days after this we travelled in semi-arid country. Along the river there was little vegetation, and there were not many insects excepting flies, bees, and wasps, but there was a good variety of interesting snails. Near T'ien Ch'i we climbed to an elevation of about 8000 feet, and after this there were plenty of trees, flowers, birds, and insects.

All the way from Uen Ch'uan to Songpan there are impressive stone ruins of city walls, towers, and fortifications. The walls are often thirty or forty feet in thickness. Some of the watchtowers(?) look like great, square factory chimneys nearly one hundred feet high. These walls in ruins speak eloquently of the past, of the fierceness of the struggle that has been waged between the Chinese and the aborigines for over a thousand years, and of the decadence of the Chinese government.

On July fourteenth we arrived at Songpan, after twenty-two days of steady travel from Suifu.

After leaving Chengtu the Chinese helpers and I walked practically all the way. No one expected to ride unless he was sick. In a trip of about three thousand li, I rode a total of twenty li, and then only because I was not well.

We had planned to save expenses by living off the land, but found that it was quite difficult to keep ourselves well supplied with food. There were times when we could purchase neither fruit, meat, nor vegetables.

Not the least of our hardships was due to the fact that we met no foreigners until we returned to Uei Tseo, when our trip was almost at an end. This made the securing of coolies and food, the planning of trips, and the finding of inns a much more difficult task.

The city of Songpan is not so large as Tatsienlu, the surrounding mountains are not so high or so steep, and a larger proportion of the population is Chinese. While the altitude of Tatsienlu is 8500 feet, that of Songpan is said to be 9500 feet. Songpan is the main commercial center of the northern Szechuen border as Tatsienlu is of the west. Coolies and pack animals carry in quantities of tea, straw sandals, vegetable oil, and other commodities, and bring out medicine, hides and wool.

I was anxious to go north and west of Songpan, where the large mammals are more plentiful, but the magistrate would not permit me to do so. The reason was that that Bolotsis are so savage and so given to brigandage that it is almost impossible for the Chinese to control them. However, I was allowed to go eighty li eastward to the Yellow Dragon Temple (黃龍寺) under the protection of six armed soldiers, who never allowed me to get out of their sight.

The Yellow Dragon Gorge is one of the most beautiful and interesting spots that I have seen. It is reached by crossing a mountain pass about fourteen thousand feet high. There is a stream flowing down the canyon, beginning at the base of a snow mountain called Shueh Bao Din Shan (雪寶頂山) or Shueh Bao Gin Shan (雪寶井山), for about ten miles, when it joins another stream that flows at right angles to it. The water of this stream is so full of mineral that the mineral substance is deposited all the way down the canyon, becoming a bright yellow stone. In some places the stream widens out and the bed is a wide layer of stone. In many places the water trickles down into a series of terraced pools resembling rice paddies on the hillside, with the outer banks rounded into irregular shapes. There are similar pools in the Yellowstone Park, but there are probably many more of them in the canyon of the Yellow Dragon Temple. The crystal-clear blue water and the bright yellow stone give these pools a beautiful appearance, which is enhanced by the surrounding forests that cover all the hillsides, and a wonderful variety of flowers. In these forests there are gnarled and twisted cedar trees, and tall fir trees covered with long, down-hanging white moss. Underfoot one often steps on a carpet of green moss that is

so soft that one sinks ankle deep. Butterflies flutter about among the green trees, flowers of all colors blossom everywhere, and there is a sweet fragrance such as is found only in the virgin woods. At the head of the gorge are the lofty mountain peaks which are perpetually covered with snow, and great ribs of white snow reach far down towards the Yellow Dragon Temple.

There are several temples in the process of construction or repair, the most important of which are the three temples at the head of the canyon called respectively the lower, the middle, and the upper Yellow Dragon Temples. In the upper temple is the Yellow Dragon God himself, who is called Huang Long Tsen Ren (黃龍眞人), yellow Dragon True Man. He is not a real dragon, but is an old man with a long white beard, and with bright-yellow clothing resembling in color the yellow rock of the stream bed. He is the chief god or ruler of this district. Outside the temple and in front of it is a large stone altar where the aborigines worship, using cedar twigs as incense. The Chinese do not use this altar, but worship inside the temples.

The official who is overseeing the work on these temples said that the first temple was built in the time of Tao Kuang (道光), about a hundred years ago. I was unable to get any information about the origin of the worship of the Yellow Dragon God at this place. Probably the yellow stone suggested the idea that this canyon is the home of the Yellow Dragon or the Yellow Dragon God. The existence of the stone altar used only by the aborigines suggests the question, Did the aborigines first worship the Yellow Dragon God here on a stone altar under a clear sky, and the Chinese come later, build temples, and unite with the aborigines in the worhip of the Yellow Dragon or the Yellow Dragon God?

Now Chinese and aborigines alike worship at these temples. There are streams of pilgrims constantly coming and going and there is a great annual festival attended by thousands, at which there are hunting, lama dances, and worship of the gods, and which lasts about three days. The Yellow Dragon Gorge, with its temples, its sacred places, and its deities, now holds as large a place in the religious life of the Songpan district as Mt. Omei does in central Szechuen.

At one place there is a deep round hole filled with water. It is about eight feet deep, but the natives think it is much deeper, and call it a sea.

I saw a heap of stones on which incense sticks had been placed. One native told me that they were worshipping the mountains, and another that they were worshipping the mountain god (山干). Then the two had a dispute as to whether it was the mountain or the mountain god. At another place south of Songpan, I saw sights of worship, and asked what it meant. The native said that they had been worshipping the mountain. When I asked more questions, he said that it was the mountain god that was being worshipped. Many

of these natives do not seem to differentiate much between the mountain and the mountain god.

In the Yellow Dragon Gorge the stumps of several trees are being worshipped. There seems to be no idea that there is a god in the tree, but worship is rendered to the tree on account of its age. At one shrine a tree has been accidentally burnt so that there are four roots rudely resembling the feet of an animal. The tree stump has been carved so as to look like a body, and plasterers have placed on it a dragon's head. The result is a dragon god.

In one place the stream has deposited so much of the mineral substance that a waterfall has been formed. In the side of the rock under the fall are several natural caves. One is near the ground, and a person can crawl into it. Most of the Bolotsi aborigines who come to worship crawl into this cave, but I did not learn whether the idea was phallic or merely a way of worshipping the dragon god.

This district would be very interesting to the geologist. The mineral is deposited mostly near the edge where the water flows less swiftly, so that the stream constantly builds up banks for itself. In many cases the stream bed is from five to thirty feet higher than the surrounding land. The lowest spots are old discarded beds of the stream. Evidently the creek does not dig a deeper channel, but is constantly building up its bed, which becomes higher than the surrounding soil, until in a freshet it suddenly breaks its bands, adopts the lower course, and begins anew the process of building up until the new bed is higher than the one that has been left. Leaves, sticks, and trees that fall into the water are encased in the deposited mineral rock and buried deeper and deeper. This happens very rapidly from the point of view of geological time. An interesting question is, Will the buried leaves, twigs and trees become petrified? Only time will tell.

One who enjoys climbing can go about ten li down the road from the mouth of the Yellow Dragon Canyon, where, just above a small inn, he will find a path winding gradually up a ridge to a point opposite the Yellow Dragon Gorge, where the elevation is probably above thirteen thousand feet. From this place one gets a fine view of Yellow Dragon Gorge, with the snow-capped mountain peaks at its head, with its green forests, its waterfalls, the broad yellow bed of the stream, the shining pools, and the temples. To the east one can see high, pointed mountain peaks which seem to be far above the snow line, but whose sides are probably so steep that snow can not lodge on them. To the north are bald lava peaks, on the sides of which are wonderful foldings of the rock strata. There is a high but small waterfall, to the left of which great, thick layers of rock are folded and refolded. Higher and to the rear there are finer but not less interesting foldings, which are so pointed and regular that they resemble pointed crochet patterns. These higher foldings can be seen with a field glass from the upper part of the Yellow Dragon Gorge.

On July twenty-seventh I returned to Songpan, and on July thirtieth I started southward towards Chengtu. We already had about four hundred bird specimens and a good catch of insects, but I wished to find a spot with a different elevation where other kinds of birds, insects, and other specimens might be found. When we arrived at Uei Tseo on August fifth, what was my surprise to find Mr. Torrance, who was on a preaching tour. We visited several temples together. In the Mohammedan temple there was a great cistern and shower baths where the Mohammedans took their baths of purification before worship. There was an interesting Buddhist temple where the main idols were made of white marble, the kind of white stone worshipped by the aborigines and especially by the Ch'iang. The making of the idols of this stone was evidently a clever device of the Buddhists. They hoped that in this way the Ch'iangs might be induced to leave their monotheistic faith and worship the pantheon of Chinese idols. The experiment was a failure. The temple is in ruins, the idols have their heads or parts of their bodies battered off, and there is no evidence that any Ch'iangs ever came to worship.

On August seventh Mr. Torrance and I parted near Uen Ch'uan. Mr. Torrance had arranged with the aboriginal king for me to go to Ts'ao P'o, or Kuan Tsae, for another period of collecting. There had been a heavy rain that afternoon, and the creek had swollen to a roaring torrent, over which we were to cross on a bridge made of unhewn logs tied together by pieces of wild vines. These vines were now rotten, and while one of the carriers was crossing the bridge gave way. I heard the coolie call for help, and saw him being carried swiftly down the stream towards a rapid. He was carrying my rifle, a folding bed, a folding chair, and a tent. The tent was recovered next day, and the drowned man was found still later, but nothing more was seen of the rifle, the cot or the chair. The drowning of the coolie made a sad ending for that day.

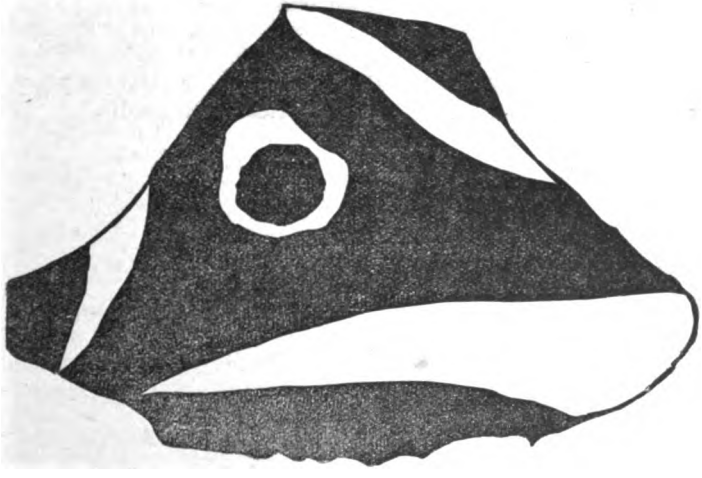
In the fortified yamen at Kuan Tsae (官寨) or Ts'ao P'o (草坂), the upper two stories are given over for use as a lamasery. In this temple are about ten pairs of copulating idols. Among their number are Buddha and Kuanyin Pusah. The latter is not a female as is so often the case in Chinese temples, but a male with six heads, four pairs of legs and several pairs of arms. Like several other idols, the fringes of his garments are decorated with human heads and skulls, a custom that must point back to a condition when head-hunting was in vogue, and when a man's position among his fellows was determined by the number of skulls of human victims that he possessed. While this Kuanyin is sporting with the goddess, he is treading to death under his eight feet prostrate human beings, on whose faces are the marks of intense agony. This Kuanyin Pusah is anything but a god of mercy or of high moral character.

Readers of Asia have doubtless seen in the November and December issues, 1923, pictures of Cambodian dancers, and references

to the presence of these dancing girls in the Hindu temples. In the lamasery ten li up the canyon from Ts'ao P'o, one wall is partly covered with pictures of such women. There is so close a resemblance between the pictures of the Cambodian dancers and those of the Wasi lamasery that there can be no doubt that somewhere in the remote past they have a common source. In the lamasery of the Ts'ao P'o yamen there are two life-size images of such dancers. While in both the images and the pictures the forms are feminine, the natives worship them as male gods.

During the Songpan trip I often asked the natives what their prayer wheels and prayer flags were for. Invariably I was told, not that they were a means of saying prayers, but that they were a means of reading or chanting the Scriptures (念經), and that as a result evil influences were warded off and happiness and prosperity secured. Many could not read the Scriptures, and those who could grew weary. The "prayer-flags" and "prayer-wheels" were a substitute for such reading. Can it be that we have greatly over-emphasized the prayer element in the use of these flags and wheels?

After eight days of collecting about Ts'ao P'o, we returned to Chengtu and thence to Suifu. Since then the specimens have been forwarded to the National Museum. There were fifty boxes, large and small, including fish, snakes, insects, birds, and mammals. It is a pleasure to collect the wonderful creatures of Szechuen for the great museums. It is a privilege to study the Chinese and the aborigines with their social and religious customs so different from our own; and it is a joy to see how nature manifests her beauty and her grandeur in so many different ways.



SOME SZECHUAN SPECIMENS IN THE SMITHSONIAN INSTITUTION

COLLECTED BY D. C. GRAHAM, NOTED BY THE SECRETARY.

It seems fitting that the Secretary especially mention the fact that Rev. D. C. Graham has been unusually successful in collecting specimens in West China. He sees peoples, he sees the lives they live, he sees the religions they live by and die by, and then he sees the lands that environ and affect all. The two articles in this Journal indicate such interests. He also sees and collects living things. He has succeeded as few others have in collecting and forwarding to museums and colleges specimens of the moth, butterfly, fly, fish, amphibia, and mammal life of Szechuan. The Smithsonian Institution is constantly commenting upon the remarkable collections that he sends. Mr. Graham has surpassed any other man in West China, whose major interest is other than collecting, in the collection of new species and varieties of living things. He is making a real contribution to Natural History by his careful collecting in the Suifu, Kiating, Omei, Sungpan, Tachienlu, Tile Mt., and intermediate country. It must be confessed that Szechuan is rich in the forms which Mr. Graham collects, but Mr. Graham sees the possibilities and then he *collects*. The man who makes an exhaustive study along the line of Mr. Graham's collections would do well to consult the Proceedings of the United States National Museum and the Occasional Papers of the Boston Society of Natural History during the last six years, for there are an unusual number of new species to his credit.

p.47,1.21 : **Latitude** 30 degrees, 38.3 minutes, North.

p.49,1.3 : Omei, not Chengtu.

p.50,1.16 : wing, not wind.

p.50,1.22 : fall, not fell.

p.50,1.26 : Omit "in Chengtu".

p.50,1.38 : *goschkewitschii*, not *goschakewitschii*.

p.50,1.39 : *perfecta*, not *perfecti*.

p.51,1.19 : *Satyridae*, not *Satyrs*.

p.52,1.18 : *Kallima*, not *Killima*.

p.52,1.36 : infection, not invection.

p.52,1.42 : *ilia, suhcaevulea*, not *ilia suncaerulea*.

p.53,1.6 : This is a large black butterfly whose life-history is unknown.

p.53.1.14 : *superba*, not *supreba*.

p.54.1.1 : *orithya*, not *orinthya*.

p.54,1.38 : *aglaia*, not *agalia*.

p.55,1.37 : *Camena*, not *Tamena*.

p.55,1.39 : *enthea*, not *buthea*.

p.55.1.42 and 1.43 : *Lycaena atroguttata*, *pherctes* and *amandus*.

13. *Cyaniris oreas, argiolus, albocaeruleus, harsilia* and *coelestina*.

14. *Taraca hamada*.

p.56,1.6 : Omit "a".

p.56,1.32 : *flavoides*, not *Flavoides*.

A COLLECTION OF SOME BUTTERFLIES OF SZECHUAN

By George M. Franck, Chengtu.

My collection of butterflies is largely composed of specimens which I have taken, in season and out of season, during more than a decade in Chengtu, at Kwanhsien, and on celebrated Mount Omei. These areas do produce a multiplicity of genera, but they do not furnish all of the genera of all of the families that are at home in Szechuan. A Szechuan collection to approximate completion must be supplemented by catches much further afield. Additional varieties are found south of the Yangtse River. Other varieties in multiplicity are native in the mountainous districts to the west of Chengtu. However, the mountain species (as far as my experience goes) do not include any of the very large specimens so commonly met with in the Chengtu Plain region. Were it feasible for me to collect in the more northern parts of the province, it is highly probably that I would find species that are not found in other parts.

I shall not discuss the relation of topography to distribution and numbers; I shall not take up the question of altitude and families; I shall not treat of geographical barriers and isolation of genera; and I shall not specifically consider vegetation and humidity control in the life of the butterfly in Szechuan; but I shall give some of the data that is prerequisite to such generalization.

The nucleus of my collection comes from Chengtu, Latitude 30° 38'.3 North, Altitude 1678'. This city is situated in the midst of a very gently-sloping alluvial plain which is bordered by hills and mountains on all sides. Thirty miles to the east are mountains approaching an altitude of 4000'. One hundred miles to the southwest is the 11,000' Mount Omei with its supporting foothills covered with dense verdure. Thirty miles to the west is Kwanhsien (altitude 2350') located on the edges of the Chengtu Plain. Just back of Kwanhsien City the mountains step back and up, 3000', 6000', 9000' and beyond.

One hundred miles Back of this rain-screen, is the Songpan Region with its close-set high mountains and deep-cut valleys. Between these last named places are the heated valleys of the streams, overtopped by arid, desert, mountain-slopes and cloud-condensing high mountain peaks and ridges. The Chengtu Plain is thick-set with wet-crop rice during the humid season, June 1st to September 1st; but

during the remainder of the year, the fields are dry-cropped. The environing mountains are covered with luxuriant vegetation, ranging from tropical bamboo at the base to dripping paper bamboo at the waist and snow-edelweis at the peak (in the case of the higher mountains). The higher ranges, the real mountains back of the rain-screen, to the north and west and south, are marked by sagebrush-like vegetation or by evergreen and deciduous tree, or by medicinal or other herb. Hinterside and hitherside of mountains are marked by different types of vegetation, while altitudes are calibrated in terms of vegetation characteristic of successive latitudes.

To reiterate; High mountain and deep valley and broad plain in close proximity in a region of seasonal winds in a low latitude make for a great variety in temperature, in humidity and in vegetation. Such varied conditions with their concomitant isolating barriers (as far as the butterfly is concerned) present ideal conditions for the homing and the producing of representatives of all the families, numerous genera and multiplied Species and varieties of Rhopalocera within a limited area. My collection of butterflies has been made in just such a terrain. I shall now proceed to deal with some of the representatives of the various families in order.

I. PAPILIONIDAE:

Practically all the representatives of this family are large and beautiful creatures with strong, clubbed antennae. The legs are rather long and thin. Both sexes have three pair of well-developed legs suitable for walking. The chrysalis is never suspended by the tail, but it is either fastened head-upwards by a girth around the body, or it is laid on the ground. The caterpillars possess a retractile fleshy fork behind the head and when disturbed they emit from this organ a very strong pungent odor. This family is represented in my collection by 16 species taken in this province. Individual size and beauty more than compensate for small numbers. Representatives of this family first awakened my interest in this study. Perhaps the most common ones in Chengtu-often seen in the gardens-are *Papilios protenor, bianor, borealis* and *machaon*. Of these, I am familiar with the larvae of *protenor* and *macaon*. The former feeds on the foliage of orange and allied tress, and the latter feeds on parsley and similar leaves. The numbers of *P. protenor* are greatly reduced by parasites. It is not an uncommon experience to find, bring home, care for and observe a caterpillar turn into a chrysalis only to discover a large number of Ichneumon flies emerging from a small hole in the case within a few days. I am not in a position to state at which stage the parasite attacks this butterfly. The mischief may have been done before the tiny caterpillar emerged from the egg and it may have been during the caterpillar stage, that the parasite stung the soft body and deposited the eggs. In any case the grubs hatch out and live on the inwards of the victim during the pupa stage. *P. machaon* has

the distinction of being the species in this family found nearest the north pole. It has been found just under the 70th parallel Another species found at Chengtu is *P. aeacus*. It is the giant of the family. The upper wings are black and the lower wings are largely yellow. *P. rhetenor* is rare in this locality and I have seen not more than three specimens in any one year. I have found but one female of the species. *P. lama* is even more rare and I have but one specimen. Others more frequently found are *P. xuthus*, *clymenus*, *mandarinus*, *chinensis*, *hercules* and *sarpedon*. Then there is *P. nicconicolens* which has its home at Kin-fuh Shan near the extreme south of the province. There is another large genus of the *Papilionidae* called *Parnassius* of which I have two specimens from high country near Songpan. It is restricted to high altitudes in mountainous districts where it is found as high as 20,000'. I do not know of any specimens having been taken at Kwanhsien or Omei.

II. PIERIDAE:

The Pieridae are for the most part medium-sized. Their chief characteristic in pattern and colour consists in deep blackish streaks and spots on a white ground. The eggs, elongate and of various colours, are deposited end-upwards, either singly or in batches on the under side of the leaves of the food-plant. The chrysalis is suspended by the tail and is kept in a vertical position by a girth. This family is little disturbed by birds, as they are apparently unpalateable. Several fossil Pierids have been found and they do not differ in size from recent forms. They are a numerous family in this part of the world. Due to the fact that some of the species appear in great numbers a superficial observer might hastily conclude that this family is the largest. The Cabbage Butterfly appears in swarms in June in gardens and the larvae plays havoc with cabbage and cauliflower.

I have 24 species belonging to 12 genera of the *Pieridae*. The genus *Terias* has four species: *laeta*, *hecabe*, *mandarina*, *senegalensis*. The genus *Pieris* is represented by *brassicae*, *deota*, *melaina*, and *extensa*. *Poliographus*, *fieldi*, and *sulitelma* represent genus *Colias*. *Metaporia* includes *largeteaui*, *oberthuri*, and *lotis*. *Gonepteryx* has the species *amintha* and *alwina*. I have several single species as: *Dercas enara*, *Leptidia sinapis*, *Aporia hippia*, *Delias belladonna*, *Synchloe dubernardi*, *Anthrocharis cardamines*, and *Midea scolymus*. *G. alwina*, *L. sinapis* and *A. hippia* all come from the Songpan region. Until this spring I was aware of *M. scolymus* occurring in the southern part of the province in the Suifu region, but in March I obtained a specimen in Chengtu. One of the finest of the Pierid is *P. extensa* which in the right season is found in great numbers rather high up on Mount Omei in the neighbourhood of Chu-lao-tong Temple. Years ago I saw hundreds of this butterfly drinking by the roadside there. One might have easily captured a dozen at a time as

they clustered about puddles. The largest genus of the *Pieridae* is *Colias*, but only a very few of its species are found here. Members of this genus are found nearer the North Pole than are the other genera of this family.

III. DANAIDAE:

This family is very rich in species, but these are almost entirely restricted to tropical regions. Most of these are large and of very bright colours. They have a slow and awkward flight, and often congregate in great numbers. I have found but four species of the family in Szechuan; viz. *Danais tytia*, *septentrionis* and *melaneus*, and *Euploea midamus*. D. *tytia* is seen most frequently, but even it is by no means common.

IV. SATYRIDAE:

The Satyridae vary much in size but they are similar in shape. As a rule they are sombre in colour and they are mostly brown on the upper side. They do not restrict their time of flight to the hours when the sun stands highest in the sky as is the rule with most of the other families. On the contrary, some take to the wind in the daytime only when disturbed, and normally fly about only after the sun has set. The sombre coloured species prefer places where there is shade and dense undergrowth for their flight. The Satyrids are protected neither by secretions of acids nor by absorptions of vegetable poisons which render certain species unpalateable. This family would fell prey in greater numbers than they do to their bird enemies were it not for their tumbling, irregular, zigzag flight. The larvae feed for the most part on different grasses.

My collection contains 16 genera of the *Satyridae:*

1. *Mandarina regalis.* (It is rare in Chengtu, but it is found occasionally at Kwanhsien and Omei. It is remarkable for its bright blue colouring.)
2. *Mycalesis mineus*, *perdiccas*, and *gotama*.
3. *Lethe verma*, *dyrta*, *baucis*, *satyrina*, *camilla*, *marginalis*, *manzorum*, *syreis*, *gemina*, *ocellata*, *rohria*, *callipteris*, *lanaris*, *schrenckii*, *davidi*, *christophi*, and *coelestis*.
4. *Zophoessa moupinensis*, *albolineata*, and *progne*.
5. *Rhaphicera dumicola*, and *satrieus*.
6. *Melantis tristis*.
7. *Neorina patria*.
8. *Neope serica*, *muirheadi*, *segonacia*, *armandi*, *pulaha*, and *goschakewitschii*.
9. *Ypthima perfecti*, *medusa*, and *asterope*.
10. *Callerebia polyphemus*, and *albipuncta*.
11. *Melangaria montana*, and *halimede*.

12. *Satyrus sybillina*, *isola* and *fuliginescens*. These three species came from the Sungpan district.
13. *Callarge sagitta*. I have but one specimen of this species which is rare in these areas.
14. *Pararge praeusta*.
15. *Aphantopus arctica*. This is a Songpan specimen.
16. *Coenonympha sinica*. And in addition to the above I have a few others which I am unable to identify.

The large genus of Erebia is quite unrepresented so far as my searches go. Possibly a fuller knowlege of the Sungpan and Tatsienlu section might include a few species.

Probably the most showy of all this family is (7) *N. patria*. It is a rather fast flyer and it is difficult to catch as it travels round the mountainside as though it were in a hurry to meet an appointment. One is fortunate to net a half dozen perfect specimens in a season for they are not a numerous folk. In general appearance it resembles the *Nymphalidae Isodema adelma*, but its differentiating mark is a single band of white on the upper wing. Some of the smallest and at the same time the commonest *Satyrs* are (2) *M. perdiccas* and (9) *Y. asterope*. These are met with constantly wherever there are trees and grass. Another very common one is (8) *N. goschkewitschii* and it is seen along the roadsides all over the plain, especially during the month of August. It likes to suck the sap or moisture exuding from the trunks of trees. Another very conspicuous member of the family is (10) *C. polyphemus* which is quite common on the Kwanhsien Hills during August. Unlike many of its fellows it frequents the open spaces. Another variety (4) *Z. progne* is to be found in August on the higher reaches of Omei where they frequent the pathways. Clusters of them may be captured as they are busily engaged sucking the moisture from some old cast-off sandal or other object. Although the majority of the butterflies of this family are of a dark brown colour, in the genus (11) *Melangaria* we find butterflies with a distinctly whitish colour. Of the two varieties already mentioned (11) *M. montana* is the finest and at the same time the commonest.

V. MORPHIDAE:

This family of giants is composed of a group that is sufficiently modified to set them off from the Satyridae. Only a very few species are to be found in the Palearctic regions, and of these but four are represented in my collection. These four are *Stichophthalma suffusa* and *neumogeni*, *Faunis aerope* and *Enispe enervata*. The most prominent among these is *S. suffusa* which the children have nicknamed "Yellow Emperor". This species loves to frequent the neighbourhood of bamboo groves, and to suck the exuding sap of trees. When resting upon any object the wings are folded close together. It is a comparatively slow flyer and looks very easy to capture, though as a

matter of fact it is very hard to catch except when taken by surprise as it has a very tumbly and deceptive flight. When pursued it will often take refuge among clumps of brambles or make its way through thick hedges, and it is almost useless to try to chase it even in open country. *S. neumoegeni* is very like *suffusa* in appearance but is much smaller. The third species, *Faunis aerope*, which is fairly common some seasons is of a very light unmarked brown on the upper surface of the wings, and of a much darker, richer colour underneath. *Enispe enervata* is rarely met with and I only have two specimens.

VI. NYMPHALIDAE:

The Nymphalidae have the fore-legs in both sexes atrophied and useless for walking, so they carry them folded against the breast. The pupae are suspended by the tail only. The Nymphalidae are for the most part of strikingly beautiful patterns and colours. Most of them are not protected by poisonous secretions but they are protected by a swift and adroit flight which becomes swifter when pursued. Protective colouration on the under side of wings is of rather frequent occurrence. The most striking example of this that I know is that of the "Leaf Butterfly" or *Kallima chinensis*. The bright colour of the upper sides of the wings is very noticeable as the insect flashes through the woods until it suddenly disappears by alighting and instantly closing its wings, the under side of which are shaped, coloured, and marked exactly like a dried leaf. In contradistinction to the shade-loving Satyrids, all the Nymphalidae group love the sunny places along the roads and hillsides. Some species live nearly all the time at the height of the tree tops, only visiting the ground at certain hours of the day to feed. A good example of this is *Heleyra superba*. I have only succeeded in catching one specimen in all these years. Others are fond of flowers and rove everywhere in fields and gardens. Often numbers of these are to be found in our city gardens.

This group of butterflies has but little vital power to survive bodily injuries. In many of the Nymphalidae the apparently strong thorax breaks under the slightest pressure and the butterfly is unable to revive and fly away. On the other hand the Danaidae have strong recuperative power. The larvae and pupae of many of the Nymphalidae are subject to parasitic invection. The parasite deposits its eggs on the chrysalis the moment it sheds its larval skin. The larvae feed mostly on non-poisonous plants, and protective resemblance and external thorns are their defense against enemies.

The following is a list of the genera and species with which I am more or less familiar:

1. *Apatura iris, ilia suncaerulea, fulva, fasciola* and *subalba*. *Ilia* is a beautiful little butterfly whose larvae feed on the leaves of the willow tree. August is the time to find it as one

crosses the Chengtu Plain. I have seen it several times in the streets of Chengtu and it seems to find more to its taste in the mud of the roadway than in the flowers of the garden.

2. *Sephisa princeps.*
3. *Sasakia funebris.* This is a fairly large butterfly whose life-history is unknown.
4. *Diagora virdis* and *nigrivena.* These are very rare in West Szechuan and were taken on Omei.
5. *Charaxes polyxena.* I have one female of this rare species taken in Chengtu some years ago and two males captured at Kwanhsien last year.
6. *Dichorragia nesiotes.*
7. *Helcyra supreba.*
8. *Eriboea mandarinus.* This is another very fine butterfly, that loves the mud of the roadways. When disturbed it will fly ahead of one along the road for a considerable distance only to eventually circle and return to the original feeding spot.
9. *Cyrestis thyodamas.* This specimen from Mount Omei has a very delicate appearance and reminds one of a map.
10. *Pseudergolis wedah.*
11. *Neptis acidalia, hylas, pryeri, dejeani, philroides, aspasia, philyra, thestias, chinensis, antilope, ananta, antonia, cydippe* and *hesione.* This large genus is well represented in Szechuan. The name "Zebra" is some times given to this group on account of the white bands and spots on wings. Perhaps *hylas* is the most common species. It often may be seen in slow, floating flight along the edges of corn-fields. It is the smallest in physical size of the Neptis.
12. *Limentis homeyeri, sydyi,* and *cottini.*
13. *Pantoporia recurva, disjuncta, ningpoana, serica,* and *punctata.*
14. *Stibochiona nicea.* This is a beautiful little butterfly with dark blue wings edged with white spots. The life history of this species is unknown.
15. *Euthalia omeia, confucius, pyrrha, hebe, leechi, kardama, thibetana,* and *pratti.* The butterflies of this genus have a rich dark green colour and size. They frequent the edges of woods or water-courses that have small trees growing beside them. They enjoy sunning themselves with outstretched wings on the upper side of leaves. Every now and then an individual will leave its place to gambol with a companion or to chase one of another species that has ventured too near, but it will soon return to almost the same spot. Some of the above specimens are rare here. I have but one specimen each of *pyrrha* and *pratti.*
16. *Hestina assimilis, nama,* and *melanina.*
17. *Isodema adelma.*
18. *Kallima chinensis.*

19. *Junonia iphita, almana, asteria* and *orinthya*. *Asteria* and *almana* are very much alike, but the latter has a pointed apex to the upper wings. The under wings are also differentiated by several occelli on the former and by resemblance to dead leaf on the other. Both are often found in our gardens and along country roads. *Orithya*, or the Peacock, is a very beautiful insect, especially the male, with its bright hind-wings. Many of these may be found playing about on the short grass of the city wall, and in other places where there is plenty of short grass.
20. *Pyrameis indica* and *cardui*. These are both common garden varieties. *Indica* may sometimes be found feeding from flowers or basking in the sun on a wall. It may often be seen on a sunny day as late as December and it may be seen among the first arrivals in the spring. The larvae feed on nettles. They protect themselves by drawing the leaves closely together with silk threads and remaining closely "indoors" during the daytime.
21. *Vanessa canace* and *chinensis*. The former is fairly common on the lower ranges of hills around the Chengtu Plain. It may often be seen sucking the sap exuding from trees. It likes to bask on a hot stone in the sun. *Vanessa chinensis* comes from the Sungpan district.
22. *Polygonia extensa* and *hamigera*. These are my only finds in West China of this large genus. In fact I believe these to be seasonal forms of the same species. The former is very common during the early part of the summer and the latter is very common during September, when both varieties are found. They both frequent the same localities and their habits and manner of flight are the same. They are found in our gardens and in the country.
23. *Araschnia doris*.
24. *Symbrenthia lucina*.
25. *Melitaea obtecta*.
26. *Timelaea nana*. This is a rare specimen from Omei which is one of the very few places it is known to have its habitat.
27. *Argynnis paphia, nerippina, nerippe, laodice, niphe, sagana, childreni, valesina, bessa, agalja, clarina, dia, genia*, and *gong*. *Argynnis*, one of the larger Nymphalidae genera, is not so well represented here as in Canada and the United States. The first nine species listed are found fairly well distributed in this part of Szechuan but the last five are found in the Songpan region. *Sagana* and *niphe* are perhaps the most common. The former is found on the Chungking Hills wherever there are flowers. The males and females differ greatly in colouring so that one unacquainted with them would not suspect their relationship. *Niphe* is very common in Chengtu. The female is a very beautiful creature. The larvae may be found feeding on the leaves of wild violets and other weeds.

28. *Cethosia biblis.*
29. *Pareba vesta.*

VII. ERYCINIDAE:

This family contains more than 1000 forms, but it is very unevenly distributed over the globe. More than 90% of them inhabit America, and the remainder occur chiefly in the Malay Archipelago and the Himalayas. Only two species are known in Europe. A few species occur in Szechuan of which I have six in my collection. The fore-legs of the males are modified so that they are brush-like but all six legs of the female are developed and function in walking. The wings are very delicate and the scales are so loose that specimens become damaged very easily. The following are found in Szechuan: *Zemeros flegyas; Abisara lydda* and *echerius; Dodona sinica* and *ouida;* and *Stiboges nymphidia. Z. flegyas* and *A. lydda* are the most numerous of these.

VIII. LYCAENIDAE:

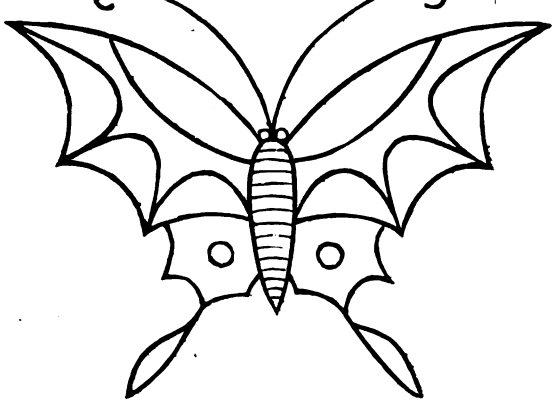
These are practically all small. They are popularly known as the "Blues" on account of the blue colour which prevails in the majority of species, at least in the males. In many of the species the caterpillars have a gland whose sweet secretion attracts ants which stay with the larvae and protect them against parasites. Species are known whose larvae are carried by the ants into their nest and kept as a kind of domestic animal where the larvae finally pupate. This family is very generally distributed, and the butterflies are met with everywhere even above the snow line as well as beyond the border of vegetation in the desert. They do not however extend so far north as do the Pierids, Satyrids and Nymphalidae. Many of the Lycaenidae when resting have the peculiar habit of moving the hind-wings backwards and forwards as if rubbing them against the fore-wing. It is assumed that this rubbing of the wings is in connection with the production of scent. I have 46 varieties but have found the family a very difficult one to name, especially those belonging to the genus Lycaena which has the largest number of species of all the genera of the family. Some of the species of these little blue butterflies are very numerous, but being so small escape the notice of many people. Yet along the roads, in our gardens and on the mountain paths there are in the summer time great numbers of these beautiful little folk. The following is a list of the genera and species of those that I have so far been able to identify:—1 *Rapala nissa.* 2. *Tamena ctesia* and *icetas.* 3. *Niphanda lasurea.* 4. *Thecla mauretanica* and *lais.* 5. *Aphnaeus zoilus.* 6 *Zephyrus coruscans, jankowskii, buthea, bieti* and *comes.* 7. *Ilerda brahma, epicles* and *marica.* 8 *Aphantopus arete.* 9 *Curetis acuta* 10 *Polyommatus bacticus.* 11. *Everes fulicandis* and *argiades.* 12. *Lycaena oreas, argiolus, albocaeruleus, harsilia* and *coelestina.* 13. *Taraca hamada.*

Belonging to these eight families of butterflies there have been about 20,000 forms described for all the world, and the number increases from year to year. The locality richest in species is the

southern slopes of the Himalayas, while New Zealand, (considering climate and rich vegetation) is the poorest. In the Palearctic region (which includes Europe, Canada, and the northern parts of Asia as far south as the southern boundary of Szechwan) the greatest number of species occur in China and Japan.

IX. HESPERIDAE:

The Hesperidae, or Skippers, are not considered a "true" butterflies, and in some points resemble moths, and have therefore by some writers been classed among the Heterocera, or moths. However, they are more generally accepted as butterflies and regarded as a connecting link between the two great orders of the Lepidoptera. They are very abundant in species, compact in build, wings short in proportion to the body, and the six legs well developed. No other group of Lepidoptera decreases so rapidly as we go from the Equator towards the Poles. Tropical America is the home of the greatest number of species and from there alone over 1000 are known, while in the Palearctic regions only about 200 are known. The larvae live almost never quite exposed, but shelter themselves by drawing in and fastening together with silk threads the edges of a leaf. The head only leaves the shelter to feed while the body always remains concealed. The habits of the Hesperidae agree with the majority of butterflies. They love the sun and the warm places. Their flight is extraordinarily rapid. Quick like lightning they disappear from our view and return as suddenly the next moment to settle on a leaf or on the ground. To this family I have not as yet been able to give very much time or study, and there are probably a number of species to be found in this district other than those I have already netted. Those already identified are as follows:—1. *Ismene septentrionis.* 2. *Rhopalocampta benjaminii.* 3. *Satarupa diversa* and *moorei* 4. *Calliana pieridoides.* 5. *Parnara pellucida* and *mathias.* 6. *Augiades crateis* and *Syivanus.* 7. *Notocrypta curvifascia.* 8. *Celaenorrhinus maculosa.* 9. *Abraximorpha davidii.* 10. *Gegenes nostrodamus.* 11. *Adopaea sylvatica.* 12. *Taractrocera Flavoides.*



THE WHEEL OF LIFE OR THE WHEEL OF THE LAW

A. J. Brace, F.R.G.S. Chengtu

(Tibetan-Srid-pahi khor-lo. Chinese, Fa-len-sh'ang-chuan 法輪常轉)

The Gospel of Gautama Buddha summed up in a sentence from the Nikaya 22 reads, "One thing only do I teach-Sorrow, and the uprooting of sorrow". Salvation is hoped for in the revolving of the wheel. The figure is aptly expressed from the introduction to the Jataka (Saunders),

"As some poor prisoner in dungeon pent
From year to year is racked by pain,
Longs for release and cannot find content,
But ever pines and chafes against his chain-
So do thou see in each succeeding birth
A prison cell of untold misery,
Seek to shake off all chains that bind to earth
And from existence evermore be free."

Buddha did not attempt to account for the first life; his starting point is the connecting link between the old life and new-ignorance or unconscious will. He accepted the Universe as Will and Idea (Sorenson) and Karma as the controlling intelligence-different to the Brahmins who believed in a Creater. The Universe is subject to a natural causation known as Karma. The merits and demerits of a being in a past exixtence determine his condition in the present. Karma is the ethical doctrine of retribution experienced in Metempsychosis.

The wheel of transmigration or the wheel of existence is an attempt to summarize in pictorial form the whole Gospel of Buddha. It is said that Buddha taught his early followers his philosophy by drawing a large wheel on the ground. Now it has the honored place in the palace of the Dalai Lama in Lassa, who is the incarnation of Avolokitesvara's Saviour of Buddhism (p'apa Shen-ra-Zig). Sandberg says, "In Lassa the Cho Khang square is in the center of the city-the heart of the Tibetan metropolis, and the central axis takes the shape of a great wheel or circle of fairly broad roadways surrounding the Cho Khang Lamasery (largest of all temples) and other official buildings in a block together in the middle".

Now the wheel is everywhere. Every Lamasery has it painted in a conspicuous place of honor. It is also a part of the daily duty of each Lama to circumnambulate the holy temple in the orthodox way of the wheel from right to left. (See note at end of article.)

The wheel is held by a monster Tanha, representing unworthy desire the clinging to existence. He is the black demon of Desire or Self Will. If he is destroyed the wheel falls to pieces, and man is released from rebirth and earthly existence. He represents the Four Truths of Buddhism.

1. Existence is the real cause of pain.
2. Desire produces existence.
3. Extinction of desire causes cessation of existence.
4. The path which leads to this is Nirvana.

The outer circle is the chain of causation, or twelve interdependent elements comprising the links in the ontological chain of life; these elements together contribute to all phenomena. They are;—1. Ignorance, 2. Impression, 3. Consciousness, 4. Name and Form, 5. The Six Sense Organs, 6. Touch, 7. Feeling, 8. Desire, 9. Sensual Enthralment, 10. Begetting, 11. Youth, 12. Old Age and Death.

The argument seems to be, Because of Ignorance there is Impression; because of Impression there is Consciousness; because of Consciousness there is Name and Form; because of Name and Form there are 6 Sense Organs; because of 6 Sense Organs there is Touch; because of Touch there is Feeling; because of Feeling there is Desire; because of Desire there is Sensual Enthralment; because of Sensual Enthralment there is Begetting; because of Begetting there is Youth; because of Youth there is Old Age and Death. The Path of Deliverance, is to break the Ontological chain of the 12 Interdependent Causes, cease to exist, and you will enter Voidness or Nirvana. The Eight Accessories to this Noble Path are the Beatitudes from the Tibetan Canon, as follows;—1. Perfect View. 2. Perfect Thought. 3. Perfect Speech. 4. Perfect Action. 5. Perfect Living. 6. Perfect Exertion. 7. Perfect Recollection. 8. Perfect Meditation, or the most perfect dominion over passion, evil desire and natural sensation. Absolute annihilation is Nirvana. Cure of disease is extinction of patient.

Closely allied are the Buddhist Ten Commandments;—

1. Do not take life (because you may be killing a relation reincarnated).
2. Do not steal.
3. Observe purity of morals.
4. Speak the truth.
5. Speak gently.
6. Never break a promise.
7. Never slander.
8. Never covet the property of others.
9. Do not injure others (Golden rule).

10. Be orthodox. In short, do not slander the Three Precious Ones, dishonor the sacred books, break vows, or steal from a monk. For any of these sins you may be reborn a wandering spirit.

The second large circle represents the six Life-Paths, or the 6 worlds of Transmigration. They are;—

1. The gods-Lha, controlling the 33 heavens (Spirit lamp poles 33 feet high, and sunk 18 feet in earth to correspond to 18 hells)
2. The Spirit world-Lha Ma Yin-giants.
3. Humanity-Mi. All human beings.
4. Beasts and birds-Dud hgro. Interchangeable with humans.
5. Hungry ghosts or Orphan spirits-Yi-dago.
6. Hell-Dymal-wa. Eighteen varieties

1. 火山獄	2. 劍樹
3. 刀山	4. 大叫喚
5. 挖眼	6. 拔舌
7. 銅虵鐵狗	8. 挖心
9. 腰斬	10. 銅釜
11. 炮烙	12. 勾背
13. 火烘	14. 鋸解
15. 鐵磨	16. 血河
17. 寒氷	18. 頭頭背

At the hub of the Wheel are symbolical animals each attempting to eat the other, reminding one of Tennyson's "nature red in tooth and Claw". The eagle (raga) stands for lust. The serpent (dosa) stands for anger. The hog (moha) stands for stupidity. These are the cardinal vices of Buddhism the forms in which Self-will manifests itself. To get rid of selfish desire therefore is to get rid of existence and its attendant vices and miseries. Behind Self-will is Ignorance, therefore Salvation is in Knowledge. The hub of the wheel is kept in continuous revolution by the three vices.

"If the movement of the wheel be watched, the maximum of the movement will be found at its circumference. The movement slows down and reaches its minimum as it nears the center of the wheel, till at last an ideal point in the nave is reached where movement ceases. Activity pivots itself on a center of rest. The illustration suggests that all the revolutions of the Universe find their cause and starting point in some principle of absolute quiescence. When a man can still every passion, and can control all the outgoings of desire, becoming one with the animating principle of the Universe he is able to enter into its secrets and emulate its wonders." (Selby)

The great doctrine is spontaneous; man's nature is the same with Heaven. The true unwritten book is always rotating. All Heaven and earth are speaking words of Truth. The true book is not outside of man's self. The deceived are ignorant of this and therefore chant books of prayers. The law that is invisible manifests itself spontaneously and needs no book. The flowing of water, the rushing of wind, constitute great chants, why then recite prayers from books? The chanting of the liturgy is the revolving of the wheel of the law. It is the nature of things, Heaven and earth are full of it. "The wheel of the law constantly revolves" 法輪常轉. This is exemplified in Mongolia and Tibet, by the revolving of prayer wheels by wind, water and hand, by turning of which an accumulation of merit is obtained. At the core of every wheel and thousands of times throughout the wheel is the magic formula, "Om mani padme hum", "O thou jewel of the Lotus", from the Lotus of the Good Law "Miao-fa-lien-hua-king" 妙法蓮花經. Which says "As the Lotus grows out of the mire, and yet preserves its freshness and purity, so the doctrines of this book assist men to retain their original nature unsullied, and undisturbed amidst the misery and corruption around them. Truth is sometimes taught in the abstract, at other times by illustration; sometimes it is explained, and elsewhere defended, just as the lotus flower buds, blossoms, fades and falls by a succession of changes, but at last produces fruit". The wheel of life and the wheel of prayer are the constant illustrations of this meaning of the law of life.

Preaching, chanting and sutra reading are called the 'turning of the wheel', that is the revelution of the order of the world. The regular course of the universal order is very much helped by the turning of the wheel by man. The whole Buddhist library of several thousand volumes is placed in a large octagonal book-case which is rotated by pilgrims. (One at Kang Kang Chiai measures twelve feet high and six feet in diameter, turned by a huge crank, but manipulated easily by one man). 108 volumes constitute the Tibetan Canon, composed of from 40 to 50,000 loose leaves. Each lama reads about forty leaves per day. This is the reason 108 beads constitutes the lama's rosary carried by every mouk.

With the downfall of Buddhism in India in the 8th century, the priests entered Tibet which became the great center for Mahayana Buddhism with its 16 sects. The Transmigration doctrine is as firmly rooted in India as ever it was, but the doctrine of Incarnation as far as Buddhism is concerned is of purely Tibetan development. While Tibetan Buddhism has not been influenced largely from outside sources as was Chinese Buddhism, yet it has been influnced not a little by the Bon religion of Tibet. Much of their demonology has been included. Thus the Mantrayana or Tantric cult secured a strong hold in Tibet with its idolatrous cult of the worship of female energies. It is based on the worship of the productive principle in male

and female. In the esoteric Tantra are instructions for making special magic circles and wheels, postures and exercises, spells and magic, and even sensual indulgence as the road to Buddhism without further transmigration.

As the Cross is the sign of Christianity, the Crescent for Islam, so is the Wheel the emblem for Buddhism. Of this emblem several interpretations are possible. The simplest and most probable is that it stands for a conquering chariot that rolls through the world in triumph. Another version is, that it is as the sun that brightens the Universe. Still another says that it is the zero of negation. It is very certain that the wheel makes great claims for itself.

There remains an interesting question with a direct bearing on the Wheel: what is the rise of the famous prayer "Om Mani Padme Hum"? Both of these are translated by Rockhill. We can give here only the barest outline. The legendary origin is found in a Thibetan Classic "Mani Kabum", or "The Hundred Thousand Precepts of the Mani". Mani is prayer colloquially in Tibet as invocation to Avalokitesvara-The Merciful One-with a Thousand arms and a thousand eyes. It was supposedly written in the 7th century by Tsrong-tsan-gambo the first Buddhist Sovereign in Tibet. It records what might be termed a Messianic happening. The Perfect Buddha sought the help of the goddess Drolma to aid him in the redemption of the world. She became his consort. She is known in Chinese Buddhism as Kwanyin. She has twenty-one manifestations. She is thought by some writers to be identical with Astoreth of the Phoenicians, the Astarte of the Greeks, worshipped by the Jews during their spiritual declension, and referred to in Jeremiah as the Queen of Heaven.

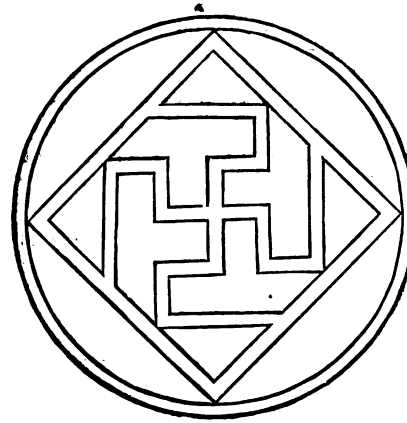
There was miraculously born to them a savior for the people who lived until he was 16 in a lotus bud. He appeared as P'apa Shen-ra-zig. 'P'apa' is the "Venerable", in Sanskrit is 'Arya.' His first words were "Love to all Creation". The Holy One declared "he will be a blessing to all creation". From his body emanated six rays of light which reached to the six inhabited regions. Then arose Six Mighty Ones from the Six Classes of sentient creatures to free them. As the sacred words were used they gained freedom. Then Buddha spoke "Most compassionate P'apa Shen-ra-zig, by the following Six Letters the door of birth for the Six Classes of created beings may be closed; Om Mani Padme hum.

By Om the gate of birth among the gods is closed.
" Ma " " " " " Titans is "
" Ni " " " " " men is "
" Pad " " " " " beasts is "
" Me " " " " " spirits is "
" Hum " " " " " hell beings is "

These Six Words can empty the kingdoms of the Six Classes of sentient creatures. Understand it well. Remember them. Repeat them. Impress them well upon your mind. "O thou Jewel in the Lotus" or as Sandberg puts it. "O thou Self Creative Force in the Cosmus".

The prayer wheel probably has its origin in the "Dharma Chakra Pravaratate", literally to 'turn the Wheel of the Law', which properly means to 'establish the supremacy of Truth'. In the prayer wheel are sheets of paper on which this formula is written in fine characters, one on top of the other. The sheets must be wound on the axis from left to right, and the wheel when in motion must revolve the opposite way, so that the writing passes in front of the person turning the wheel in the way in which it is read. Opposite revolutions are held to be sacrilegious. General Cunningham traces the first prayer wheel back to the First century of the Christian era, and has a medal of that time with a man holding a prayer wheel in his hand.

EDITOR'S NOTE: The orthodox (Red or Yellow Sect) lama in a benevolent mood holds his prayerwheel with the axis in a vertical position (like a baby's rattle with head above and handle below) and describes a circular motion with his hand and wheel in the horizontal plane. Any given point on the rim of the wheel passes before the eyes of the pray-er from right to left. If an observer looks down upon the outer end or the top of the hand-turned prayerwheel or upon the top of the water-turned prayerwheel, he sees a clockwise motion described. In case an orthodox lama wishes to grind out curses instead of blesssings, he reverses the motion. The unorthodox so-called "Black" Lamas turn the orthodox blessings into cursings and vice versa, by changing the significance of direction.



DATA ON WEST CHINA ARTEFACTS.

J. Huston Edgar, F.R.G.S., F.R.A.I., has been finding stone implements around the Chengtu Plain of Szechuan, its bordering uplands, its feeding streams, and its outlets, since 1914. This "Inner China", between the Ichang Gorges of the Yangtse and the Tibetan Marches has furnished two modest collections. The first and smaller collection is in the museum of the Royal Asiatic Society in Shanghai. This was briefly reported by photographs and notes in that Society's Journal of 1917. The larger and more important collection is in the West China Union University Museum and is here reported for the first time. It seems fitting that others be given an opportunity to study and evaluate these finds of the last eleven years from this new and otherwise unworked field of neoliths and possible paleoliths.

The latitude and longitude of these finds ranges from 20° to 39° N. and from 102° to 112° E. The altitude varies from 300 ft. to 10,000 ft. above sea level. The Chengtu Plain itself is an open aggraded plain of something under 5000 sq. miles area which is surrounded by mountains and hills. Its altitude averages over 1800 ft. above the sea. The silted-up flat plain makes islands of the knolls of the older topography. These knolls are being eroded while the Plain is being actively aggraded. Swift-flowing streams come out of the mountains onto the Plain, divide and subdivide under Chinese irrigation and unite again to form two main branches of the Yangtse River in Szechuan. This Plain is separated from the East and South by hills which skirt it, as well as by the Gorges of the Yangtse. The high mountains to the West and North lift the general level to over 10,000 ft. and present over a quadrant of snow-capped peaks.

Chinese cultivation pushed into this Chengtu Plain in the 4th Century B. C. and displaced native peoples already separated into tribes. These native dry-croppers—cultivators of grains other than rice—could not withstand the wet cultivators with their rice and Chinese culture. (However it must not be inferred from this that the Shuh, who preceeded the Chinese, were an inferior people.) These native tribes were able to make their stand with more or less success on the less pluvial mountain tops surrounding the Plain. Here most of them still survive, with separate and distinct cultures, although they have been somewhat influenced by their Chinese and Tibetan neighbors. These survivors have all passed well beyond the Stone Age.

Stones, some of which suggest human workmanship, and some of which demonstrate human workmanship beyond the peradventure

of a doubt, have been found in West China by the several sojourners whose names appear in this article. In toto, over 100 specimens have been found in various places. For the sake of clearness these finds have been divided into three geographical groups, as follows;—

1. Yangtse River Group (Ichang-Suifu); Nanto, Kweichow, Hupeh-Szechuan Border, Wushan, Old Luchow, 15 miles below Suifu, and 30 miles above Suifu.

2. Szechuan Central Plain Group: 15 miles up the Fu River above Kiating, Pengshanhsien, Chengtu, Penghsien, Kwanhsien, and Kiungchow and Fenchow on the Chengtu-Yachow Road.

3. West Szechuan Mountainous Regions Group: Back of Kwanhsien off the Plain, Weichow, Lifan, Tsakulao, Yachow-Tachienlu Road, Tachienlu, and Mount Omei at Shinkaisi.

Negative evidence is valueless in this study up to date. For instance, no artefacts have been reported from Tungchwan. This probably means that there has been no person there who has been interested in "mere stones". It may mean that the history of agriculture there since the Stone Age has been such as to cover or remove from view all trace of artefacts. And it may mean that the users of artefacts avoided that region.

Various implements have been found: spear heads(?), picks, hoes, tomahawks, skinners, axes; hafted and unhafted; polished and unpolished; neoliths and probable paleoliths. With present data it would be futile to regionate hunting implements and agricultural tools. The geographical division of the finds is arbitrary and (apparently) has no relation to workmanship or use. The specimens vary so much in type and workmanship that we must assume that they are widely separated in time. The specimens tell a story, some more clearly, some quite faintly, and it needs careful interpretation.

A working hypothesis which has forced itself upon the writer as Mr. Edgar has increased his finds, is that users of stone could have found ideal conditions—with stimulating difficulties—in this subtropical, fertile and pluvial Plain. This is a working hypothesis which now assists in making finds. More data and more far-reaching and broader correlations must be found and made before one can go beyond this simple suggestion. A deeper study of the geology of the finds must be made and this must await a vast amount of expert and detailed study. In general, finds are made on outstanding knolls on the Chengtu Plain which have not been aggraded, on the edge of the Plain near the environing hills to the West, on the tops of the mountains, 150 miles back from the Plain near glacial till, under landslides, on mountain sides near swift-flowing streams which feed onto the Plain, and then along the Min and Yangtse Rivers which drain the Chengtu Plain. Only one stone has been found *on* the Chengtu *Plain*, by the writer, and it shows evidence of long burial. Another was found *under* the Plain by twelve feet with the baked clay horsehead tailpiece to this article, by Mrs. W. J. Mortimore. Artefacts

of the Chengtu Plain will be found UNDER THE SURFACE, for the Plain has been silted, in the wet rice fields, by six to twelve feet in A.D. times, with the eroded materials of the swift-flowing streams in the hills.

Mr. Edgar's peculiar experience among modern Stone Age men, the Maori of New Zealand and the Australian Blacks, has made him peculiarly observant of anything that smacks of primitive culture. He was the pioneer in these West China finds for several years. The fact that his work carries him far afield, that he travels afoot, and that the localities of the finds are not frequented by Occidentals, but partially accounts for his rather numerous finds. *He knew what to find.* During the last three years, several others have contributed to the exhibit in the Union University Museum. The first finds were made almost by accident, without any preconcieved ideas. Correlation of the finds has led to the hypothesis which has multiplied these finds. The hypothesis is given for what it is worth as a suggestion, and it should be discarded when a more plausible and a more workable one is obtained.

The appended notes and drawings give some of the essential data necessary to the proper interpretation of the finds. The specimens are in the West China Border Research Exhibit in the West China Union University Museum.

Especial credit and appreciation is given for the good and faithful drawings of the specimens by Mrs. J. Kitchen. She has perceived that "stones have individuality", and she has expressed it. Without these original drawings it would not be feasible to present this article. A Chinese engraver has made the wood blocks from which these prints are made.

The two sides of each artefact are presented. B is the view obtained when A is rotated through an angle of 180° around the long axis of the stone. (By placing a mirror alongside B, the right side of A and the right side of the image of B, picture the same edge of the artefact.)

The measurements give the extreme length and the maximum thickness. (The width may be calculated from the drawing if desired.)

Practically all the specimens have been collected by Mr. Edgar. Less than ten per cent have been collected by Rev. T. Cook, Dr. A. J. Barter and children, Master Thomas Freeman Mrs. W. J. Mortimore, and the writer. Unless specific credit is given under a specimen it is understood that it was found by J. H. Edgar.

Localities are given in relation to places that are noted on any good map of Szechwan.

Notes on Specimens.

1. 14.7 cm. x 2.9 cm. Found approximately 30 miles above Suifu on the Min River-side above high water near an old bed of conglomerate. There are traces of the conglomerate cement on the stone which show up under a magnifying glass. This specimen was found with four others: Nos. 5, 13, 15, and 21.

   It is a hard smooth-worn shingle stone, originally of oval shape. The edges, right and left, front and back, have been judiciously, if roughly, chipped to form by some twenty deft strokes, The blunt nose showes use, and the heel (bottom) shows a very little wear. It is possible (?) that the heel was touched up a very little by rubbing, but nose and heel follow the lines of original water-wear before being worked. The diagonal marking in B is impregnated quartz but it scarcely shows in A. It was probably hafted, but there is no suggestion of a grove for thong.

2. 13.5 cm. x 2.7 cm. Picked up at Shin Kai Si, Mt. Omei (?) by Master Thomas Freeman.

   This is a hard green stone that takes a fine polish. It was doubtless selected from river shingle, chipped, and then polished until all signs of chipping were ground off. The outer edge, (left in A) is the thinner, the head (top) on that side is thinned into almost a bit edge, and the bit proper (at the bottom) is thinner on the outside, so that the mechanics of the tool would put the haft on the right side of A. The restoration outline makes this clear when it is remembered that the center of gravity is to the right of the middle in A. The inner and outer edges were ground at right angles to the faces, in such a way as to give a curved outline to the outside. Then the edges so left were ground off with a bevel of 45°. Finally all of A was polished and rounded off symetrically to the bevel. B. was similarly treated with the exception that half the surface to the right of the hatching was left in its original (shingle) state. The fractures at bit and head suggest that they were made "in action" while being used as a tomahawk. The right blunt edge of A was broken while it was being used as a mallet (?) by the original makers or by the Chinese. Altogether this is one of the most interesting stones in the collection.

3. 8.5 cm. x 3.0 cm. Picked up near an old Tibetan castle wall. It may have been used circum 680 A.D. and on the other hand it may have been dumped into the wall with other ageless debris.

   This is a fragment of quartz that has been worked into a "quoit" shape. It may have been used for cracking bones; and it has had hard usage. The thumb depressions are 4 mm. deep.

4. 9.2 cm. x 1.2 cm. Presented to J.H.E. by a native prince of a tribe well beyond the Stone Age in the Lifan country, at an altitude of 10,000'.

The material is somewhat similar to the marble worked today by the Chinese in making bracelets. This late neolith is splendidly worked and polished. The surfaces and sides are at right angles. The corners in A are bevelled at an angle of 45° from the shank to the bulge. The upper corner in B is very slightly bevelled off, but the lower corner is not touched. It is probable that this chisel or spear head was broken in the making. The workmanship is somewhat similar to that of No. 2. Both appear to have been held in a vise arrangement so that the worker could use a "whetstone" at an angle of 45° to the axis save on the sides where the angle is 15°. This specimen shows no scars from use.

5. 14.2 cm. x 2.9 cm. Picked up with Nos. 1, 13, 15, and 21, thirty miles above Suifu on Riverside.

This is an exceedingly hard specimen of sandstone-shingle that has been "worked" with not more than five vigorous strokes. Crudely but effectively shaped for hafting, it needed no polishing. This double-headed club shows "wear".

6. 9.5 cm. x 2.2. cm. Found in Lifan country. It was probably exposed by farmers. This with No. 16 and two others were found within a distance of seventy miles of each other.

This is a soft stone from which all traces of workmanship have disappeared save in shape and in "filing" on the Roman nose, on the right side of B. It is related to No. 2 in shape and use, but it is smaller. The right edge of A. is worked so that it is at right angles to the face. The "filing" on Nos. 2, 4, and 6 was done by the same method. The workmanship strongly points to a "viselike" method of holding the artefact firmly so that it would not rock. Then assuming that the long axis of the artefact pointed away from the body of the worker (which seems natural), he used his "whetstone-file" with his two hands (for there is practically no "rocking" across the edge in any of the specimens Nos. 2, 4, and 6), and he shoved away from his body and from right to left. In other words, the makers of these particular artefacts were right-handed. This 45° angle hatching as well as bevelling stands out most strikingly with observation under the magnifying glass.

NOTE: At this point the writer was impelled by what he had observed and described above to go to the Museum and look over specimens that he had decided not to mention in the limited number of plates. He finds a reddish sandstone which he had not previously thought worthy of particular attention. It is rectangular, 3.0 cm. thick, 7.2 cm. broad, and 9.7 + cm. long.

One end is broken square across the grain. All angles are practically 90°. A ruler lies snug against the side toward the broken-end, but the unbroken end is thinner than the broken end by 2 or 3 mm. Across the 7.2 cm. width of this "whetstone-file" there is a very slight rounding as well. There is a slight groove along one of the 3.0 cm. wide edges and another groove slightly diagonally along the length of one side as though something had been sharpened to a point by lengthwise stroking. Mr. Edgar found this at Lifan or at Kwanhsien near other artefacts several years ago. He is three weeks away from the writer now, so this point must be left for the time being.

7. 14.2 cm. x 3.8 cm. Found on the plain some distance from the up-turned conglomerate bed at the Western edge of the Plain at Kwanhsien. It may have been washed out of the conglomerate by the torrential river there. At least a dozen "suspects" and "rejects" and "prospects" have been found in this region by J.H. E.

A—face might be the under side of a chip and B face might be from the rounded corner of a boulder. The shoulders did not come by accident. There has been slight rubbing or abrasion of the upper left corner of A. A—face is high along the axis and slightly rounded from top to bottom. B—face is almost flat. The artefact is symmetrical. Was it a hoe? Was it a tomahawk? What was it? The faces are weather-worn. The lime content does not make for durability. There is cement on face A that appears to be recent.

8. 12.0 cm. x 2.8 cm. Found on Yangtse River near the Hupeh-Szechuan border.

This specimen is of flint and shows no sign of water-wear. It is rough hewn with no sign of refinement. The hole on the right side of A is probably an accident, but it may be intentional. Typical flint fracture is everywhere in evidence. The pointed end has come in contact with something hard. This would suggest that the point is the business end of this tool or weapon. A—side is thick save on the three edges, and it is convex both vertically and horizontally. B—side is concave from top to bottom, the upper edge (in diagram) is straight, and the rest is slightly convex in the horizontal cross-section. Is it a pick? Is it a hoe? (The bump or bumps on the point suggest the former.) Is it one of the much-discussed rostro carinates?

9. 12.9 cm. x 2.4 cm. Found at rapids at Wu Shan.

This specimen is made from a great flake from a water-worn igneous rock that must have been at least 2 ft. in diameter. B-side is worn by the water. A-side is trimmed by flaking. It was doubtless hafted.

10. 8,3 cm x 1.5 cm. Picked up near Suifu on the Yangtse by Rev. Thomas Cook.

In shape and dimensions the right hand end is similar to No. 4. (There is thickness at the right hand end of the implement so that it is wedge-shaped and not as the design shows.) The left-hand end is fashioned into a bit, or knife-edge that is not quite at right angles to the thin edge of the wedge. Is it knife, or pick, or drill, or wedge? The smoothing is different from that in No. 4. In most places the "filing" was done at right angles to the edge or face. The wedge sides were "filed" lengthwise and crosswise in turn. In just one place, at the shoulder of the wedge, the "filing" was diagonally done, but oppositely to that in No. 4. Was the worker left-handed, or did he hold the artefact in a different position?

11. 13. 2 cm. x 3.3 cm. Picked up near Wu Shan, high above flood limits.

It is a worked, river-worn, stone. A-side is natural and B-side is the worked or flaked side. The center of gravity is to the right of the center of A. This fact and the Roman nose suggest hafting on the right side of A. It is similar in outline to No. 18 but it is innocent of polishing. The head is heavy and slightly pointed, and the bit is roughly done.

12. 11. 9 cm. x 4.4 cm. Found by Dr. A. J. Barter at Hsin Kai Si, nearly 5000 ft. above sea-level on Mt. Omei.

This is one of a dozen flakes from granite water-worn shingle found (by Barter, Freeman, and Foster children) within a limited area at this point. This particular one has been ground on the lower edge of B. after flaking. The others are innocent of finer work than flaking. The others may be rejects, but they are all of similar workmanship, i.e. chips as large or larger than this made by one fell blow. This one was finished by additional chipping and grinding on the lower edge of B. The find of Mr. Edgar 30 miles above Suifu of Nos. 1, 5, 13, 15, and 21, might be from the same camp as far as workmanship and material are concerned.

13. 17. 2 cm. x 2.3 cm. Found 30 miles above Suifu with Nos. 1, 15, and 21.

This is a thin-edged, hafted instrument that was fashioned from a piece of shingle. View A shows the smooth water-worn outside of flake with the chips taken out for hafting purposes. B shows the sharpening of this "edged-tool" by chipping on the inside of the flake. It is innocent of grinding or polishing, although it was found with better work.

14. 15.0 cm. x 4.3 cm. Found at Kwanhsien (?).

This was an instrument hafted at right angles to the concave surface of B, and it probably functioned as a pick-hoe. Side A has a strong "reinforcing" ridge up the center, and the edges

slope away from this. The hafting notches are almost square shouldered. The lower part of the fracture at the top may (?) have been a hafting notch, in which case the instrument hung at an angle, like a modern hoe. B-side has suffered a fracture as well as A-side. But aside from this the whole B surface is worked smooth. All marks of original workmanship have vanished as the tool was much used. A centimeter scale placed on the axis with O at the point, and 15 at the head, touches only at marks 1 and 12. Between marks 1 and 12 the surface is curved so that at mark 7 there is a depression of two mm., but beyond 12 the curvature is reversed and at 15 there is a depression of 3 mm.

15. 16.6. cm. x 2.4 cm. Found 30 miles above Suifu together with 1, 13, and 21.

This is a granite flake taken off a piece of shingle. Lengthwise the water-worn side A is almost straight but crosswise the surface has a convexity whose radius is 20 cm. The right-hand edge is bevel-sharpened. B-side on the left is also bevel-sharpened, but the other edge is rounded. The right side of B. is thicker than the left side. This bulb has been smoothed down by grinding but the rest of this surface and the two ends have never been smoothed at all. Was this piece ever finished? Was it a skinner? Was it a hand-hoe used as clam-shells have been used, with the hand gripping the right side of B and the left edge (the thin edge) moving dirt?

16. 7.0 cm. x 2.1 cm. Found in a trench worn by continuously passing pack animals near Lifan. It is one of three with rounding bits that have come from the same territory.

This specimen is wedge-shaped with the bit at the top in both A and B. The original marks of working have disappeared due to use, but it was highly polished originally. It may have been used as a skinning knife. One of the three is of iron ore, and another is of hard green material like No. 4. The bits are all rounded and not bevelled. The sides are at right angles to the faces, and the corners are bevelled. One shows whetstone-file scratches similar to No. 4. One edge shows cement as though it had been incorporated in conglomerate in recent times.

17. 14. 5. cm. x 5.2 cm. Found near Kwanhsien (?) on the Plain.

This specimen is of hard sandstone. B shows two flat surfaces inclined to each other at an obtuse angle. One of these surfaces has been ground smooth and flat. A-side is ground convex. The horizontal cross-section of A gives a curvature whose radius is 10 cm. while the vertical cross-section gives a curvature whose radius is 30 cm. Is it a pick? Is it a rostro-carinate? Another one has been found in the Kwanhsien area that is quite similar but almost unworked.

18. 12. 8 cm. x 4.8 cm. Found by the writer on the University Campus outside Chengtu City. The specimen had been dropped by

the roadside within two years, probably by a curious workman (?). The specimen had been picked up from a pile of cobbles (?) that had been carried from the river bed for foundation material, or it had been picked up from the findings of graves not over a thousand years old that had recently been excavated, and then discarded by the roadside. No other explanation of its presence on a recently made road can now be suggested. The cement that is barely suggested in the etching on B near the bit is a clue that it had not been disturbed previously in centuries. Then too, a fresh chip off of the upper right side of A suggests that a workman has recently struck it with a mattock. The whole surface of B has been worked and polished well. The rounding curve of the bit reveals some of the best workmanship in the entire collection. Across the top of B there is just a perceptible roughness for something like a thong or handle in hafting. A-side is rough in the center, but the bit is as well finished as on B-side. The right side of A is carefully broken as though it were done by picking a shallow groove (suggested by the hatching in B) before being knocked away by a single blow. The cross section C shows symmetry, save on the head where a corner is polished off. (See top of A.) Why the asymmetry? What was it? It certainly is a late Stone Age artifact.

19. 12.3 cm. x 3.6 cm. Found near Kwanhsien (?).

This "pole-ax" was made of igneous material that scarcely suggests any residue of original surface. The maker of this had No. 6 as a norm, and he rough-hewed by chipping and then began grinding. He ground the bit on both sides, rounding carefully the while. He smoothes two places on the side, and sharpened the pointed head (?). It was doubtless designed to be hafted on the right side of B. But it was probably rejected and never finished.

20. 11.3 cm. x 3.0 cm. Found in Tachienlu (?).

This savage little implement after being rough-hewn was chipped into this form. Which end was the business-end? Was it a spearhead? Was it hafted? If so, how was it hafted? were Goth ends used?

21. 3.0 cm. x 0.5 cm. Found thirty miles above Suifu with Nos. 1, 5, 13 and 15.

This little "Gilette blade" has a beautifully polished edge. It is difficult to show this stone wafer with the "razor-edge" on the left of A and on the right of B. It is surprising to find such a fine piece of workmanship associated with the rough work of No. 5.

The natural-sized tailpiece to "A Collecting Trip to Songpan" belongs to this article. The black-and-terra cotta shard was found in Weichow in an old wall at the confluence of streams

in a region where a good per cent of these finds have been made. It seems related to finds made by Prof. Anderson of the China Geological Survey in another part of China, which were associated with worked stones.

The full-sized tailpiece at the end of this article was found by Mrs. W. J. Mortimore, at Penghsien under 12 feet of cobbles and silt. Near it at the same level was an artifact. According to the best calculations that have been made as to the rate of fill on the Chengtu Plain, it has taken at least 2000 years to aggrade 12 feet.

One of the highly polished pieces was found exposed in a fresh landslide by Mr. Edgar in company with Prof. G. D. Hubbard of Oberlin. Many of the finds have been found near conglomerate, above the present water levels. At least four pieces have traces of cement. Some have been buried under alluvium, Others have been picked up in old caves. All this data points to length of days. What is that length of time?

The artifacts presented above have been carefully selected as typical of two-thirds of the finished-and-usable, finished-and-broken, partially-worked-and-rejected specimens in the Museum. Another third of this material is more or less doubtful but intriguingly suggestive of still earlier selection and cruder workmanship. It is quite possible that this other third will eventually prove to be the most interesting and worthwhile part of the collection.

The following is offered as a tentative classification of the fifteen types mentioned above:—

ARTEFACTS OF HUNTING.

(Used in the chase.)

No. 1. The crude almost-unworked-but hafted club.
No. 13. The finely-chipped, thin, hafted blade.
No. 6. The Roman-nosed tomahawk.
No. 18. The well-finished heavy tomahawk (?)
No. 20. The pointed-and-hafted "skull-breaker".

(Used on the quarry.)

No. 16. The polished skinner.
No. 3. The bone-crusher of the marrow eater.

ARTEFACTS OF AGRICULTURE.

No. 8. The pick (?)
No. 15. The hand-hoe.
No. 14. The handled-hoe.

ARTEFACTS OF CRAFT.

No. 10. The blunt-knife-and-wedge (or drill).
No. 21. The sharp blade (or knife.)
Note to 6. The whetsone-file.

The writer has no special thesis or brief for these stones. He simply would get the data before that public that is interested in man's early history so that there may be cooperation in making finds and in arriving at consistent and assured interpretation of what must have been at least an episode in race history in these eastern foothills and piedmont region of the Tibetan massif.

SYMBOLISM OF THE DESIGNS

By the Editor, Daniel S. Dye, Chengtu.

Symbolism speaks a varied language: to the barbarian it is Greek, but *to the Greek it is Greek.* A plain band ring may be but a pretty ornament to a polyandrous Tibetan woman, but a cross to a Christian is a challenge to high ideals and living. A symbol may bespeak fear, joy, pride, courage, it may be for self and it may be for others, but it is meaningful only as convention, agreement, or association fills it with content. The world lives by symbols, and the people of the West China Border do not set themselves up as an exception to prove this rule.

The Swastica on the outside of the front cover is more than two lines twice broken and crossed at right angles. It represents the sacred heart of Buddha to orthodox lamaists in Tibet and to Buddhists in China. To the Buddhist it partially takes the place of the cross of the Christian. It marks an orthodox (red or yellow) Lamasary in Tibet. In China it is the orthodox swastica, but it is so often balanced in art and architecture by the mirror image of itself that the generality of the Chinese do not differentiate directions. The proportions in this particular swastica are unmistakedly Tibetan and not Chinese.

The poppy inside the cover has the tang of high altitudes and the snow line when the melt is on! "The Land of the Blue Poppy" is where the Kinsha, the Mekong, the Salween and the Irrawaddy parallel each other through the land of the great corrosions. It suggests yak, caravans, rare atmosphere. and the open of the border country.

The triple mountain is one of the most common symbols of the eastern border of Tibet. All of its symbolism will not be revealed here (for good reasons) but it does relate to mountains and worship. It is a fitting symbol to find in this broken country of high passes, real ranges and surmounting peaks. It is appropriate that it be used at the end of "Geographic Control and Human Reactions in Tibet", page 19.

The impish tailpiece to "The Devil Dance of Tachienlu" is another common symbol that will not be explained here. This much can be stated however: It is found widespread with Lamaism and it is much used.

The symbolic waves at the end of "A Trip to Tatsienlu" page 37 are taken from the skirt of a Mandarin's long coat. These may just as well suggest the turbulent water of the upper Yangtse (Kinsha) where only yak-skin coracles can live in the swirling water as to relate to tidal waves beating around a Chinese junk.

The heterdox swastica at the end of "Some Upper Yangtse Elevations" page 39 has the rotor sense of the so-called Black Lamas and it has the proportions of the Chinese swastica. (Contrast rotation and proportion with that of the swastica on the cover.)

The piece of pottery at the end of "A Collecting Trip to Songpan" page 45 was found in a thick fortification wall that was built around 680 A.D. at Ueichow on the road from Kwanhsien to Sungpan. It may have been taken from ageless debris at the confluence of the rivers, from Songpan and Tsakaolao respectively, and incorporated in the fortification of that time. This full-sized piece of dichromate pottery in black and terra cotta suggests in color and in pattern some of the earliest pottery yet found in China. This refers to the two finds of primitive camps reported by Mr. Anderson of the China Geological Survey. The black lines of the drawing suggest brush work. These straight lines are covered over with the circular sweep of the brush. The plate suggests this brushwork. The white part of the figure is the part of the pottery that is terra cotta in color. The shard is slightly convex as though the bulge of the bowl or jar were 25 or 30 cm across. (Artefacts have been found in this same wall.)

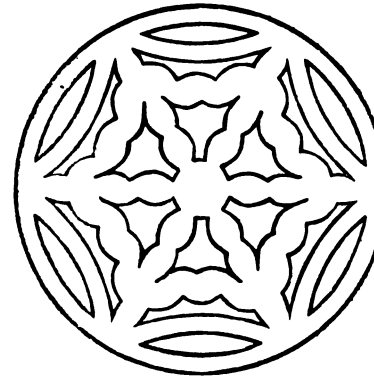
The conventional Chinese butterfly serves as a tailpiece to "A Collection of Butterflies of Szechuan" page 56. It is a Chinese method of symbolizing happiness. As a pictured "eye-sea-ewe" is the rebus for "I see you", so this multiplied fivefold symbolizes "the five happinesses".

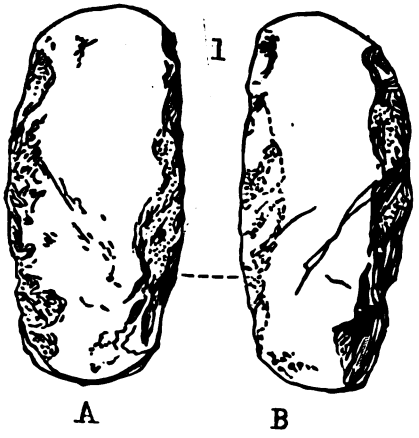
The symbol that is on page 62 is taken from a piece of Chinese porcelain. It is a compound of heaven (the circle) and earth (the square) and the transmigration wheel of the orthodox Buddhist (the swastica). A brick of similar significance may be seen in a flat-topped house below Weichow.

The final design gives three aspects of the same pottery horse head (natural size) taken from a depth of twelve feet under the surface at Penghsien by Mrs. W. J. Mortimore. An artefact was taken

from the same depth in the same well. This had been covered by cobbles pushed out by freshet and flood through the centuries since it was broken and lost. It is a most significant find in connection with the artefacts described in this article.

The Buddhist transmigration wheel in lattice window is taken from the Uen Shu Uen, the finest temple in Chengtu. It serves as tailpiece for the present article.

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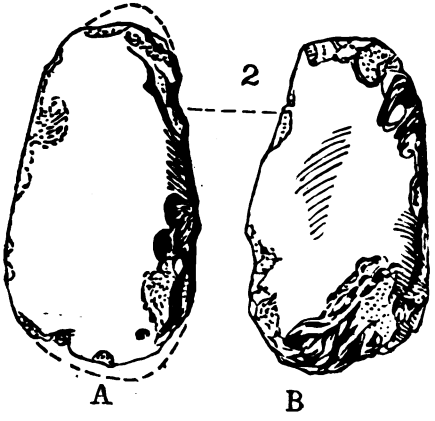
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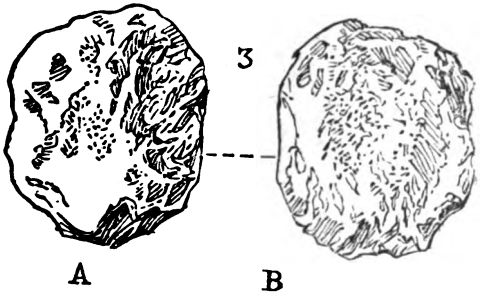
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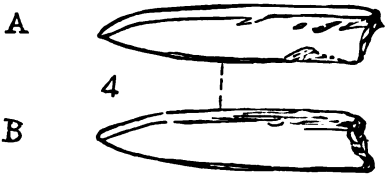
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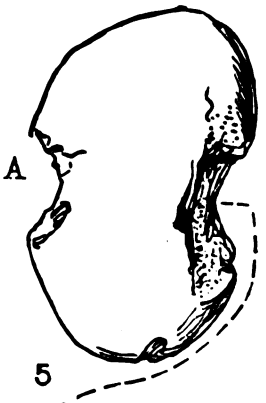
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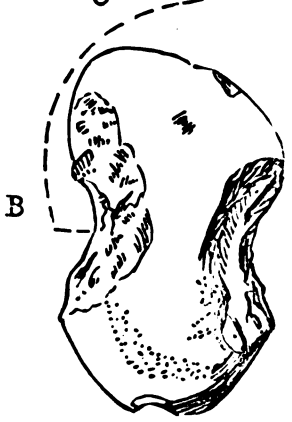
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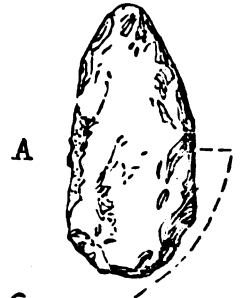
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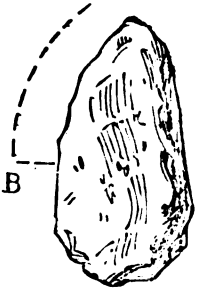
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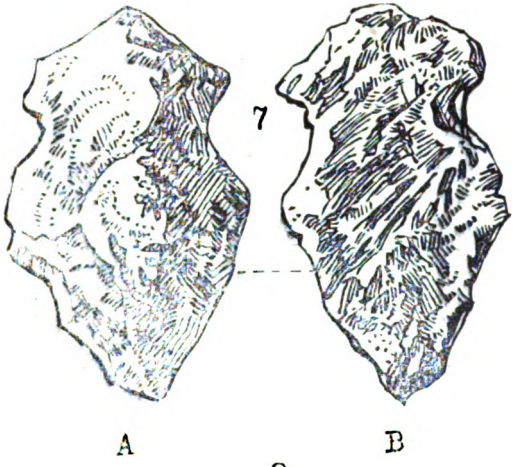
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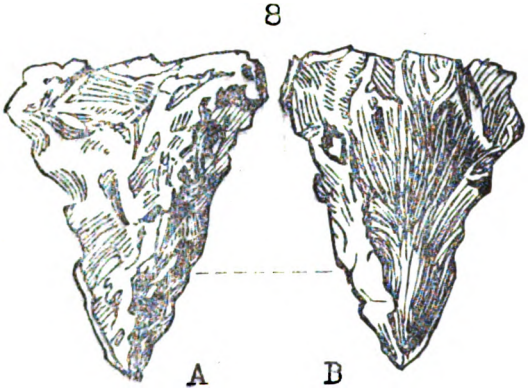
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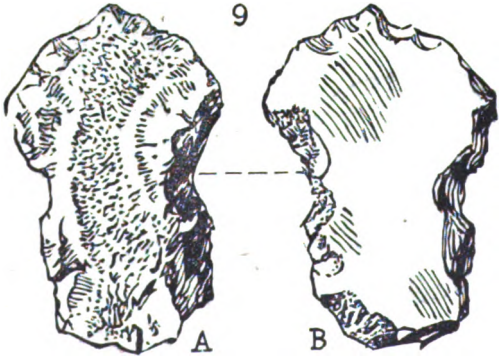
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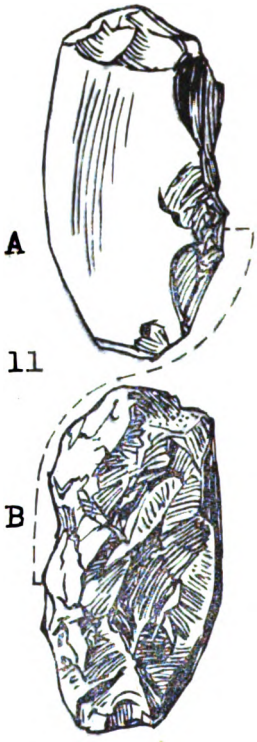
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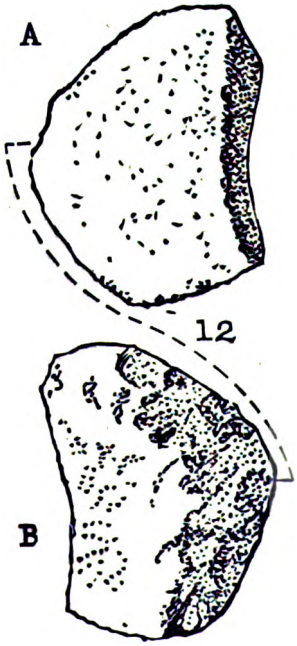
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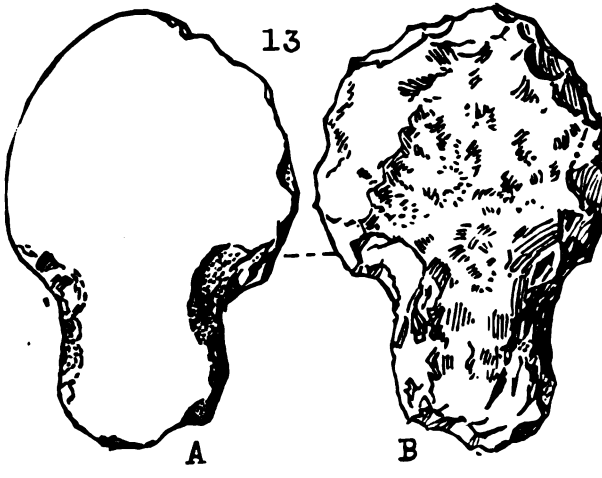
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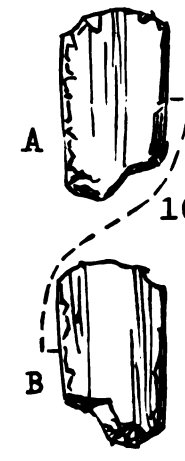
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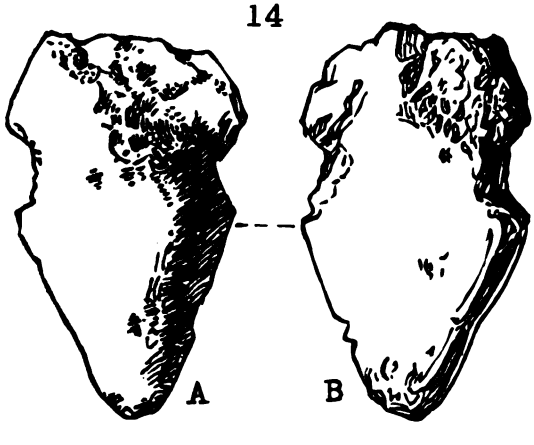
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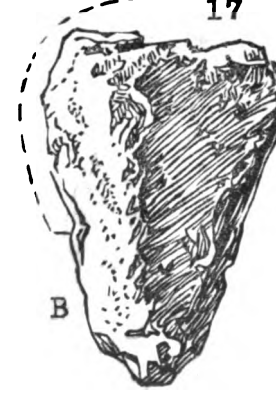
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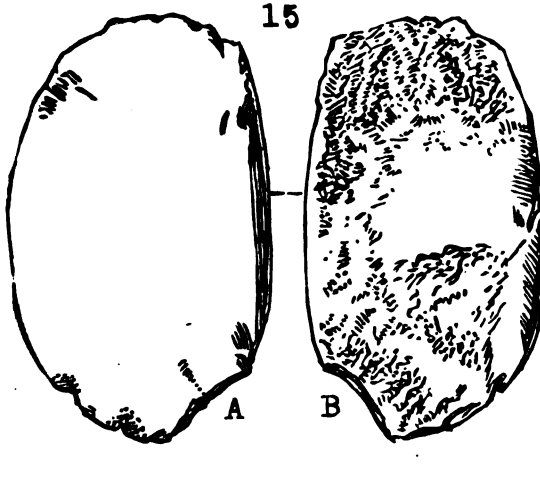
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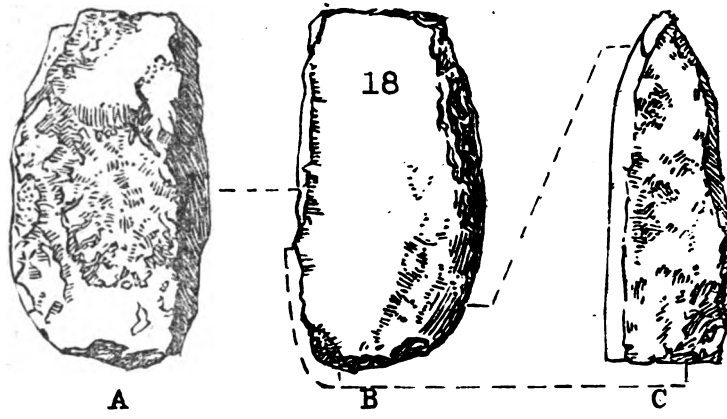
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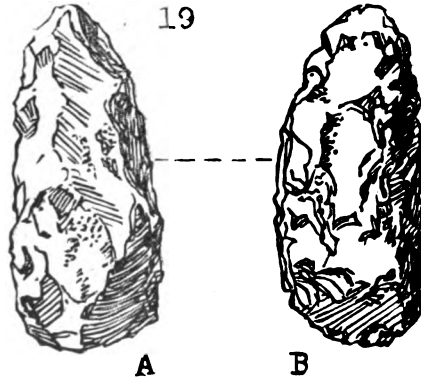
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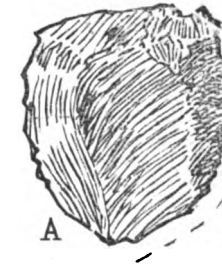
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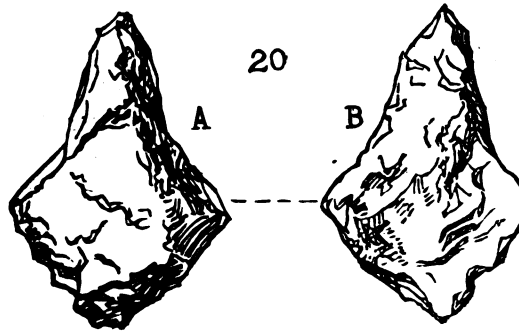
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