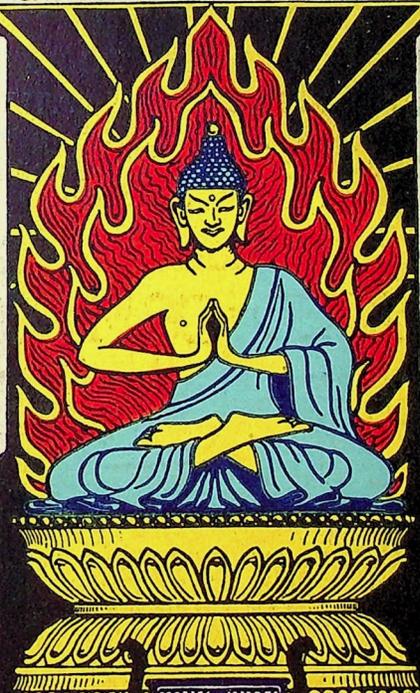


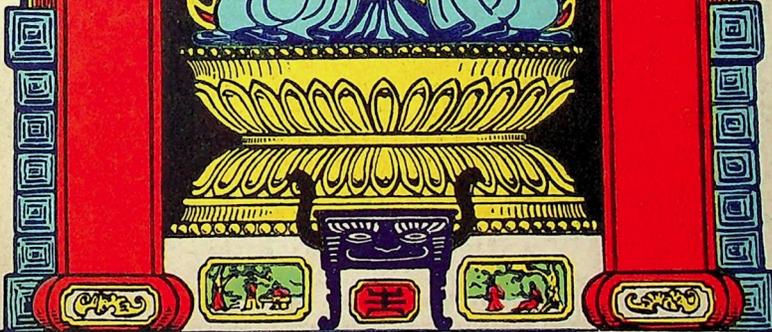
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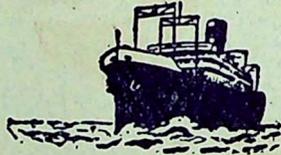
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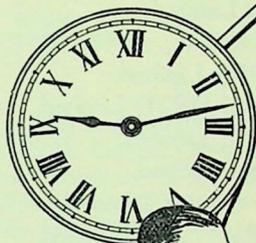
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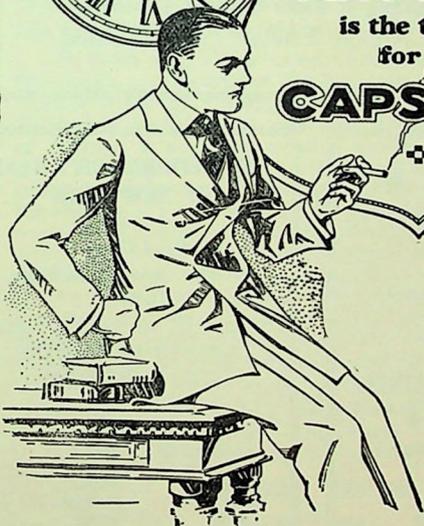


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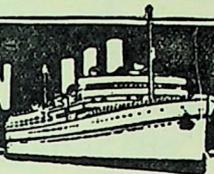
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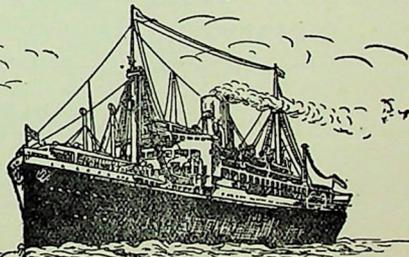
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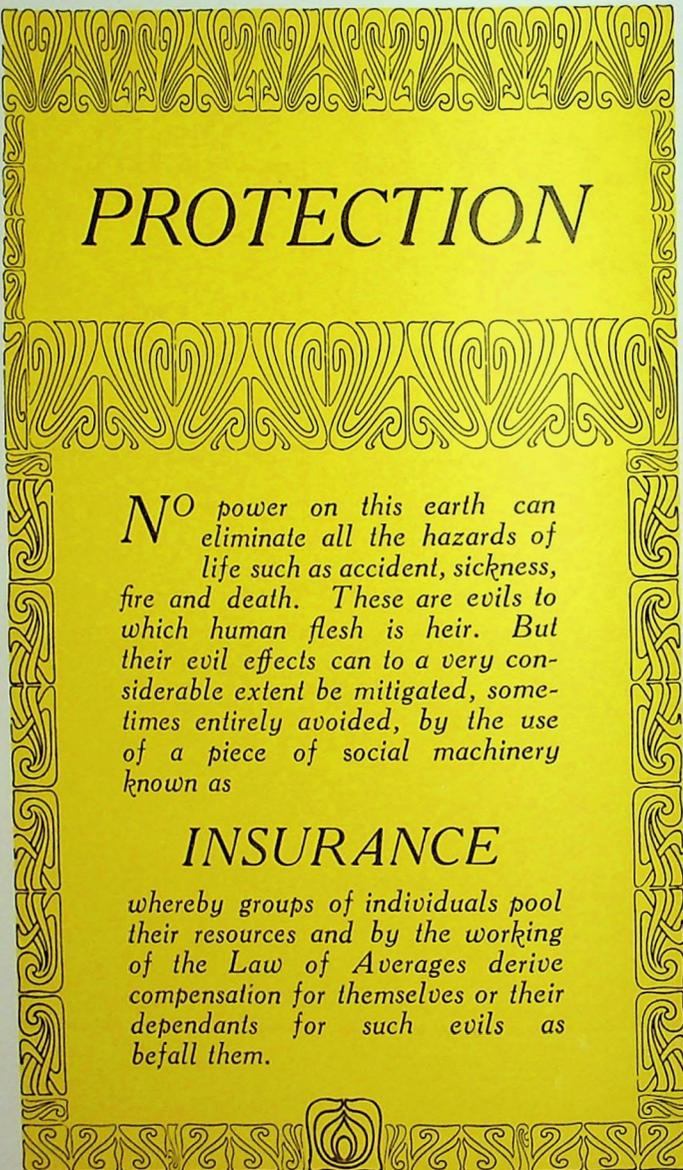
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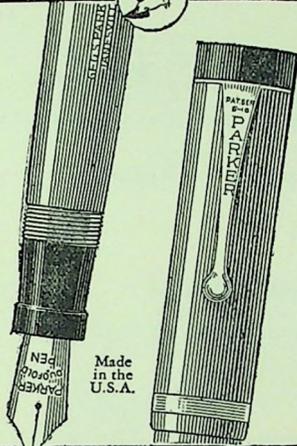
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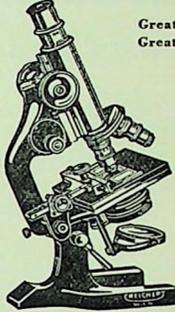
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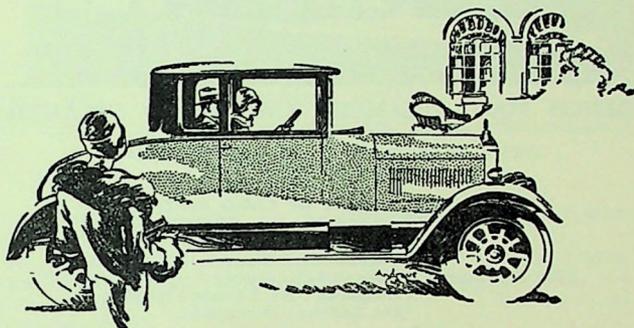
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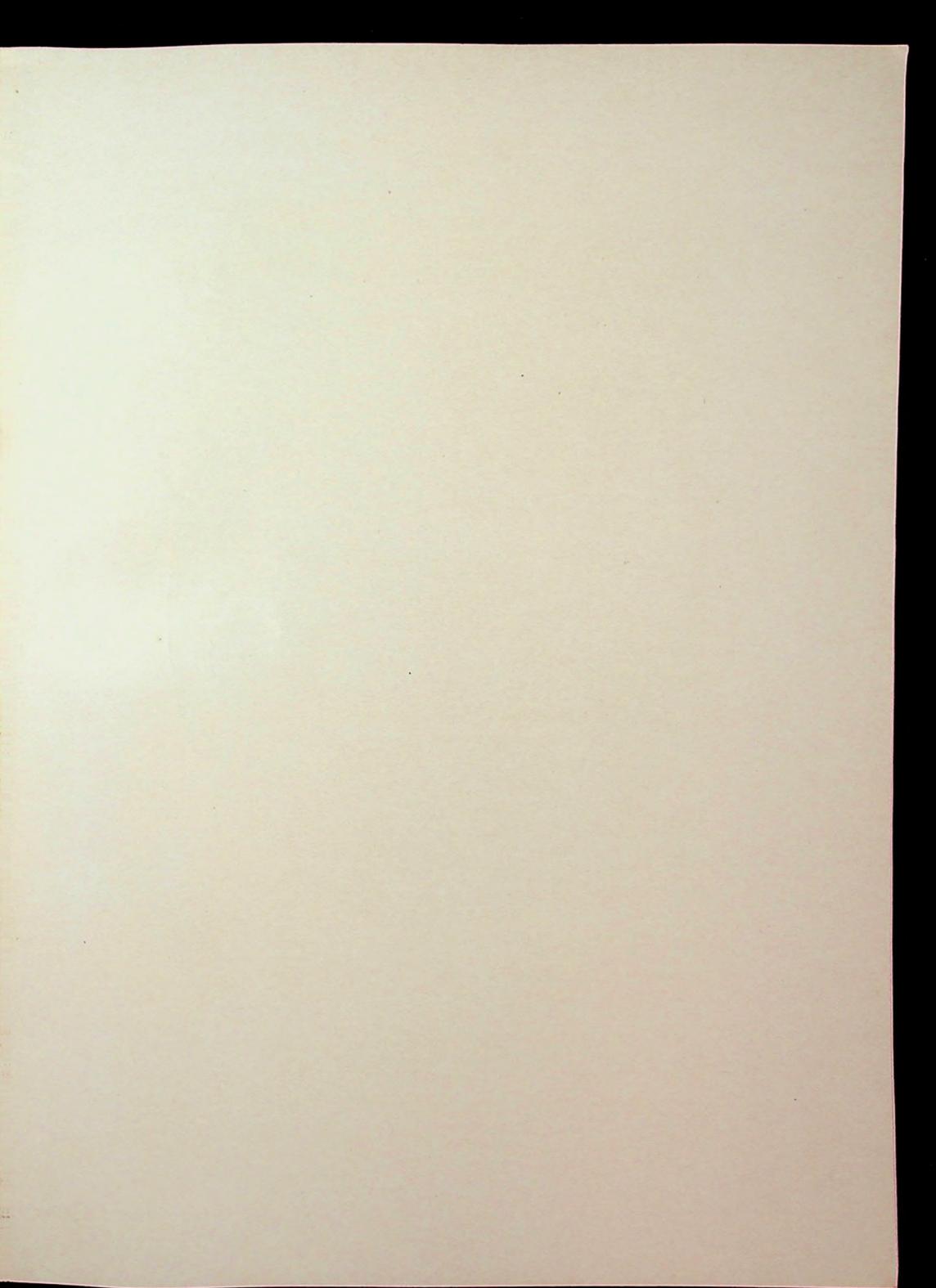
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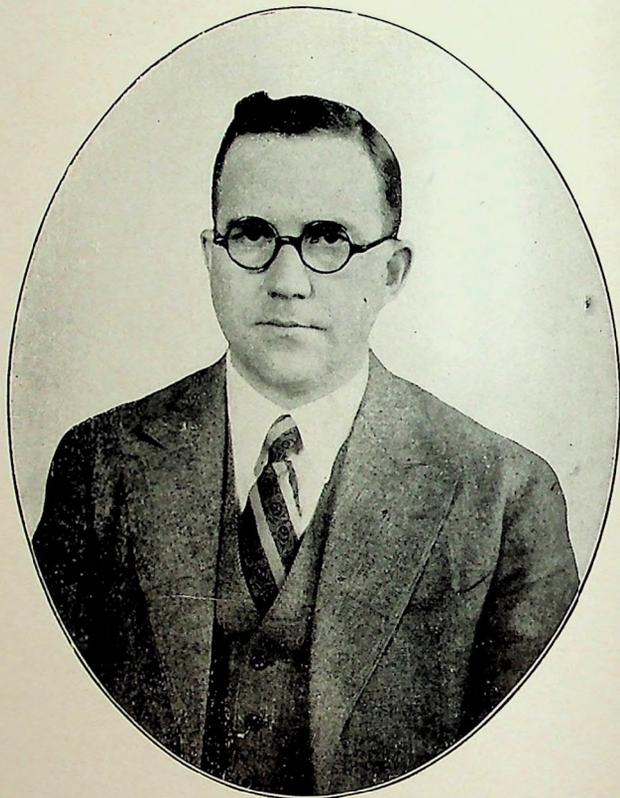
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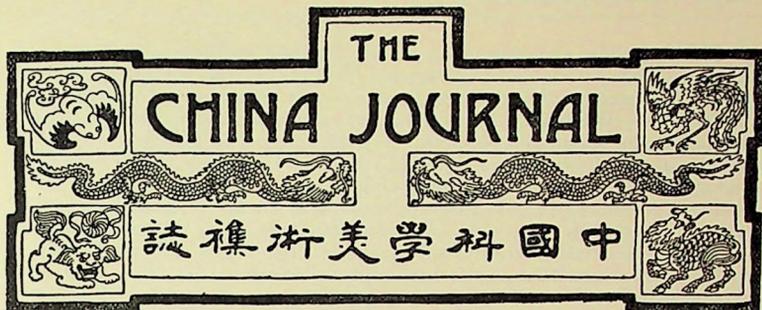
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Professor Ernest Carroll Faust, M.A., Ph.D.



VOL. VIII

APRIL 1928

No. 4

LITERATURE AND SCIENCE

BY

ARTHUR DE C. SOWERBY

It is sometimes a matter of surprise that literature and science so seldom go together. By this we mean that amongst scientists, all of whom have a fund of information to impart to their fellow beings, there are few that are able to couch that information in language of a good literary style or even sufficiently simple for the layman to understand, and that amongst men of letters there are few that have a sufficiently good grasp of science and scientific methods to be able to interpret accurately to the reading public that which the scientist would have made known.

This subject has recently been discussed in *Nature*, following an address by Sir Richard Gregory before the Science Masters' Association on "Contacts of Science and Literature," and we would refer our readers to the leader in that journal of February 25, where they will find much of interest to them. It is not our intention to discuss here the views set forth in the leader referred to; but we desire to express some views and suggestions of our own.

If it be granted that our original statement is correct and that in the main scientists are un-literary in their writings and men of letters unscientific in their exposition of science, we may proceed to investigate its causes, and see if a remedy cannot be suggested.

In the first place let us consider men of letters. Why are they so consistently unscientific? Is it because the particular kind of genius that makes a man write well and in a good literary style does not sort with the kind of genius that makes him a good scientist? Some may

hold this to be the case; but we are inclined to disagree with them, for the simple reason that there are not lacking examples where high literary ability and advanced scientific attainment are combined in a single individual. There is no need specifically to mention any names; we can all call many such cases to mind. We are inclined to lay the blame on our systems of education, wherein it generally happens that a boy or young man is given a one-sided training. If he shows an aptitude for classics, in nine cases out of ten his training in science is either neglected or dispensed with altogether. The result is that, as he develops those literary gifts that some day will make him famous, he fails to develop along with them that preciseness and exactness in definition that is essential in science. He becomes inclined to sacrifice truth to literary effect, exactly as many artists, even great ones, will sacrifice the exact form and true colour of a thing in order to help out creative ideas of their own. Both the writer and the artist may be striving to produce something new, remoulding and bending to their use such materials as come to their hands, and we, therefore, must allow them some latitude in this respect. But this can be carried to absurd extremes, as for instance, in the cubist and futurist schools of art and the distortion of facts to make a good story in a newspaper. As an example of the latter we may cite an instance when we drew down upon us the wrath of a young journalist in Shanghai who reported to his paper one day that the Bund was swarming with snakes that were coming out of the Huangpu. We were asked for an explanation, and on investigation found that what were taken for snakes were really a kind of eel, very common in the rice fields of China, which, being cheap, the natives buy by the bucketful to turn loose into the river or ponds in temples on the occasion of the Chinese festival called *Fang Seng*. These eels, preferring the shallow water and mud of the rice fields to the deep water of the river, were trying to get ashore, and in some cases actually succeeded in wriggling a few feet up the sloping stone face of the Bund. This we communicated to the newspaper, subsequently to learn that the young reporter was furious because we had spoiled what he considered a good story. Again, how often is a scientist, an explorer or a public man in other spheres of human activity correctly reported in the papers by those he has accorded an interview? Very seldom. The reporter wants to turn in a good story, and, failing as a rule to grasp the real significance and interest of what he is told, generally through lack of training, he does not hesitate to embellish it with such details as his own fertile imagination suggests to him. Of course, we do not mean to accuse the average reporter of being a man of letters; he would scorn the imputation; but we would suggest that that which creates in him the desire to produce a good story out of the poor materials that come to his hands is the same thing that tends to render the man of letters incapable of being a good scientist, or, perhaps we should say, of writing upon scientific matters in a way that would satisfy the scientist.

Now, with regard to the poor literary ability of the scientist, it is equally true that it does not follow that because a man is a good scientist he cannot express himself in good literary style. There are good scien-

tists who can lay claim to considerable literary ability. There should be many more.

Again, we are inclined to blame our systems of education. If only the youths in our schools were drilled into expressing themselves in good simple language and were taught something of the beauties of good literature at the same time that they are being inculcated with the facts and accuracies of science, we might find our scientists a somewhat less inarticulate body of men; a body that could make science known to the world at large in the way it should be made known, instead of having to depend upon the inaccurate expressions of effect-seeking men of letters.

Of course we realize that the power to write well is usually a gift, as also is the power to grasp the significance of science. The fullest expression in either direction can only result from some inborn urge or native psychological attribute; but there is a great deal in training, more, perhaps, than some are inclined to admit, and there is not the slightest doubt that both literature and science would be immeasurably enriched if we were to train our potential scientists in literature and the power to express themselves simply and well, and our writers-to-be in science and the scientific method. Neither literature nor art can ever suffer from an application of scientific principles, and it is equally certain that science will never suffer from being expressed clearly and in a beautiful literary style.

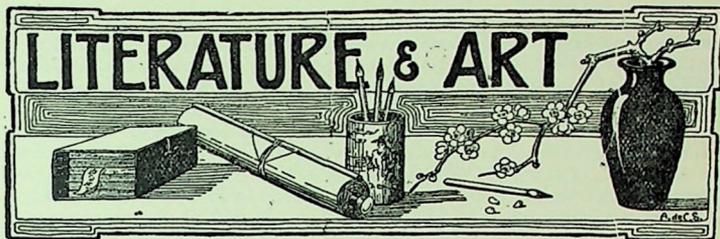
PROFESSOR ERNEST CARROLL FAUST, M.A., PH.D.

Professor Ernest Carroll Faust, who from the start has been one of the most valued contributors to *The China Journal*, and whose interesting article on "Lung-Fluke Infection Among the Formosan Aborigenes" appears in the present issue, has resided in China since January, 1920. He was born at Carthage, Missouri, September, 1890. He received his common-school education in the place of his birth and a Bachelor Of Arts degree from Oberlin College (1912). In 1912 he began graduate work in the University of Illinois, where as Research Assistant in Parasitology he studied special problems in medical zoology, receiving the M.A. degree in 1914 and the Ph. D. degree in 1917 from that university. During several summers he studied parasitology in relation to marine fauna Woods Hole, Massachusetts), to fish production (Montana) and to human

disease (University of Chicago). He served on the staff of the department of zoology of the University of Illinois until 1919, when he accepted the offer of a position in China to organize a laboratory of parasitology in the Peking Union Medical College. This laboratory has been developed along three lines, undergraduate and graduate instruction, diagnostic service for the Peking Union Medical College Hospital, and research on the parasitic infections of China. Dr. Faust has studied problems of medical zoology in practically all of the important centers of China, and as a result of the investigations of himself and his colleagues about one hundred research papers have been published on this subject, the most important of which deal with human parasitic infections, the causative organisms, their distribution in China and their methods of propagation. The most significant of Dr. Faust's own studies have developed around the general problem of human "fluke" diseases, which require molluscs as the first intermediate host and at times a second intermediate host in addition to the human host. Extensive monographic studies have been published on the human blood fluke in the Orient and on the Chinese liver fluke, both of which involve large groups of the human population in China.

Professor Faust is a member of many scientific societies, is a councillor of the American Society of Parasitologists, a member of the research council of the China Medical Association, and a member of the permanent commission on parasitology of the International Congress of Zoology. He is associate editor of the American Journal of Hygiene (Baltimore), of the Rivista di Malariologia (Rome), and of the China Medical Journal (Shanghai). He has travelled in French Indo-China, the Philippines, the Malay States, Japan, Korea, Formosa, India, Egypt and Europe in order to obtain information and study on parasitic infections in those countries.

Professor Faust has tendered his resignation as director of the Parasitology Laboratory of the Peking Union Medical College in order to accept the newly created Professorship of Parasitology in the College of Medicine, Tulane University, New Orleans, Louisiana, where he expects to begin work in organizing a laboratory of parasitology by September 1. It is with keen regret that he leaves China, where he has found so many close associations and has developed so many interesting problems.



THE ISLES OF THE BLEST
AN HISTORICAL MYTH

BY

C. WALTER YOUNG

Fear of death is probably the most potent factor in life. Could we mortals be assured that the final flutterings of a dying heart were but the prelude to a vast void, the beginning of nothing, what would become of that priestly paradox: Thou shalt fear and love? Is it the exquisite thrill of living that makes man pray to postpone his being snuffed out? Or is it Armageddon? Probably the youthful poet's *Thanatopsis* were the exception.

At any rate, the human genus from time immemorial has sought in air, earth and water to find that occult secret, the Elixir of Life, the knowledge of which would have excised the humour of the grave diggers' badinage in Hamlet. Of elixirs the mistletoe is but one example, which, growing high on the heart of the oak, was for Virgil the Golden Bough of invulnerability, and for Balder his undoing. To the Druids of old it was the panacea which would make barren animals produce offspring. So, too, with the Ainu, the hairy men of northern Nippon, who to-day regard the mistletoe as an all-healer. The Swedes still cherish the quaint custom of hanging mistletoe from the ceiling to prevent fires and to keep away the troll. And there are still surviving scions of the older generation who on Christmas Eve hang mistletoe more because of the superstition than for its more generally accepted utility.

We live in a scientific age. And yet, we are the progeny of the living past, and of the doughty, gouty Ponce de Leon whose intrepid search for the Fountain of Youth gave to the modern science of death-postponement the now familiar Florida Water. Modern pundits, striving to excel the medieval alchemists' search for the Philosopher's Stone, have isolated the secret of the life-giving potion in the secretions of our glands, which now need only to be fed to be immortalized. The faith of the common man in the pink pill is not yet dead, nor has the hegira to California been stemmed.

China, whose generosity for endowing the world with gunpowder and the first league of nations has excited the sinologists, as a nation of nations has probably more nearly succeeded in her search for the Elixir of Life than the scientific states of the West, among whom the long-deceased Egyptian monarchy, alchemic, astrologic and at last decrepit, alone can have had some claim to competitive longevity. The China which had first breath pounded into it when Yü founded the Hsia dynasty in 2,200 B. C., say the Confucian classics, had lived to a ripe old age—far riper than the normal spasm of life allotted to Western states—when, upon the collapse of the Chou dynasty about 250 B. C., she began to take the last laboured gasps of revolution. Then came the dynasty which produced the notorious criminal-iconoclast, Ch'in Shih Huang Ti, who caused the Confucian classics to be burned and built the Great Wall.

But the mighty Ch'in Shih Huang shuddered at the thought of death, so much so that daily he consulted the swarm of charlatans who buzzed around his courtly circle how he might discover the Elixir of Life. At night, when evil ones were about, the First Yellow Emperor trembled under his comforters, till at last, upon the advice of one of his necromancers, he built an enormous palace with countless sleeping apartments so that by nightly rotation in bedrooms he might give the wild witches the slip.

The Yellow Emperor viewed with alarm the phenomenon of death going on daily about him, more especially because among the slaves whom he goaded to build the Great Wall the casualties were large. Lest this dire disease become infectious he sought immortality in the Vermilion Pill of Transmutation (*Chu Lien Tan* in Chinese), the original pink pill of immortality, a cinnabar substance, which had then been used for a century by longevity practitioners with invariable results. That was the original Philosopher's Stone. It remains the oldest, for it is still used by Taoists in China for the prolongation of life.

The Yellow Emperor turned grey about the temples. And when his favourites among the older concubines of his palace apartments began to die, sometimes several in a moon, he bethought himself how best he might be renovated. There was among the emperor's hangers-on a courtier styled Lu Shêng, who, himself an old man and sympathetic with the youthful aspirations of his Emperor, breathed in his ear warm whispirings of hope, for he told the Yellow Emperor of the Isles of the Blest.

"O, August Master, Lord of High Heaven, First Yellow Emperor of the Ch'in! Deign to lend a little light and listen to a stupid opinion of thy miserable slave, whose mean surname, Lu, thou hast magnanimously counted on thy scroll of courtly parasites. There is to the East of our Flowery Kingdom by seventy thousand *li* the Ancestral Land where grows upon the sacred hillsides the Divinely Efficacious Herb, called *Ling Chih*. Whosoever shall partake of this herb and quaff the water from the Fountain of Youth will not perish but have everlasting life. This sacred land is of three island mountains, the most majestic of which is the Mountain of Jade, which rises in a wondrous sweep to the height of ten thousand *ch'ih*. From its base gushes forth the crystal water, a palm of which scented nectar will intoxicate with ecstasy be-

THE ISLES OF THE BLEST

yond the pale of human comprehension. In these Sacred Isles dwell the Immortals, the Men of the Mountain, who idle their sleepless hours in gambling upon the green between luxuriant copses of thornless thistles and groves of luscious peach trees. Almost alone, they are in communion with Nature and speak her amorous language, from whom the Immortals have learned to live forever upon the Sacred Herb and the sweet water from the Jade Fountain. And these Three Sacred Mountains are P'ênglai, the Isle of Luxuriant Thistles, Fangchang, the Island Fairyland, and Yingchou, the Spirit Isle of the Eastern Ocean. These are called the Isles of the Blest."

So spake Lu Shêng. For a long time the Yellow Emperor was silent, and then, with a look made of all sweet desire, answered :

"Shêng, first among my menials, from your lips have fallen jaded words of wisdom. Forthwith, I shall cause to be sent in search of the Ancestral Isles of the Blest an expedition, over which my courtier, Hsü Fu, shall have high command."

Junks were made ship shape and within a moon the gallant Hsü Fu sailed eastward in quest of the food and drink of the Immortals. Now, immortality is not to be purchased with specie much less than death, and when Hsü Fu came in sight of the Isles of the Blest he was met by one of the Immortals who, after inquiring of Hsü's purpose, informed him that the imperial gifts with which the junks were laden were far too valueless for the purchase of such rare substances as the Divinely Efficacious Herb and the nectar that flowed from the Fountain of Jade.

"You may feast your eyes upon the Elixir," quoth the Immortal, "but you must not taste of it." Whereupon Hsü Fu inquired what gifts the Immortals desired, to which he received the reply : "Youths and maidens and craftsmen of every art."

Hsü Fu returned, and having told the Son of High Heaven the tale of his uncommon experience, preparations were made for the grand voyage. Imperial runners were dispatched, spreading like a living fan far to the south, the east and the north bearing the summons that from out the Flowery Kingdom, even from the remotest hamlet, fair maidens were to proceed to the court of the Yellow Emperor that he might choose from amongst them three thousand, these the fairest. History records no other national beauty contest before the Christian era. Three thousand youths of fine figure likewise were chosen, those, though young, who were skilled in all the arts and crafts.

Sacrificial incense having been burned to the Spirit of the Way, a score of giant junks set sail for the Isles of the Blest. What a gala array when these three thousand fairest of the fair, each wearing a toque of longevity tipped with tiny bells, and those bravest of the brave crossed over the pontoon of sampans that bridged the Yent'ai shore of the principality of Ch'i with those ships on pleasure bent! And when winds were favourable they sailed away, each junk with the eyes of its dragon prow to the east, following in fixed phalanx behind the flag-ship, chaperoned by Hsü Fu and a hundred cases of the Confucian canon. From the mizzen mast flapped the Phoenix Banner displaying in joyous red the legend : Happiness Like the Eastern Ocean.

On and on they sailed. By day, Hsü Fu was at the helm. By night, Canopus, the Star of Longevity, guided their course. But of the voyage the Chinese know no more, except that the ships never returned. There was in the principality of Ch'in, not far from Hsien Yang which was the Yellow Emperor's capital, an aged man styled Shên Hsi, who knew the Way for he had been a student of the disciples of Lao Tzu, the Great Sage. Him the anxious Yellow Emperor summoned to his court, sending for his conveyance three palanquins of gold and of jasper, termed respectively, That of the White Tiger, That of the Dragon, and That of the White Deer. Then, to the inquiries of Ch'in Shih Huang the hoary master answered: "They have found the three islands of the Ancestral Land, the Isles of the Blest, but they will never return." Whereupon Shên Hsi met the fate of a death by a hundred pieces—for what good is immortality which has no personal application?

Shortly thereafter the first Yellow Emperor donned his longevity garments and died, and upon the ruins of his empire rose the glorious dynasty of the Han. China, in complete accord with the fundamental tenet of Taoism, like Ch'in Shih Huang and Shên Hsi, had found life through losing it.

* * *

There is in Japan, on the main island of Hondo, in Kii province to the east of the town of Shingu, at a place beside the sea in the vicinity of the site of an ancient castle, a tomb which bears the inscription: GRAVE OF HSU FU FROM CHINA. Hard by are seven sepulchral tumuli, not unlike those which stud the suburban landscapes of every self-respecting Chinese village. The kindly countryfolk of Kumano promontory, where these grave mounds may be seen to-day by any tourist so minded, in fact, almost within sight of the round-the-world steamers which skirt the point here to enter the Inland Sea, these humble folk will tell you that these are the burial places of those of Hsü Fu's charges who succumbed to the rigours of the tortuous passage to the Isles of the Blest. Hsü Fu, having found Japan, preferred to remain there for he feared the wrath of the tyrant Ch'in Shih Huang Ti who would at least have had him quartered had he returned to China. As for the rest, it is a familiar ethnologic fact that among the little people of this section of Hondo in Japan there is an unmistakable prevalence of Chinese types.

Nor is it strange to find that Yent'ai, the port from which Hsü Fu set sail in search of the Divinely Efficacious Herb, is none other than the modern sea port of Chefoo in the province of Shantung, that promontory pointing to Japan which in Ch'in Shin Huang's day was the principality of Ch'i. A coincidence perhaps, but withal suggestive, the fact that the district in which Chefoo is situated is to-day referred to as P'englai, Luxuriant Thistles, which, it will be recalled, was one of the ancient appellations attributed to the Ancestral Isles of the Blest. P'englai and Yingchow, another of the trilogy, are still used as literary names for Peking.

Iconoclast, indeed, the Japanese who with brazen insolence would dare to defy the tradition that the men of Yamato descended from the

gods, or that the imperial lineage arose from Amaterasu-no-Miya, the Sun-Goddess, she an Immortal. To the Chinese the Land of the Sun's Source was, before the Christian era, conceived to be the abode of the Immortals who possessed the secret of long life. *Yang*, the life-giving element of great potency in Chinese divination and death avoidance, comes from the sun. But, have not some of the sun-descended men of Nippon facial characteristics unmistakably Chinese?

Sinologists have sought for centuries the secret of how the sacred Confucian classics, which were ordered burned by the reformer Ch'in Shih Huang Ti, were preserved for posterity. With even greater ardour they have endeavoured to explain the unparalleled longevity of Chinese civilization. It is an historic fact that the Books were burned in 213 B. C. Chinese records state that Hsü Fu had left for the Isles of the Blest just six years before, and that with him he carried a hundred copies of the Confucian classics. This, too, is the subject of a poem composed in the later Sung Dynasty. Because Ch'in sought the Elixir of Immortality he preserved the very Classics he sought to destroy. And Chinese civilization, for which Confucianism is all but a synonym, owes its longevity to the Classics, China's Fountain of Youth, the most successful of her elixirs of immortality.

Alchemy originated in China, and spread by way of Persia and Egypt to Europe. The medieval alchemists who sought in mercury the Philosopher's Stone by which to transmute the baser metals to gold were antedated a full millenium by those of their like in China. Quiet humour there is in Roger Bacon's serious efforts to prolong life with an elixir potion compounded of ambergris, rosemary, serpents and dragons' flesh, the value of which properties were known in China when Alexander the Great crossed the Indus in 326 B. C. The Chinese, who have contributed to the world so many toys like playing cards and polo, which make life livable and presumeably longer, were the first to use mercury for medicinal purposes, and, if alchemy is the agnatic ancestor of chemistry, our scientific West owes its inspiration to unscientific China.

Fruitful, then, has been the search for the Isles of the Blest. Our research for the Elixir of Life has led into enticing bypaths jewelled with the flowers of philology. A tiny but fragrant flower is the word "Wa" meaning "Dwarfs," which, since the time of Ch'in Shih Huang Ti, has been the Chinese appellation for the Japanese—it still is occasionally. The ethnologists will tell you that the Japanese are small because they are squeezed into five main islands and myriad uninhabitable smaller ones, and because they live in dolls' houses and squat hunchbacked over *hibachi*, or that rice is lacking in vitamins. But I once heard from an old story teller in the land of Han, who first told me of the Isles of the Blest, that the "youths and maidens" whom Hsü Fu chaperoned to Japan were mere children. Since then I have found in the records that none of them had seen sixteen summers.

SOME FRAGMENTS OF PAI CHU-I'S POETRY
CONCERNING WOMAN

BY
HERTZ C. K. KE.

Pai Chü-i (白居易), alias Pai Lo-t'ien (白樂天), was one of the most eminent poets of the Tang dynasty. He has been considered the greatest Chinese folk poet, perhaps because he has appealed to the general reader more than any other. His poetry, it is said, is often so easy and simple in style that even common old women, whose ignorance is of course proverbial, may be expected to understand it.

Like most other poets, both Chinese and non-Chinese, ancient and modern, Pai Chü-i frequently touches upon woman, probably a universal literary subject. True, most world woman poetry is neither more nor less than love poetry, and Pai Chü-i has by no means abstained from treating of woman in connection with things romantic. But in the present article, I do not mean to refer to his pure love poetry, but rather to that part of his poetry—really only part of that part—from which we might get glimpses of his views on some points regarding woman. On the whole, I am inclined to think, he did *not* see her—no doubt at a time when the “old ethical teachings” obtained—very differently from the way in which we see her in this age of woman movements. He may not be appropriately called a feminist in the modern sense of the word, yet he has, nevertheless, advocated the doctrine of feminism in his own small way.

Now let me translate, somewhat freely, some passages from the poet into English by way of illustration. Below is part of a long poem :

Simply because the wife grew old,
The husband therefore too grew cold—
This very fact, 'twas said of yore,
Saddened the ladies passing sore.

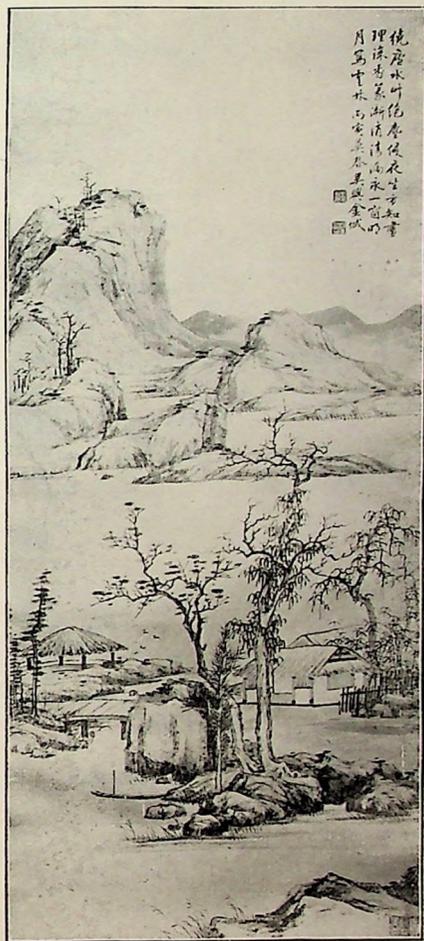
* * *

Concerning you and me, alas !
Let's see how things just come to pass—
Unchanging stays my face yet now,
But changing is your heart somehow.

* * *

'Tis better not to be, now mind,
A person of the female kind ;
For all her life, a woman's fate
Depends upon her so-called mate.

The above shows Pai Chü-i's sympathetic understanding of how a middle-aged woman will feel in the unsafe relation in which she stands with regard to her inconstant husband. That the poet himself engaged



Landscapes painted by the late Kungpa King and exhibited at the Western Returned Students Club, Peking, on December 5th-7th, 1927. For an account of Mr. King's Life see *The China Journal*, Vol. V, No. 4, October, 1926.

SOME FRAGMENTS OF PAI CHU-I'S POETRY

to remain a lifelong equal of his life-partner may be seen in the following lines, quoted from his "To My Wife" (寄内).

"Living, we're mates in the same room ;
When dead, then dust in the same tomb"—
Thus say one friend to another may ;
Now you and I, so shan't we say ?

* * *

A scholar needy yet sincere,
I've newly married you, my dear !
We'll keep our honour and poverty,
And age together happily.

In a piece entitled "Woman's Sorrows" (婦人苦), the poet says :

After the husband is no more,
The wife is widowed evermore—
As a bamboo is split by wind,
So is the woman left behind.

* * *

A man, when of his wife bereaved,
But temporarily feels grieved—
For he is like a willow-tree
Which during spring in leaf will be.

Here the similes require a little explanation. By likening a widow to a bamboo which has been broken by the wind, the poet means that just as it cannot possibly become whole again, so she cannot possibly enjoy happy wedded life any more—in other words, she is not to marry for a second time ; and by likening a widower to a willow-tree he means that just as the latter will bud once more when spring comes round, so will the widower get over his grief in due time and then marry again. These lines foreshadow the poet's disapproval of the traditional custom of granting the widower but denying the widow the right of a second marriage.

With regard to the first of the notorious "seven conditions for putting away one's wife"—that of a woman's not having borne a son after a certain period of time of marriage—Pai Chü-i expresses his dis-favour as follows :

After a man and woman mate,
They'd rather die then separate.

* * *

'Tis certainly unfortunate
Always to be without a son,
But 'tis the duty of each mate
To keep the union once begun.

Besides what I have translated, there is much in Pai Chü-i's poetry that would warrant calling him a feminist-poet of the old school.

EHEU, FUGACES !

Explanatory Note.

This is an attempt to convey in words the effects which, in music, Sibelius has so ably achieved in the "Valse triste." The rhythm of the first stanza is harsh and premonitory and a deliberate use is made of words calculated to jar the sense of niceness which is expected of all equipoised verse, and so to produce a picture of unconventional lines which the imagination of each reader may colour at will. The first period of the second stanza is a representation of the thoughts and memories of the old man, and consequently confused and erratic, working up to a climax of swiftly-running syllables and then descending, through the second period, into a convulsive monosyllabic finale, suggesting collapse after unwonted effort.

Life goes, and stealthy-footed Death approaches
Near to the door, and hears thy vain reproaches
For wasted years expended !
Drink up the lees, then, suck the bitter dregs,
Lick up the crumbs, those crumbs a beggar begs
When famous feasts are ended !
Watch how the candles gutter, flare and sink,
So like thyself, poor fool ! It is the brink
Of everlasting night ! Alone ?
And shivering ? Pluck close the tawdry vest
To those lean ribs ! Jerk up thy shrunken breast
And laugh : for laughter soon is done !

* * *

No luscious fruits are left ! No more to drain
The pulsing choking draught of young red wine !
No more the thundering hooves, the hunter's thrill,
Nor lover's kiss, that ecstasy divine !
Never to ride the Horse of Dreams, unbridled, unreined !
Never to plunge in Passion's pool, unplumbed, undrained !
Never again to kindle flame from a kindred flame,
Never again to know the Joy that lives and sings in the heart of a boy !

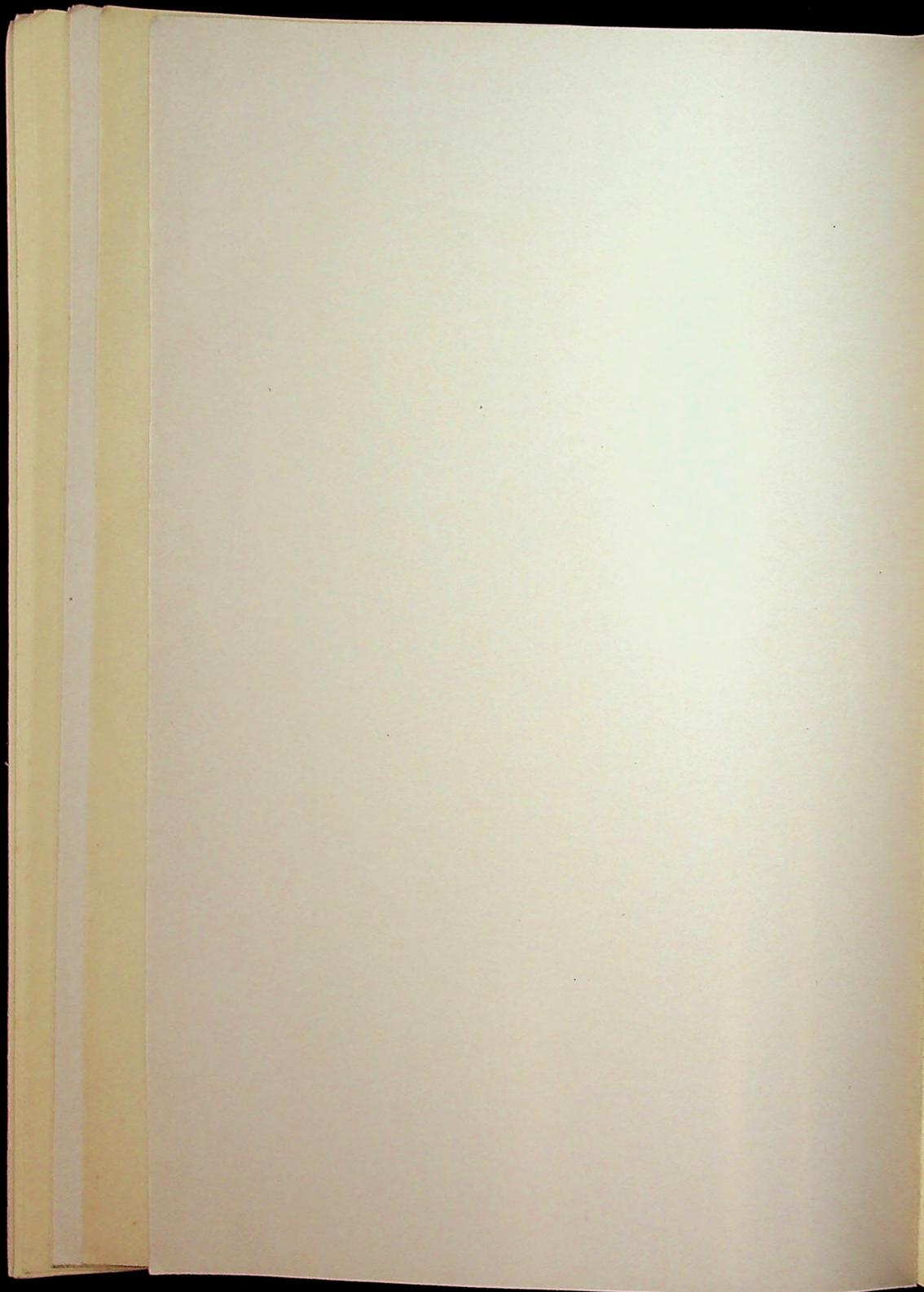
Dear Gods !

To creep about a narrow'd world,
and watch the hearth-fire blacken and grow cold !
To know myself a burden to the earth !
A broken vessel, dirty, drab, and old !

PISCATOR.



Pictures of Birds painted by the late Kungpa King, and exhibited at the Western Returned Students Club, Peking, on December 5th-7th, 1927.



CORRESPONDENCE

A STRANGE WEAPON

To The Editor,
The China Journal,
Museum Road, Shanghai.

DEAR SIR,

I would be glad if you or any of your readers could throw light upon an old weapon which recently fell into my hands. It is in the shape of a diminutive brass mortar, six inches long, an inch in diameter at the mouth and of half-inch bore, an inch and a quarter at the breech and an inch and one half at the belly, as shown in the illustration. The barrel is strongly bound with brass bands, as indicated,

Muzzle diam. trifle over
1-in.
Bore diam. trifle over
½-in.
Bands probably welded
on.

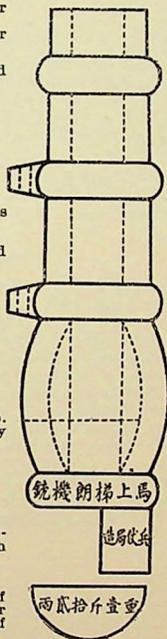
Perforated projections
7/16-in. square.
Perforations 3/16-in.
Both severely indented
on breech side.

Fuse hole 1-3/16-in. deep.
Can be penetrated by
needle only.

Breech band.

Semi-cylindrical projec-
tion behind breech
band ½-in.

Transverse section of
inscribed semi-cylinder
Note top and bottom of
characters.



which may have been part of the original mould or, perhaps, subsequently welded on: the latter, I think, but I can find no joint. From the two middle bands spring square projections perforated longitudinally with 3/16 inch holes like rivet-nuts, and the solid metal cylinder which projects for ¼ of an inch behind the breech band is cut in half at right angles, leaving a solid semi-cylinder only. There is a fine fuse hole at the point I have marked, into which a needle can be inserted for 1 3/16 inches: this seems to indicate a curved chamber inside. The projections bear marks of hard usage at some time, having deep indentations on the breech side: otherwise the weapon, though considerably worn, does not appear to be much the worse for its hard work.

Now the most interesting thing about it are the inscriptions it bears. On the semi-circular face of the breech projection are the characters: 重壹斤拾貳兩 "Weight, one catty twelve ounces." On the breech band, from right to left, run the characters: 馬梯朗機銃貳仟捌百玖拾號. I am puzzled to know how to translate the first four characters. The rest is simple enough, viz. "Mortar (or petard), Number 2890" Can the beginning be a man's name (?Mongol)? The characters mean, "mounted," "ladder," and "clear."

The characters on the circumference of the semi-cylindrical extension of the breech behind the posterior

band are as follows: 嘉靖庚子年兵仗局造.

"Made in the year Kengtzu of (the Ming Emperor) Chia Ching at the arsenal." (But where was that?) That means in the year 1540 A.D. Chia Ching reigned from 1522-1567. He lived in troubled times when the Portuguese were making their first raids from the West—it was he who beheaded d'Andrade at Peking,—and

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the Japanese were assailing the eastern coasts, and Yenda, the Mongol, was giving a lot of trouble in the North, the while the Emperor was worrying himself to worm out of Taoist advisors the secret of the elixir of immortality.

At that time Liaoyang was the capital of Manchuria, and my little mortar—if that is the right name to give it—was found, according to the account of the Chinese gentleman from whom I got it, by a small boy playing on a mound—the debris of what must then have been the south gate of the Ming city, but which is now just outside the north gate of the city as rebuilt under the Chings: and there, I suppose, it must have lain these 380 years or so. What romance is wrapped up in the marks of hard work on its surface!

What I would like most to know about it is, what is the interpretation of those four characters: "Ma shang t'i ch'ung," and how was such a weapon used away back in the days of King Hal?

Yours very truly,

GEO. DOUGLAS.

Liaoyang, Manchuria, November 29, 1927.

CHINESE SNUFF BOTTLES

Up to the time of going to press with this issue we have received but one answer to our correspondent whose letter we published in the January issue of this journal regarding the existence of any literature upon the subject of Chinese snuff bottles. Enquiries on our part have, however, elicited the fact that the following booklets on the subject exist, though both were published for private circulation only and as far as we know are not on sale:

- (1) Catalogue of a Collection of Ancient Chinese Snuff Bottles in the possession of Mrs. George T. Smith, Chicago, by Berthold Laufér, Chicago, 1913.
- (2) Chinese Snuff Bottles, by M. B. Huish.

Following is the letter we have received:

DEAR SIR,

Not being sure whether the address given by Mr. Caretti in your January issue holds good for a letter mailed from Germany, and assuming that you are in contact with him, I beg to write you what I know about Chinese Snuff Bottles. It is not much, but it may help. The great Tobacco enthusiast, Wm. Bragge, Master Cutler of Sheffield, published in 1880 a catalogue of Books, Pipes, Tobacco labels and, in fact, of everything that has to do with the weed. This book, of which only 200 copies were printed, bears the title "Bibliotheca Nicotiana." It contains a description of more than 600 Chinese Snuff Bottles made of rock-crystal, jades chalcidony, turquoise, amethyst, cloisonné-enamel, ivory, lac, wood, glass, amber, etc. The book is, of course, very rare; 200 copies, all signed, do not go a long way, but the respective part could be copied out.

I discovered the work in the Berlin Library while looking for James I's "Counterblast," and, looking it through, recollected the query sent to you by Mr. Caretti.

Yours faithfully,

ALBAN VOIGT

Neubabelsberg 7 Berlin, February 1, 1928.

EDITORIAL COMMENTS

SANMINISM

In the "North-China Daily News" of March 12th Péro Pascal M. D'Elia, S. J., of the Siccawei Sinological Bureau contributed an article on the correct translation of San Min Chu I in which he suggested the coinage of a new word, demism, to express the meaning of Min Chu I, and the additional "The Triple" to translate San, thus making the term "The Triple Demism" stand for San Min Chu I. Péro D'Elia discussed the historical origin of the expression showing that it was derived from Lincoln's "of the people, by the people and for the people." He further explained that the last two words, Chu I, are now commonly used to express an...ism, such as humanitarianism, materialism, etc. He showed that San Min does not mean "The Three Peoples" and that three, San, refers to three kinds of....isms which relate to the people. There being no word in the English to express the kind of.....ism advocated by Dr. Sun, Péro D'Elia suggested the new word demism, from the Greek word, demos.

To this suggestion I replied in an article published in the same paper on March 14th that it was unnecessary to revert to the Greek language for a new word and that as the two sounds San and Min were easily pronounced in any alphabetic language they should be combined with.....ism to form a new word "Sanminism." Such a word would bear on its face evidence that it was not an expression of a Greek or European.....ism but of a Chinese one in the same way as Confucianism. If "The Triple Demism" were to come into common use it would need more explanation than Sanminism for it would be necessary at least to spend some time in showing that by demism some newly discovered philosophical or political theory of Greece was not meant, whereas Sanminism shows itself to be something new in the world of letters.

J. C. F.

REVIEWS

THE IMPERIAL PALACES OF PEKING, by Oswald Sirén (Three Volumes):
Librarie Nationale d'Art et D'Histoire, G. Van Oest, 1926.

These three handsome volumes consist mainly of excellent photogravures of beautiful and interesting views of the various palaces of Peking taken by Professor Oswald Sirén during his visit to China. In volume (Part) one he gives a brief but inclusive account of the palaces together with a series of maps and plans which are, perhaps, the most valuable part of the whole work. In the state into which China has fallen since the Revolution of 1911, when the Manchus were expelled from authority and control, it is most important that the work done by Professor Sirén in

regard to these palaces should have been put on record, and those responsible for the publication of this valuable work are to be commended. Many of the buildings depicted are fast falling into disrepair, and it is only a matter of a decade or so for some to have vanished altogether.

Particularly interesting are the pictures of the ruins of the famous Yuan Ming Yuan, which was destroyed by fire at the orders of Lord Elgin (one of those stupid actions when the world at large is made to suffer by the loss of some priceless treasure, instead of the person of the culpable party), and which was one of the wonders of the early Manchu régime. Old prints of this famous palace, that was patterned on Versailles, are also given, while the comments of foreign contemporaries are included in the text. This valuable contribution to our knowledge of Chinese culture should be in the library of every student and admirer of the art, past and present, of this country.

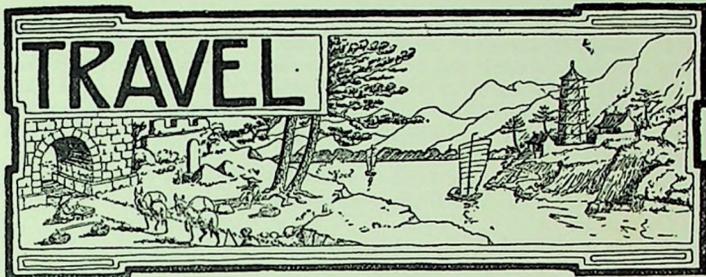
THE TALE OF GENJI (PART III) ; A WREATH OF CLOUD, by Lady Murasaki; translated from the Japanese by Arthur Waley ; Houghton Mifflin Company, New York, 1927.

"The Tale of Genji" was written by a Japanese lady of the Imperial Court early in the 11th Century, and its chief attraction lies in the intimate picture it gives of life amongst the upper classes of Japan in those far off days. While in the main it consists of accounts of a series of love affairs on the part of the hero, there is much detail given concerning various ceremonies and the everyday doings of the characters it portrays. From it the reader may gain a good idea of the mentality of the Japanese at that early period, but we confess to experiencing a certain amount of boredom in reading through the book, for the simple reason that there is so little variety to the innumerable love intrigues it recounts, while the story is over-burdened with trivial details of dress and actions. However, this does not detract from its historical value, if we may apply such a word to a work of fiction. That the story is very human cannot be denied, and it may be that many readers will enjoy it thoroughly on this account alone. One thing stands out clearly, and that is that the little ladies of Japan a thousand years ago had a great deal in common with their sisters of the Occident of the 20th Century.

As indicated in the title the present book is the third of the series coming under the heading of "The Tale of Genji." Translations of the first two parts have already appeared.

Genji is a resplendent and amorous prince of mediaeval Japan, and the story is mainly taken up with his doings, his various courtships and marriages and his rounds of visits to his lady friends. Great emphasis is laid on the custom of exchanging thoughts and messages through the medium of poems with hidden meanings, a game at which all seemed to be more or less proficient in those bygone days. There is little of a heroic nature in the story. The English into which it is translated is modern and easy.

A. DE C. S.



FORESTRY OF JAPAN*

BY

W. C. LOWDERMILK.

Forestry may be studied to good advantage in Japan.† Few nations present as good an example of the close relationship between the conditions of the mountain areas and agricultural lands. Forest areas are generally managed definitely with a view to national economy within Japan proper. Management is being extended to other parts of the empire as well.

Japan proper is mountainous and volcanic. Less than 25 per cent. of the land area lies at a gradient below 10°. The cultivated land, which has about reached the limit of extent, comprises a little less than 15,000,000 acres, only 16 per cent. of the total area. Of this a little more than one-half, 7.5 million acres, can be irrigated and is devoted to growing rice. The arable land is cultivated by 5½ millions of families, which averages less than 3 acres per family. Thus each acre is called upon to supply

*Report of the Third Pan Pacific Science Congress held in Tokyo in 1926 under the auspices of the National Research Council of Japan.

†I wish here gratefully to acknowledge the courteous and kind assistance on the part of the members of the Department of Forestry, Imperial Ministry of Agriculture and of the Government of Chosen (Korea), in my studies of Japanese forestry. Particularly am I grateful to Mr. Tomoaki Hirakuma, Director of the Forestry Board, Dr. Homi Shirasawa, Director of the Imperial Forestry Experiment Station, Meguro, Tokyo; Dr. Mikumaga Fujioka, Professor of Forest Utilization; Mr. D. Tanaka, Forest Engineer; Prof. N. Kominami, Professor of Forest Botany, Tokyo Imperial University; Dr. Sanroku Ichikawa, Professor of Forestry, Imperial University of Kyoto; G. Matsustakata District Forester, of Kyoto District, and Forest Officers Mr. K. Shimojo and Mr. E. Suzuki. I am also indebted to Dr. Takenoshin Nakai, Professor of Botany of the Tokyo Imperial University and Government Botanist of Chosen (Korea); to Dr. M. Tozawa, Director of the Forest Experiment Station and Forest Researches and Investigations in Chosen, Seoul (Chosen); to Mr. Yamamoto, District Forester, located at Tai Kyu, Chosen; to Mr. S. T. Sato, Forest Supervisor of Kin Sen, Chosen; to Mr. Tawehi the forest engineer in charge of erosion control reclamation and reforestation work at Kinsen, Chosen. Being the only overseas delegate representing the science of forestry, I am particularly mindful of, and grateful for, the courtesies shown me on behalf of the Society of American Foresters.—W. C. L.

food for about 4 persons of the total population of 56,000,000. The rice paddy land is unequal to the demands for rice ; the imports from Chosen (Korea) and Formosa must be supplemented with imports from alien shores. The increase of production of the agricultural lands as well as their maintenance in productivity becomes a primary concern of the government.

The assessed values of land are below the market price, but they indicate the relative if not the true marketable values of mountain and farm land.

TOTAL ASSESSED VALUES OF LANDS IN JAPAN PROPER.

Paddy (Rice) land	}	{	Farm	Y.1,014,555,000
Upland			land	227,882,000
Building land				633,516,000
Forest land				26,917,000

Forest land is assessed, therefore, at a value of 2.1 per cent. of all productive land, excluding building land. The value of standing timber is omitted.

Japan is poor in agricultural land area but is very rich in forests. The latter cover 48 per cent. of Japan proper as against 53 per cent. of Sweden. When Chosen (Korea) and Taiwan (Formosa) are included, the portion of the area occupied by forests is raised to 63.5 per cent. of the total land area. This is an unique position among the advanced nations.

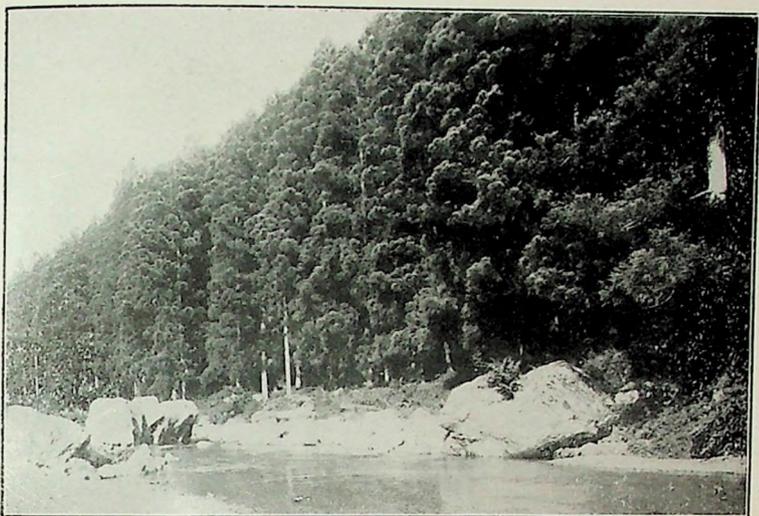
The area of forest lands does not include the " Genya " or " treeless " wild lands covered with various weeds of graminæ which may be utilized for grazing and may also be converted into forests. In Japan proper the " Genya " comprise 9 per cent. of the land area. Of all Japan the " Genya " comprise nearly 10.3 per cent.

In Japan proper, extensive planting is being pushed in the " Genya " areas. The present artificially established forests total an area of more than 1,618,600 (1886-1923) acres of which about 8,000 are in bamboo, and are included under forest area. The plantings now in progress on the " Genya " comprise a big program, which is doubtless as large or larger than any planting program of Germany or France. It is a remarkable fact that a nation so replete with forests should be extending the forest area so energetically.

Despite the great area in forests, the imports of timber into Japan has been on the increase in recent years, particularly since the earthquake disaster of 1923. The imports from North America which have consisted chiefly of " Oregon pine " (Douglas fir) were as follows :

TIMBER IMPORTS FROM N. AMERICA.

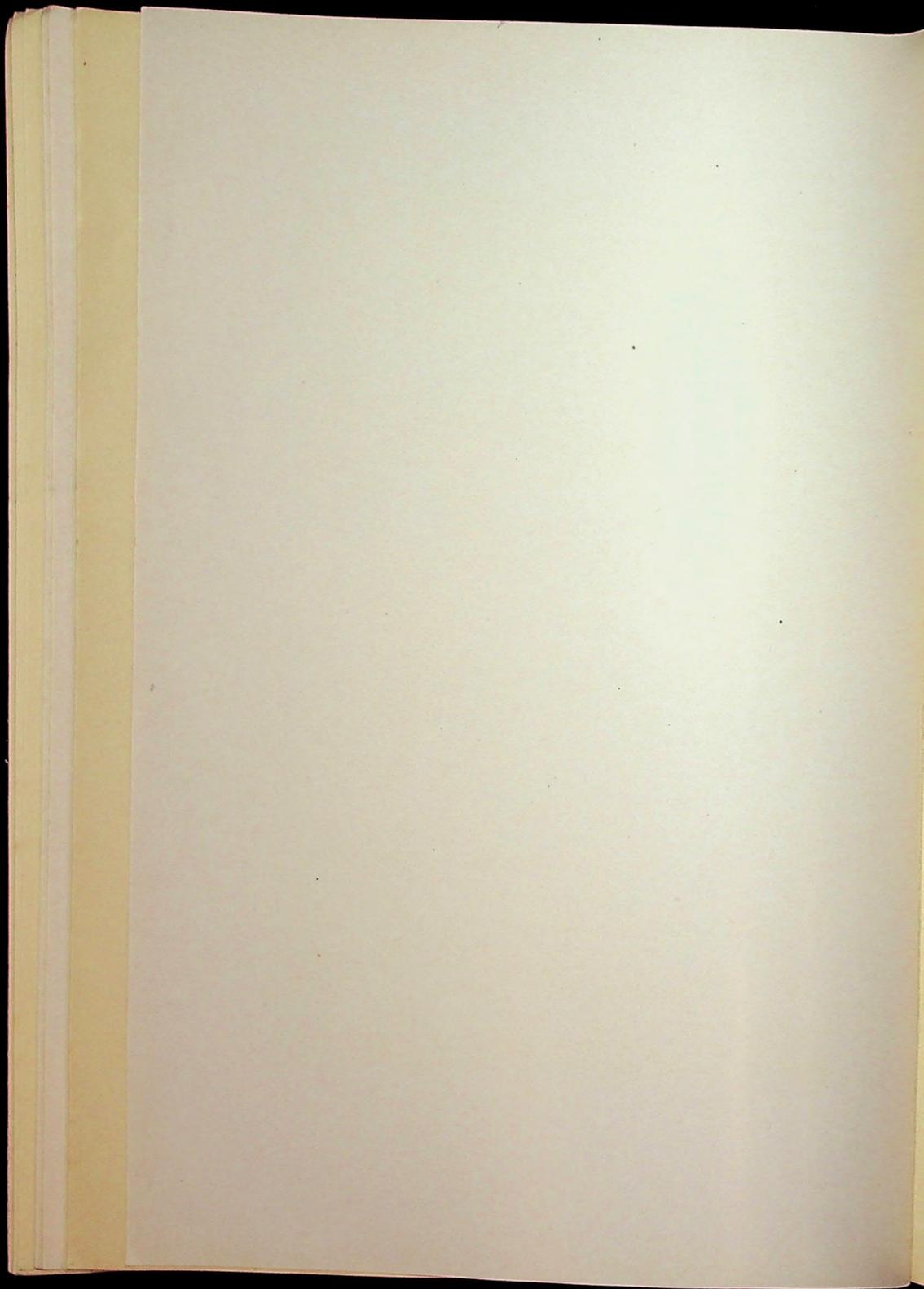
In Cubic Feet.						Cubic Feet.
1920	..	..	..	..	..	Total 7,677,930
1921	..	..	..	..	..	27,230,940
1922	..	..	..	..	..	61,441,150
1923	..	..	..	..	..	62,575,850
1924	..	..	..	..	..	98,963,030



A border of a typical pure *Cryptomeria* Stand, showing the Cauliflower effect of the Foliage. Clear Streams issue from Areas completely covered with Vegetation. The Exposure of Soils on sloping Lands is particularly dangerous because of excessive Erosion.



An interior View of a pure *Cryptomeria* Stand showing the heavy ground cover of Litter of Leaves and Branchlets. The *Cryptomeria* is the most valuable Timber Tree of Japan. It is being planted extensively in the deciduous Hardwood Forest Type, since it is reproduced naturally with difficulty, except in a few Localities.



FORESTRY OF JAPAN

The total imports of 1924 were 112,925,330 cubic feet at a value of Y.119,392,707, as against total exports of Y.13,676,016.

Imports of timber into Japan are in great part to be explained by differences in logging and manufacturing costs. The great volume timber production by machinery of North-western America places lumber on the market across the Pacific at a lower cost than the less accessible timber supplies of Japan can be logged at the present time. The result is that Japan is building up a reserve of timber supplies for the future, whereas America is exploiting her reserves.

FOREST TYPES :

The forests of Japan may be divided into four broad forest zones, namely, (1) Subtropical; (2) Evergreen broad-leaved forests; (3) Deciduous broad leaved forests; and (4) Coniferous forests.

The subtropical zone includes the lower elevations of Formosa up to 2,000 feet in the south and 1,500 feet in the north. The upper altitudinal limits of the zone descend northward to sea level on the southern boundary of Japan proper. The mean annual temperature of this zone exceeds 21° C.

The evergreen broad leaf forest zone lies above the subtropical zone. The upper limit of the zone inclining northward descends to sea level in the southern part of Honshu at 36° north latitude. It reaches an elevation of about 6,000 feet in Formosa. The characteristic species include camphor (*Cinamomum comphora*) and evergreen oaks (*Quercus acuta*, and *Q. spp.*) and *Pinus densiflora*. The mean annual temperature of this zone lies between 13° and 21° C.

The deciduous broad leaf forest zone envelopes more land area than either of the other zones and contains the larger part of the economic forests of Japan. The upper altitudinal limit of this zone, lying above the other zones, descends to sea level in the middle portion of Hokkaido. From this line it ascends to 1,500 feet in Southern Hokkaido; 4,500 feet in the Ou district; 6,500 feet in Shikoku and 10,000 feet in Formosa.

Dominantly characteristic species are both broad leaves and conifers, *Fagus sylvatica* L. var. *Sieboldii* Maxim., *Zelkova acuminata* Bl. and *Acer balsamatum* Thunb. which is responsible for so much of the glorious colourings, amongst the former, while the conifers include the famous "Sugi" or *Cryptomeria japonica* Don., *Chamaecyparis obtusa* Set Z., and *Larix leptolepis*. The mean annual temperature ranges between 6° and 13° C.

The coniferous forest zone merely touches the higher mountain peaks in Central Japan and envelopes Northern Hokkaido, Sagalien and the Kurile Islands. The mean annual temperature falls below 6° C. The extensive northern forests of Sagalien comprise chiefly *Picea ajarensis* Fisch., *P. Glehni* Mast. and *Abies sachalinensis* Mast. The forests of Northern Korea belonging also to this zone include *Pinus Koraiensis* and *Larix dahurica* Turcz.

GROWING STOCK :

The total growing stock of Japan's forests is placed at 88,535 millions of cubic feet with an average stocking of 966 cubic feet per acre. The

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per acre stocking ranges from 490 cubic feet in Korea, where much of the forest land was wastefully and carelessly denuded during the late Yi Dynasty, to 1,778 cubic feet in Formosa, where little exploitation has taken place. The average stocking of central Japan, where intensive management has been practiced, is 1,036 cubic feet per acre. This figure approximates, therefore, the normal growing stock, and indicates a cut of approximately double this amount each rotation.

The rotation is widely varied, according to the objects of management, from 30 years for poles to 100 years for timber and even longer for specially large sized timbers.

ANNUAL GROWTH :

The average annual growth in Central Japan may be placed at approximately 50 cubic feet per acre per annum. This figure is roughly based on present growing stock with an assumed average rotation of 100 years and with allowance for intermediate cuttings. This figure is checked with growth data which are reported from the following localities in Japan :

	Yields per acre per annum.
Conifers in Hokkaido	70 cu. ft.
Cryptomeria, Central Japan	84 " "
Hardwoods, Central Japan	42 " "
Pine (good quality) Southern Japan	70 " "

FOREST OWNERSHIP :

The ownership of forests is fortunately well distributed.

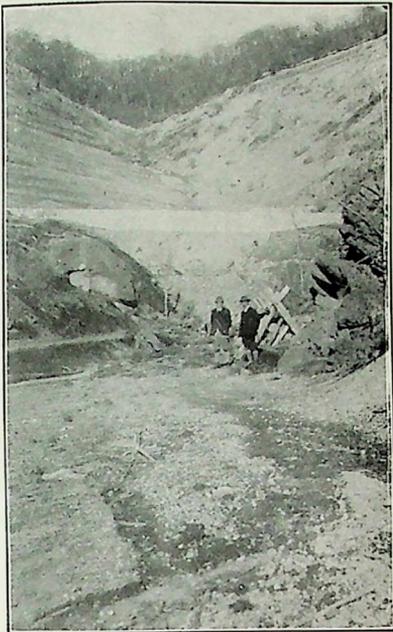
Ownership of Forest Area by percentages.

Imperial family	3.2+
State	50.7+
Communal	10.5+
Shrines and Temples	0.8+
Private	34.7+
	<hr/>
	99.9+

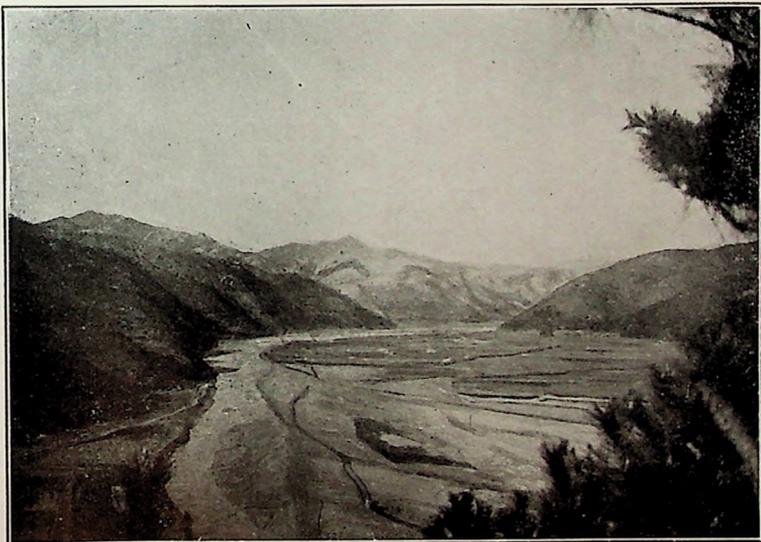
THE FOREST ACT OF JAPAN :

The Forest Act of Japan, Act No. 43 April 23, 40th year of Meiji (1907) Revised by Act 75 June, 44th year of Meiji (1911), is of special interest to foresters. An English translation was provided for the Pan-Pacific Congress by the Department of Forestry. Only a few features of special interest can be noted here.

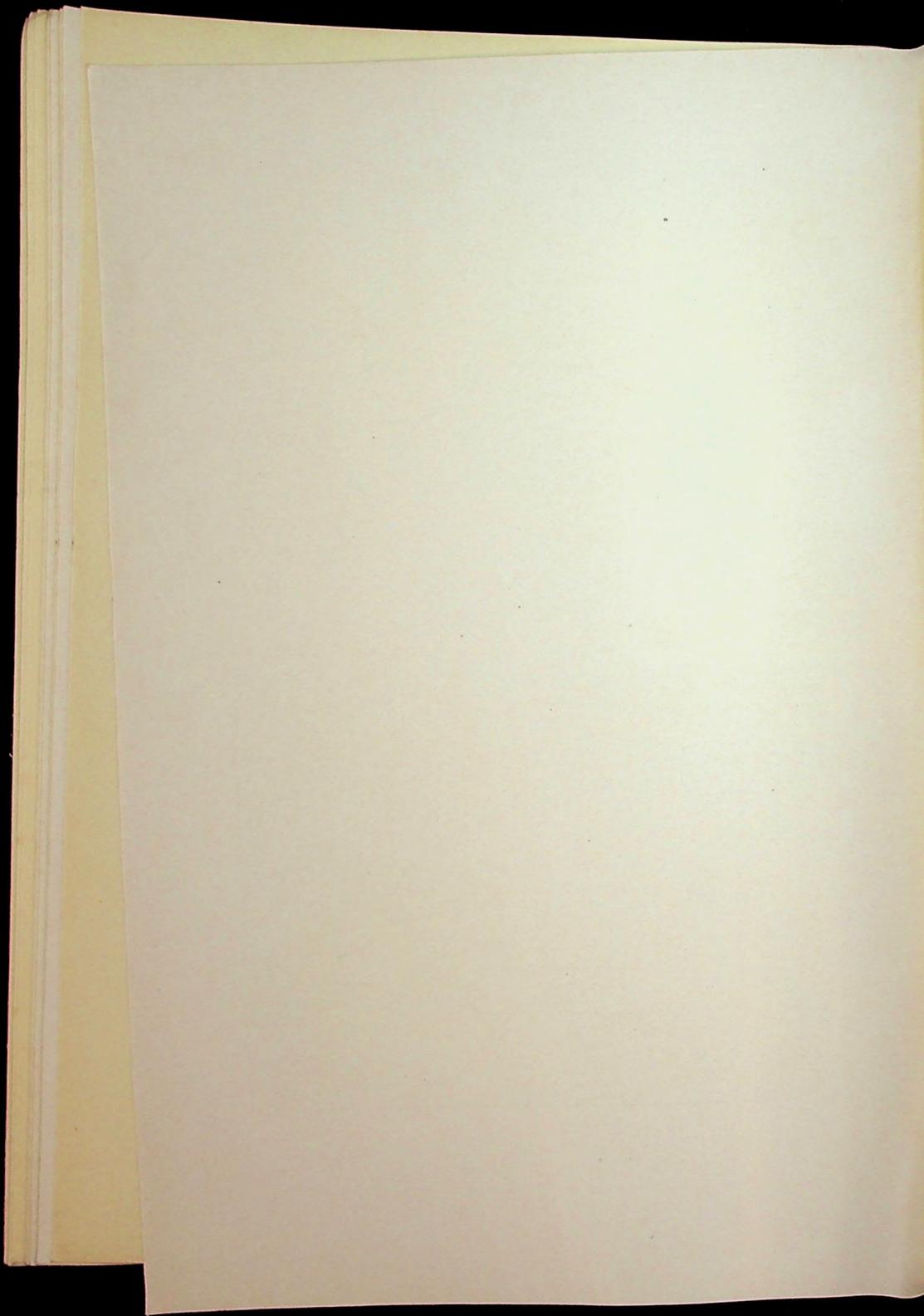
A "Forest Owner" is defined as a person who by any right can make use of or profit out of land for the purpose of owning trees, bamboo or a forest. A local governor may, if it is deemed necessary, require public corporations or temples to prepare working plans for their forest areas, the said plans to be approved by the governor. Likewise the governor may alter such working plans if it is deemed necessary. If forests under any ownership are threatened with devastation, the governor



Erosion Control in the deciduous Hardwood Forest Type north-west of Tokyo. The first Step in revegetating eroding Lands is to establish a Base Level of Erosion. Here it is done with Check Dams. Works of Soil fixation are seen on the Left side of the Picture. Often Vegetation will take possession of a Slope naturally when the Soil has reached an Angle of Repose.



Southern Korea, near Taikyu. A Characteristic View of eroding Granite Mountains and Sand-filled Rivers. The dense and complete natural Cover of Temple Forests bespeaks a similar Cover generally for this Part of Korea before it was destroyed by reckless treatment for the past five or more Centuries.



may indicate the methods of working such forests. If a person cuts in such a way as contravenes the methods indicated, cutting may be stopped and reforestation required.

The competent minister may, in the following cases, include a forest among protection forests :

- (1) When a forest is necessary for protection against soil denudation ;
- (2) When it is necessary against shifting sand ;
- (3) When it is necessary for protection against damages from floods, winds or tides ;
- (4) When it is necessary for protection against avalanches or rolling stones ;
- (5) When it is necessary for the regulation of the water supply ;
- (6) When it is necessary for fisheries ;
- (7) When it is necessary for guiding navigators ;
- (8) When it is necessary for public health ;
- (9) When it is necessary for the scenic beauty of a shrine, temple, or a noted place or historical site.

The cutting of trees, the use of forest litter, stones, and other uses of protection forests are under the direction of the competent minister. In some cases a private owner may be compensated for losses sustained in being deprived of revenue from his forest.

FOREST CO-OPERATIVE SOCIETIES :

Forest Coöperative Societies may be established within definite areas and scope ;

(1) When it is necessary for the maintenance of the safety of the land or for the prevention of the devastation of forests or for the restoration of devastated forests.

(2) When it is difficult to accomplish the object of utilization of forests except by a coöperative working because the forest is owned by different owners.

(3) When the coöperation of the persons interested is needed for the purpose of starting or maintaining construction works necessary for the transportation of forest products from the forest.

(4) When the coöperation of the persons interested is needed for the purpose of preventing the dangers and damages of their coöperative society.

A forest coöperative society is a corporate juridical person not established for profit.

The forest coöperative society is of particular interest, since it provides for the inclusion of a large number of small ownerships into a forest management unit. Small ownerships lead to unwise and irregular cutting. Combining small areas into manageable units becomes a very important improvement in conservation. Likewise the government may deal directly with the coöperative society more advantageously than with a large number of small owners. This method of combining what otherwise would be unmanageable units into a manageable whole deserves especial study. The idea may be adapted to a wide number of conditions in other countries, more especially China.

FOREST EDUCATION :

The progress of forestry in Japan is credited largely to the spread of forest education. The spread has been rapid since the founding of the first institution of forest education, The Tokyo Forest School, in 1881. Within the 45 years the schools have increased to 53 in number, of which four are of university grade, ten are special schools ("ranger schools"), and the others are of industrial or prefectural school grade. The graduates from these schools numbered in 1925 :

University grade	..	..	..	..	..	672
Special Schools	..	..	..	..	..	2,268
Prefectural Schools	..	..	..	..	..	4,056

FOREST RESEARCH :

The technical experiments in forest problems are carried on at and under three Forest Experiment Stations ; one is located in Formosa, another at Meguro, near Tokyo, and the third at Seoul, (Chosen). Research is amply provided for with generous budgets. The two last named stations were visited by the writer. Experts are added to the staff to carry forward scientific investigations into each branch of research which is undertaken.

The investigations are grouped under the following heads :

1. *Silviculture*, under which studies are made of the forest soil and its relation to forest tree growth. The factors influencing natural reproduction, fixation of sand dunes, the restoration of eroding lands.
2. *Forest utilization and products*.
3. *Forest management*, involving studies on injurious animals, insects and other factors on the forest. Special attention is being paid to the development of parasites for the injurious forest insects.
5. *Forest Meteorology*, which has received special and systematic attention in Japan. The control of waters can not be separated from the management of forests where 78 per cent. of the land area is mountainous. The steep topography and heavy rainfall yields a heavy stream discharge through the numerous short rivers to the sea.
6. *Forest and Field Culture* (Waldfeldbau). The intermixture of agriculture and grazing as well as burning is a subject of study which has yielded convincing results
7. *Tree Seeds and Miscellaneous*, involving studies of tree seeds, the influence of the location and kind of parent tree upon the seedlings.

At the Chosen Experiment Station special studies are being made of the parasitism of the pine defoliator, *Dendrolimus spectabilis*, Butler, a poisonous hairy caterpillar which is very destructive to pure pine forests. This insect has been doing enormous damage in China, where, in recent plantations of pure pine, extensive areas are seriously damaged. Thus far no method of control has been devised beyond the actual collection

and destruction of the caterpillars. In Chosen alone 735,000 acres of pine forest are very seriously damaged annually.

Flood phenomena are of frequent occurrence. As has been noted, the area of land suitable to the production of the staple product of rice is seriously insufficient. Phenomena, therefore, which in one way or another reduce the extent or render sterile the rice paddies become a menace. The ancient proverb which goes "To rule the river is to rule the mountain" contains the policy which scientific forest management has found necessary to follow. Consequently the climate and weather conditions of the mountain areas have been systematically studied by the establishment of well placed field meteorological stations which supplement the stations located in the plains by other agencies.

The effect of altitude and mountain masses on rainfall has been studied. The maximum fall of rain occurs on the mountains in a belt of about 500 meters between the altitudes of 1,100 and 1,600 meters. Both above and below this belt the rainfall decreases. Likewise comparative studies of various factors within and without the forest have been studied. Notable is the difference in rainfall which indicates the amount of rain intercepted by the forest canopy. The amount of rain which runs down the trunks of trees has also been measured. Reference is made for a complete account to the bulletins of the Department of Forestry, Forest Experiment Station, Meguro, near Tokyo. The following table will indicate interesting findings :

Percentage of Total Rainfall which Reaches the Forest Floor
Through the Forest Canopy.

Mt. Mitumine ; Altitude, 1,116 meters

Cryptomeria Stand cir 180 years old.

April	May	June	July	Aug.	Sept.	Oct.	Nov.
68	68	76	78	85	79	80	83

The effect of forests on run-off has been carefully studied. The results agree with the common knowledge of the country that a forest cover plays an appreciable rôle in the control of run-off waters. High-water stages are not prevented. The first requisite in the control of the rivers, however, is to maintain the watershed in a cover of vegetation. The necessity of preventing erosion is realized as even more important in river control. It is enough to state that the question of the influence and efficiency of a forest cover on water sheds, particularly when the slopes are steep, is not a moot question in Japan. It is so thoroughly established that forest and engineering policy are based upon this finding.

PUBLICATIONS :

The results of experiments are published in bulletins of the Forest Experiment Station, in scientific journals and in other ways. Abstracts of many of these investigations were published in English for distribution to the delegates of the Pan-Pacific Science Congress.

Forest research, therefore, plays a very important part in forest practice and policy. The large area of state and imperial forests makes possible a wide application of these findings. Methods of management

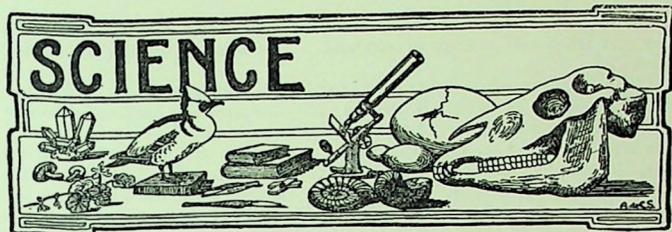
involving the results of research are also extended to the communal, temple and coöperative association forests and to some of the private forests of Japan proper.

Forestry in Japan has received full attention as one of the basic enterprises in national economy. It is fostered in its aspects as a profitable business and more especially as a regulator of the highest uses of soil and waters. Withal, the forests play a leading rôle in the national recreation, in satisfaction of the appreciation of the beautiful, and as a medium of culture. Japan would lose her charm and her prosperity; her people would be reduced to wretchedness and calamities far beyond the damages of all earthquakes were the mantle of forest vegetation to be removed from the steep slopes and bold mountains. The present policies recognize this and are committed to a wise, well-rounded program of forest, water and soil conservation.

TRAVEL AND EXPLORATION NOTES

THE SWEDISH SCIENTIFIC EXPEDITION INTO CENTRAL ASIA: Recent reports show that this expedition under the leadership of Dr. Sven Hedin is approaching Hami in Sinkiang, or the New Dominion, as Chinese Turkestan is called. They state that a wealth of material has been collected, mainly of geological and archeological interest, and this, together with the observations and diaries of the members of the expedition will shortly be sent by caravan back to Peking. It is further stated that the spirit of the expedition is excellent, although the latter is composed of scientists and workers of a number of different nationalities, and is the largest of its kind that has ever entered Asia.

IMMENSE INFLUX OF CHINESE INTO MANCHURIA: The enormous influx of Chinese emigrants from famine-stricken Shantung into Manchuria is continuing apace, and official estimates place the probable number that will enter Manchuria this year at 600,000. According to reports of travellers in Shantung, thousands of farms have been completely abandoned and in many cases entire villages have been deserted. The emigrants are carried by steamer from such ports as Tsingtao and Chefoo, having made their way overland on foot or by railway to the coast, carrying with them all that is left to them of their belongings. They will spread through the rich and fertile territories of Manchuria, immense unoccupied stretches of which occur in the provinces of Kirin and Heilungkiang. This will undoubtedly result in a year or so in a boom in Manchuria, for the settlers will have little to do but turn the soil and plant seed in order to reap rich harvests. Officials welcome this great influx of the best coolie labourer and farm worker in the world, and everything possible is being done to give the settlers a chance. It is like the settling up of Canada, and the result will be the enrichment of Manchuria at the expense of neighbouring China. These poor Chinese are fortunate indeed to have such a rich and promising country to flee to from the horrors of civil war, banditry, oppression and famine that have made life in their native land unendurable.



LUNG-FLUKE INFECTION AMONG THE FORMOSAN ABORIGINES*

BY PROFESSOR

ERNEST CARROLL FAUST, M.A., PH.D.
(*Peking Union Medical College*)

During July, 1927, I visited Formosa in order to have an opportunity to see first-hand the endemic parasitic diseases of the Island. By far the most important of these diseases of animal causation is malaria. Second in importance is pulmonary distomiasis or lung-fluke infection. This disease is common in certain districts of Japan, Korea and Formosa. Chinese patients with this infection have always given a history of having been in these endemic areas. In fact the first human cases of record suffering from this infection had contracted the disease in Formosa (Manson, 1878).

On arriving at Taihoku, the capitol of Formosa, I was met by Professor S. Yokogawa, Head of the Department of Comparative Pathology and Parasitology of the Government Medical School. A call was made on the Chief of Sanitation of the Government-General and through him arrangements were perfected for a visit to a typical endemic area of lung-fluke disease. It was explained that a certain percentage of the Formosan Chinese, who are the farmers of the Island, harbour the infection, but that the foci of heavy endemicity are the upper reaches of the narrow mountain streams, where the aborigines live. As the Japanese have come more and more to control Formosa, these aborigines have been driven further and further up the valleys, which have been taken over by the Formosan Chinese for farming purposes. Thus at the present time, at least as far as the west side of Formosa is concerned, the aborigines are found only in the mountain fastnesses at the heads of these streams. While they may raise a little grain, they subsist principally

*Contribution No. 92 from the Parasitology Laboratory, Department of Pathology.

on the roots and stems of wild plants and on the fishes and crabs which they get from the mountain streams. This food is usually consumed uncooked.

The trip was made by train as far as Shinchiku, then by motor bus inland as far as Naiwan. Here the valley became too narrow for motor roads and the remainder of the journey was by push-car and on foot. The trail lead up through mountain gorges, with rare scenery on either side, the narrow path being supported at times by very insecure cables above the raging torrent. As the valley became narrower and narrower human habitations became less frequent. In the same proportion the journey became more interesting. The stream itself was seen to cascade from one level to a lower one at ever increasing speed. Occasionally a lone fisherman with pole and net was seen looking for the sporting fish which abound in the cold waters. Above the path was dense jungle. The air was literally filled with many species of exquisitely coloured butterflies. All nature seemed to be having holiday. Suddenly a mountain storm swept down upon us and we were drenched to the skin; but in a few moments it had passed on and the sun came out to intensify the picture. Toward evening of the second day of the journey we came to the region proscribed to all except government officials. Before our arrival at this barrier we observed several dogs, which we were told belonged to the aborigines. This was an indication that we were approaching our destination, since dogs are not allowed the Chinese farmers. At the barrier we found a Chinese trader talking to an aboriginal hunter (See Figure 1). In another hour we had arrived at the police station, where we were to make our observations and examinations.

The police frontier was situated at Chikuto, which was well up in a gorge of the central mountain ridge of the Island. At this station there were several police, a health officer and a teacher who supervised an elementary manual-training school for the children of the aborigines who came down from the mountain fastness to barter. The health officer had a very simple but immaculately clean dispensary, where care was given to the health of the aborigines of this locality. The prevalent diseases were malaria, hookworm, tuberculosis and pulmonary distomiasis. It had been just ten years previously that the Japanese troops had first come up this valley and occupied it for the Government-General. With that first occupational force had come Dr. K. Nakagawa, who from his study of lung-fluke infection in this valley had first elucidated the life cycle of the causative organism of this disease. I was the first Westerner to be conducted up the valley, here to have an opportunity of observing the various phases of lung-fluke infection in man and the intermediate hosts in this classical endemic area.

Upon arrival at Chikuto we were met by the staff of the station and all possible courtesies extended to us. We were informed that a village of aborigines, consisting of about fifteen families, had been called down to the station the previous day and was waiting for us. Typical representatives of this group are seen in the accompanying photographs (Figures 2 and 3). Some of them were dressed in the native homespun; others had clothing of Japanese coloured muslin. All of them were bare-

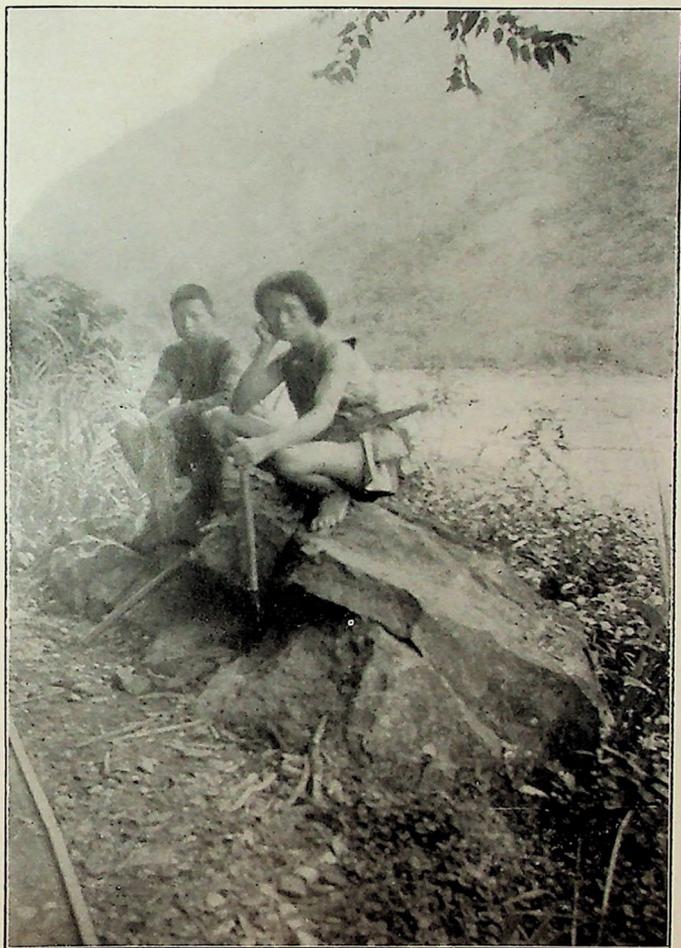
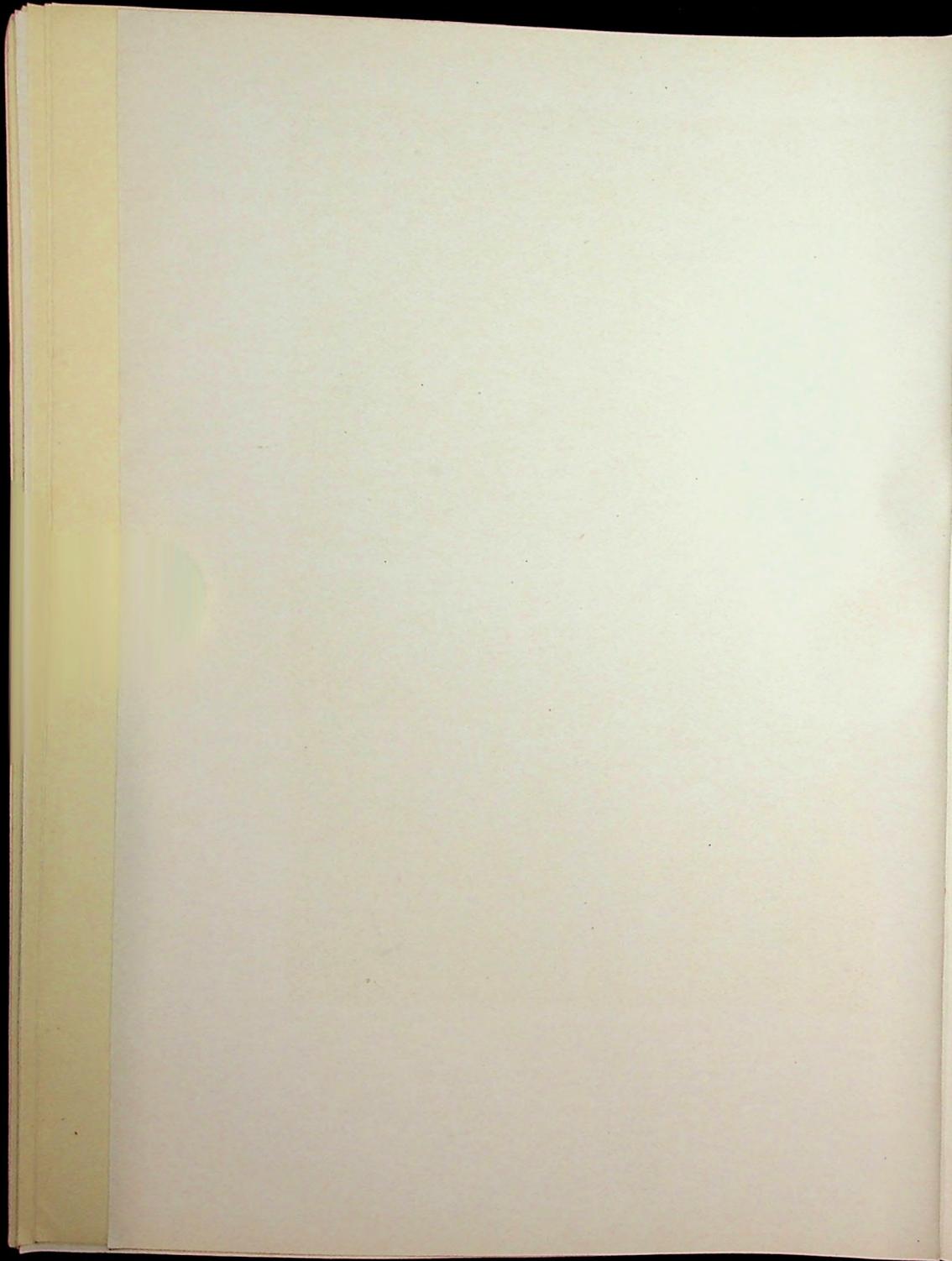
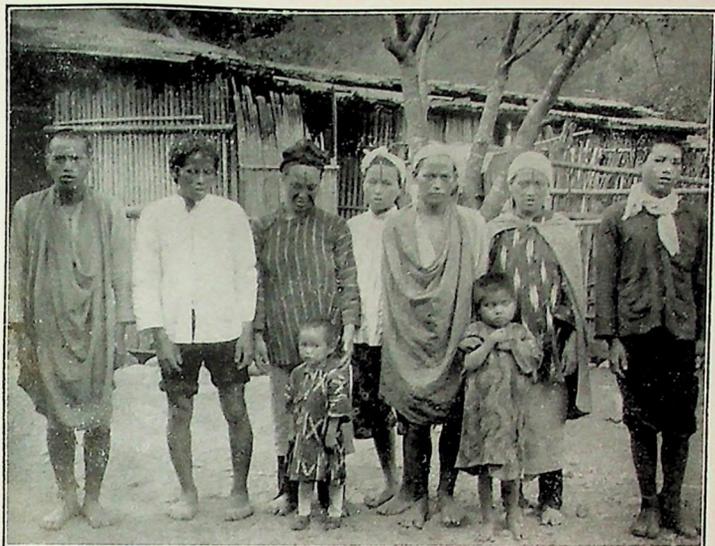


Photo by E. C. Faust.

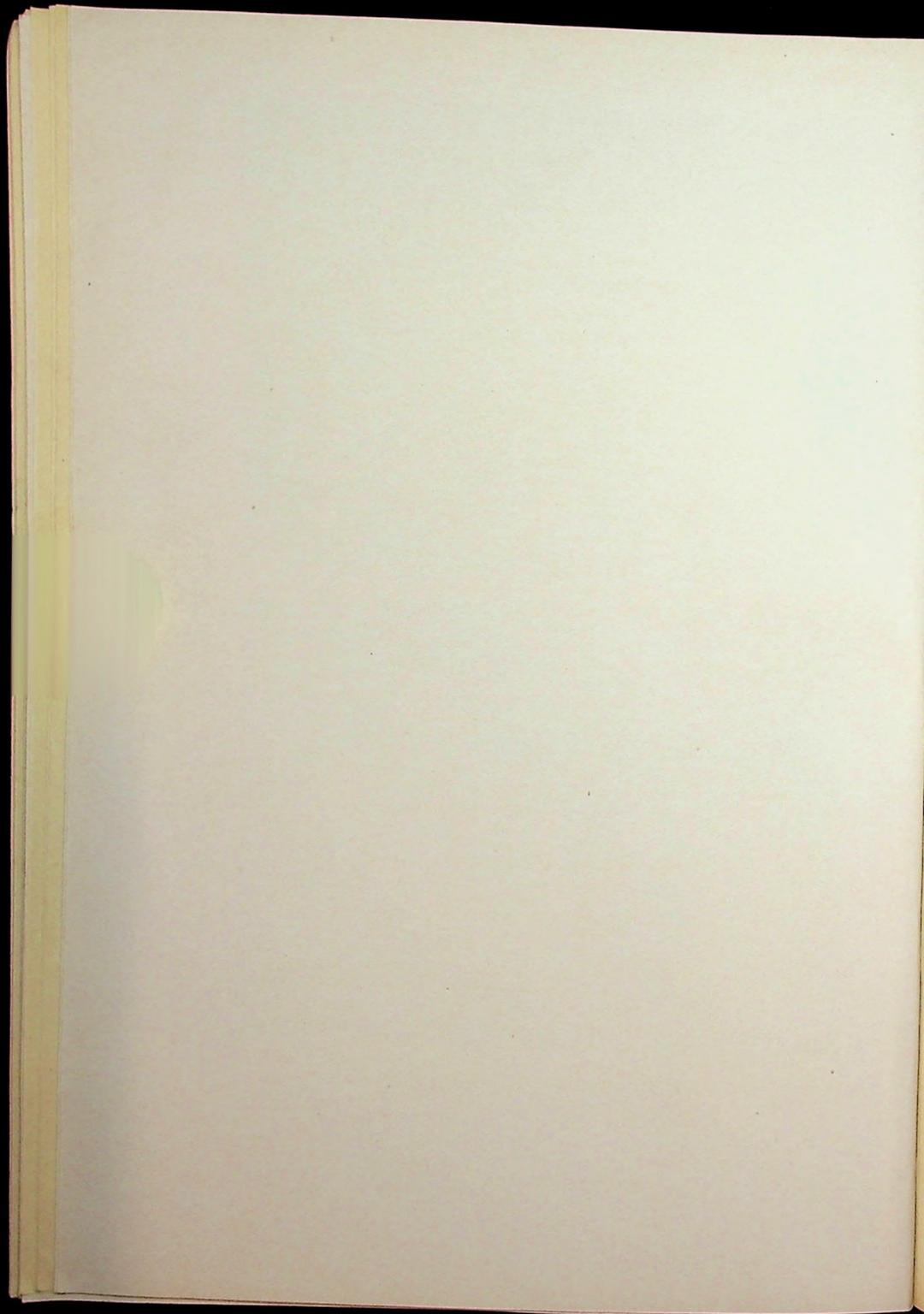
Fig. 1. At the police barrier Professor Faust found a Chinese Trader talking to an Aboriginal Hunter.





Photos by E. C. Faust.

Figs. 2 and 3. At the police station a village of aborigines had been assembled by the local police for medical examination. Note the vertical marks on the foreheads of the women, indicating that they are of marriageable age. In the lower photograph the woman to the left also has oblique marks on her cheeks, indicating that she is a wife. In the upper photograph the big toe in most of the individuals is seen to be at an angle to the other toes, due to its prehensile use.



LUNG-FLUKE INFECTION AMONG THE FORMOSAN ABORIGINES

footed with the exception of one youth who wore Japanese shoes. The photographs indicate to some extent the separation of the big toe from the other toes, an anatomical peculiarity developed by the prehensile use of the big toes in climbing up and down the steep mountain sides.

All of the individuals brought down for our inspection were asked to give us specimens of sputum. Most of these specimens were tinged a rusty hue and many were coloured with blood. Each specimen on examination under the microscope showed numerous oval objects of a golden brown colour, which we recognized as eggs of the lung-fluke, *Paragonimus westermani*. It was these eggs which gave the rusty-brown colour to the sputum. Physical examination of the cases showed them to be anemic, but it was explained that this was due to hookworm and malarial infections. On examination of the chests of these individuals there were no evidences that they were harbouring lung-flukes. Only occasional cough and slight hemorrhage and the presence of these eggs in the sputum were diagnostic of the infection. Snails of the operculate species *Melania libertina* (Figure 4), which were taken from the cold water of the local gorge, and fresh-water crabs of the species *Potamon dehaani* (Figure 5) from the same habitat, served respectively as the first and second intermediate hosts of this parasite. The liver glands of the crabs were heavily infested with encysted distomate trematodes of another species, but the gills and the muscles of these crabs, after being teased apart, revealed numerous specimens of the encysted larvae of the lung-fluke.

The life cycle of this parasite, as elucidated by the experimental studies of Dr. K. Nakagawa and my conductor, Professor S. Yokogawa, is as follows. The adult fluke (Figure 6), which is about the size of a small bean, commonly lives in cystic pockets of the lungs of man and certain wild mammals, particularly tigers and other wild felines. Occasionally other organs and tissues of the mammalian host are also invaded. These flukes are hermaphroditic, that is, they possess both male and female generative organs. Thus a single adult individual is able to produce fertilized eggs (Figure 7). Due to the close proximity of the worms to the alveoli of the lungs, ever so slight a connection of the cystic pockets, in which the eggs accumulate, with the bronchioles allows the eggs to escape into the bronchi and to be coughed up in the sputum. Some of them are voided in the sputum; a greater portion is swallowed and these latter are excreted in the feces. Since the aborigines who harbour the infection frequently defecate around the streams where they are fishing or collecting fresh-water crabs, the eggs are washed into the water, incubated there, and in time hatch, the larvae emerging from the egg shells. These larvae actively swim about, sooner or later attacking and invading the tissues of the snail, *Melania libertina*, which lives attached to stones in the bed of the stream. Within this host the larvae become modified into sporocysts, which, in turn, develop internally a second generation, designated as rediae. These rediae (Figure 8) likewise develop internally several individuals, called cercariae, which are the larvae of the third generation. These cercariae, on reaching maturity, erupt from the snail and for a brief period become free-living

organisms. They are oval objects, with a minute tail, an oral stylet and with secretory glands having a histolytic function (See Figure 9). On coming in contact with the crab, *Potamon dehaani*, they enter and penetrate the gills and other tissues, whereupon they secrete a viscous substance, which "sets" around each larva in the form of a sphere. These encysted larvae (Figure 10) appear to the naked eye as minute pearly-white bodies when an infected crab is dissected. On eating these crabs uncooked, as is the wont of these aborigines, the cysts become digested out of the crab flesh and, in the small intestine, the larvae break out of their cystic capsules, and penetrate through the intestinal wall into the abdominal cavity. The majority of them finally reach and penetrate through the diaphragm, traverse the pleural cavity to the lungs and, penetrating through the outer tissues of the lungs to a position near the alveoli, settle down and grow to adulthood. Their presence in these or other organs of the body provokes a tissue reaction whereby a fibrous cystic pocket is formed around them. Here they live for many years, continuously laying eggs, but without ability to multiply in the mammalian host.

Such a type of heavy infection as I have described is designated as a *vicious cycle*, since all of the factors necessary for the propagation of the life cycle of the parasite are closely associated, namely, the insanitary habits of the human population, the abundance of the first and second intermediate hosts, and the custom of raw consumption of the infected second intermediate hosts by the human hosts. Furthermore, such a center is a *primary center of infection*, being at the head of a mountain stream, which location facilitates the distribution of the infection further down the stream by all three groups of hosts and causes infection in the Formosan Chinese population who eat raw infected crabs. Moreover, this endemic area is typical of many similar localities in Formosa, Japan and Korea, where the same custom prevails.

No definite cure is known for pulmonary distomiasis, although emetin and gentian violet when administered intravenously are both helpful in reducing the egg-output of the flukes and thus alleviating the hemorrhages accompanying the discharge of these eggs into the respiratory passages. Prevention of the infection as far as the individual is concerned consists in complete abstinence from eating raw or insufficiently cooked fresh-water crabs of the species *Potamon dehaani* and related forms. While no autochthonous case of pulmonary distomiasis has been proved for China the constant migration of Chinese from Formosa and Korea back to Chinese territory such as Fukien, in which the first and second intermediate hosts abound, makes it altogether possible that the infection may ultimately become established in such localities. Only the custom of the indigenous Chinese population in not consuming raw fresh-water crab-meat is responsible for the absence of the infection in China.

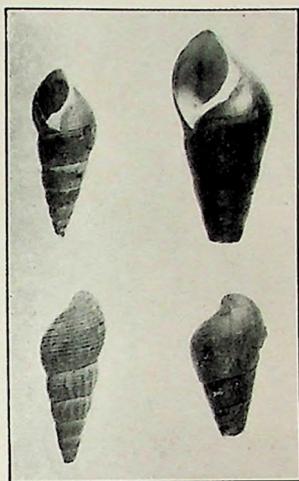
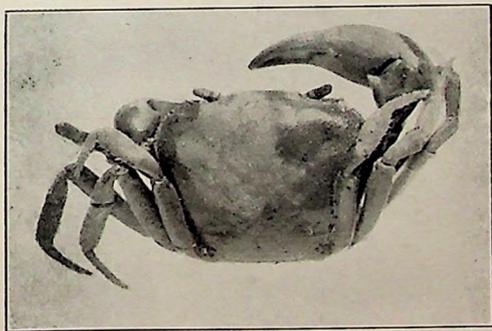
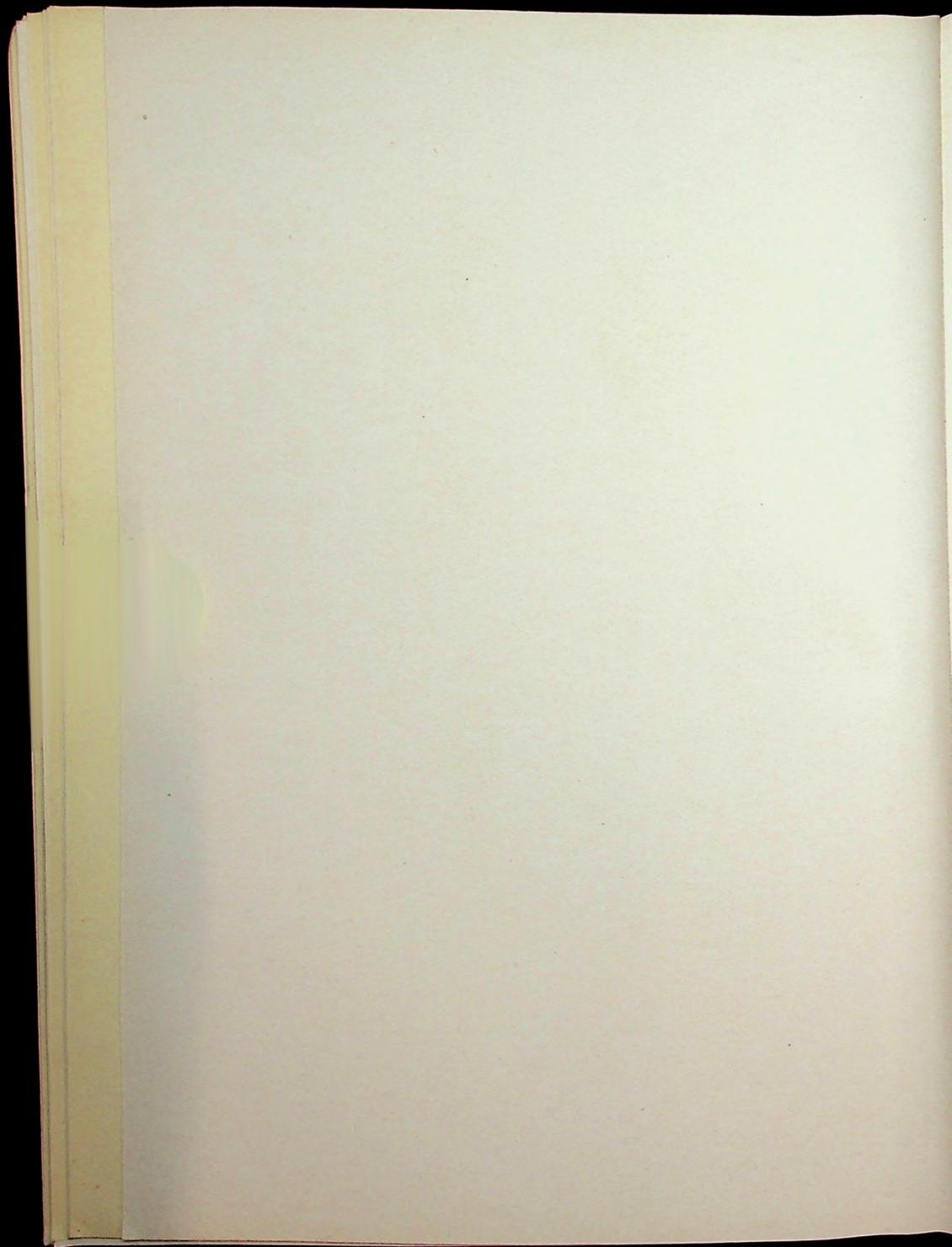


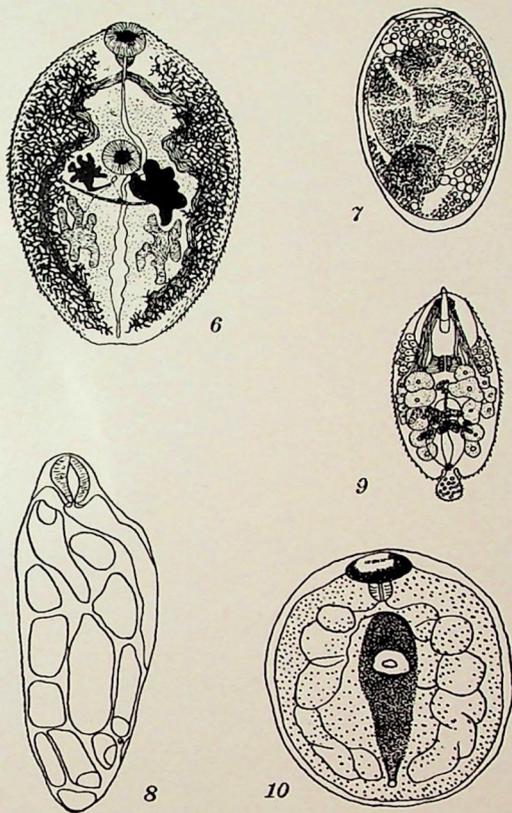
Fig. 4. Snails which serve as the first intermediate host of the lung-fluke, *Paragonimus westermani*. Left, *Melania libertina*, the important molluscan host in Formosa; Right, *Melania ebenina*, in which Professor Faust has found the cercarial stage of this infection in the vicinity of Kiukiang, Kiangsi (1921). Natural size.



Photos by E. C. Faust.

Fig. 5. The fresh-water crab, *Potamon dehaani*, which is the second intermediate host of lung-fluke infection in Formosa. ($\times 1\frac{1}{2}$ linear)





Figs. 6-10. Stages in the life cycle of the lung-fluke, *Paragonimus westermani*. Fig. 6, the adult fluke, showing its internal organs; magnified 5 times; (adapted from Looss); Fig. 7, egg from sputum of infected case; $\times 500$; (after Yokogawa); Fig. 8, redia with developing cercaria, from tissues of *Melania libertina*; $\times 100$; (after Kobayashi); Fig. 9, cercaria, or larva of third generation; $\times 500$; (after Faust); Fig. 10, encysted larva from *Potamon dehaani*; $\times 500$; (after Yokogawa).

APHIDS NEW TO CHINA

DETERMINED BY

DR. R. TAKAHASHI

(*Entomologist, Department of Agriculture, Government
Research Institute, Taihoku, Formosa*)

Collected by Claude R. Kellogg.

In a small collection of aphids sent to Dr. Takahashi for determination the following species were reported in the Transactions of the Natural History Club of Formosa, Volume XVII, Number 90, June, 1927, as being new to the fauna of China. They were all collected near Foochow in Fukien Province.

Macrosiphum formosanum Takahashi

Food Plant: Unknown.

Locality: Foochow.

Macrosiphum paederiae Takahashi

Food Plant: Unknown.

Locality: Foochow, January 9, 1924.

Macrosiphoniella citricola van der Goot

Food Plant: Unknown.

Locality: Kuliang, September 1, 1926.

Macrosiphoniella formosartemisiae Takahashi

Food Plant: *Artemisia* sp.

Locality: Kuliang, August 10, 1926.

Myzus persicae Sulz. (The Green Peach-aphis)

Food Plants: Cauliflower, *Cinneraria*

Locality: Foochow, March 12.

Reported also from *India*, feeding on Rape, Mustard, Cauliflower, Turnips, Tobacco, *Prunus persica*, *Datura stramonium*, *Pyrus communis*, *Dalbeyia sissu*, *Solanum tuberosum*, *S. lycopersicum*, *Chaenopodium*, *Viola tricolor*, etc.

Also reported from the Eastern part of the United States where it feeds on a large number of plants, and from California where it affects peach, plums, citrus, a host of weeds and garden crops, cabbage, turnips, chrysanthemum, etc.

Toxoptera graminum Rond (The Spring Grain Aphis)

Food Plant: Wheat.

Locality: Foochow, March 9, 1921.

This highly economic and wide spread species is well-known in many places. Reported frequently from Eastern North America,

where it occurs every spring on the wheat, being particularly injurious in Kansas and Northern Texas. It has long been known as a serious pest of small grains in Europe.

Toxoptera aurantii Boyer (The Black Citrus Plant Louse)

Food Plant: *Camellia thea* (tea).
Locality: Foochow, September 6, 1927.

Found on citrus in Southern India, never appearing as far north as Lahore. Also reported from California, where it is especially abundant on the new leaves of citrus plants, but may also be found in all stages throughout the year on old wood.

Aphis tavaresi Del Guercio

Food Plant: Citrus.
Locality: Foochow, November 1, 1920.

Brachycolus heraclei Takahashi

Food Plant: Unknown.
Locality: Foochow, December 14, 1918.

Setaphis viridis van der Goot

Food Plant: *Phyllanthus* sp.
Locality: Kuliang, August 10, 1926.

Neophyllaphis podocarpi Takahashi

Food Plant unknown.
Locality: Foochow, October 30, 1920.

Oregma lanigera Zehnt

Food Plant: Sugar cane.
Locality: Foochow, November 21, 1918.
Also reported as injurious to sugar cane in Formosa.

Oregma bambusicola Takahashi

Food Plant: Bamboo.
Locality: Foochow, November 12, 1926.

The following aphids are reported as new to China in the Transactions of the Natural History Club of Formosa, Volume XVII, No. 93. December, 1927, by Dr. R. Takahashi.

Amphorophora lespedezae Essig et Kuwana.

Food Plant: Unknown.
Locality: Foochow, May, 1927.
Collector: C. R. Kellogg.
Previously recorded only from Japan and Korea.

Myzus malisuctus Mats.

Food Plant: Unknown.
Locality: Soochow, China, May 8, 1921.
Collector: Mr. Fey.

Aphis smilacifoliae Takahashi

Food Plant: Unknown (Attacks *Smilax china* in Formosa, doubtless also in Fukien).

Locality: Foochow, May, 1927.

Collector: C. R. Kellogg.

FINDING THE DISTANCES OF STARS WITH
THE SPECTROSCOPE

BY

CH'ING-SUNG YU, PH.D.

(Professor of Astronomy, University of Amoy. Formerly Martin Kellogg
Fellow at the Lick Observatory, University of California.)

Among the numerous problems confronting the astronomers for solution none, perhaps, is of more fundamental importance than the problem of determining the distances of stars. The distances of these celestial objects are essential in studying the structure of the universe. An accurate knowledge of them also leads to information of extreme interest regarding the physical properties of individual stars, such as intrinsic brightness, density, volume, diameter, space velocity and so on, all of which play an important rôle in formulating theories of stellar evolution.

The methods most commonly employed at present for finding stellar distances include: (1) the trigonometric, (2) group motion, (3) dynamical, (4) clusters, (5) cepheids and (6) the spectroscopic method.

The trigonometric method is the oldest and the most direct one of measuring the distances of stars. Its application follows the exact principle of triangulation used by surveyors in obtaining the distance of an inaccessible point from two stations, the known distance between which serves as a base line, the base line here being the diameter of the earth's orbit.

With the exception of the last mentioned, which will be treated below, I shall not burden the reader with the details of these methods. Suffice it to say, that while most of these yield valuable and accurate results, they are mainly applicable only to a small group of stars and therefore their use is necessarily restricted.

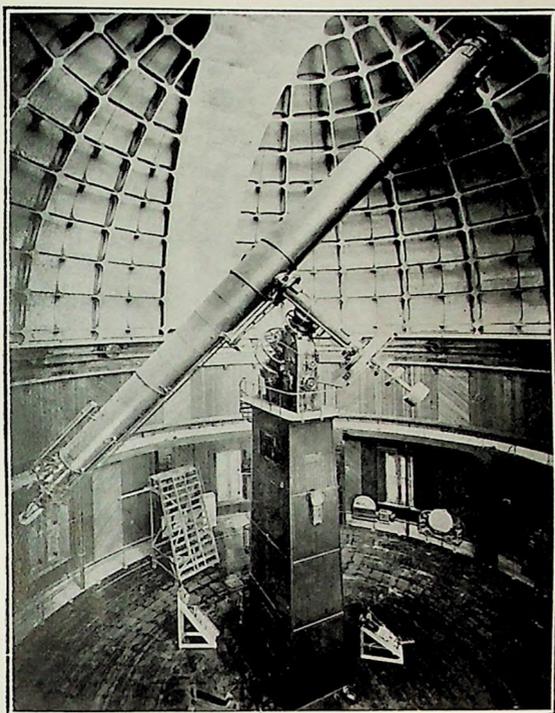
I have said that the trigonometric method is the most direct one. It would have been also the best, were the stars not so far way from us. The stellar distances are so tremendous that, in spite of the enormous base line of some 186,000,000 miles, the angle to be measured is extremely

minute. Consequently, measures are very difficult and the results in many cases rendered highly uncertain. It is evident that this method at best can only be applied to a very insignificant number of stars in our immediate vicinity. The parallax of the nearest star, that is the angle subtended, as seen from the star, by the semi-diameter of the earth's orbit, is only 0.76 seconds of arc, equal to the angle subtended by a foot rule at a distance of 5 miles! It is significant to note that astronomers have measured angles even twenty times as small as this with fair accuracy. However, for those numerous stars not in our neighbourhood the trigonometric method hopelessly fails.

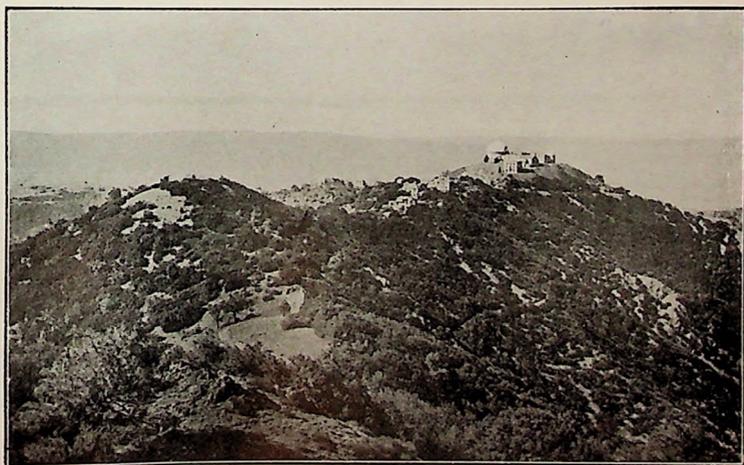
A few years ago, Doctors Adams and Kohlschütter of the Mount Wilson Observatory made a great contribution toward this branch of astronomical science by originating an ingenious and revolutionary method of determining star distances from a study of the intensity of lines appearing in the stellar spectra. The method consists of an empirical correlation of the relative strength of certain spectral lines with absolute brightness. Thus by estimating the intensities of spectral lines of a star, its absolute brightness is determined, and by comparing its apparent brightness as seen from the earth, a quantity easily obtainable, the distance is derived. This spectroscopic method not only saves considerable time and labour, but places at the astronomer's disposal the means of determining with accuracy the distances of stars beyond the reach of the tedious old fashioned method. Unfortunately, it is applicable only to the so-called "late type" stars (yellow to red). The early type (white) or Class A stars, which greatly surpass the others in number, do not possess suitable lines in their spectra for similar magnitude determination. To meet this difficulty, Adams and Joy devised another method by simply classifying the spectra and by establishing a relation between spectral class and absolute brightness.

It is concerning this group of stars also that the writer, in a recent spectrophotometric investigation of stellar spectra, photographed at the Lick Observatory, found another criterion and proposed it to determine their distances. The white stars (sometimes known as hydrogen stars) do not, as has just been remarked above, offer suitable lines in their spectra for absolute magnitude study. They have, however, a remarkable and beautiful series of hydrogen lines, extending from its first line in the red region of the spectrum to its limit in the ultra-violet. Now at the limit of the series and toward the ultra-violet, there exists a region of *continuous absorption*, a phenomenon required by the modern theory of atomic structure. The strength of this absorption was found to vary in a definite manner with absolute brightness and temperature of the star. This correlation thus constitutes the basis of the proposed method for determining the stellar distances. For, as soon as the strength of the absorption and the temperature of the star are known, both of which can be readily obtained from a single photographic plate, the star's distance can be computed.

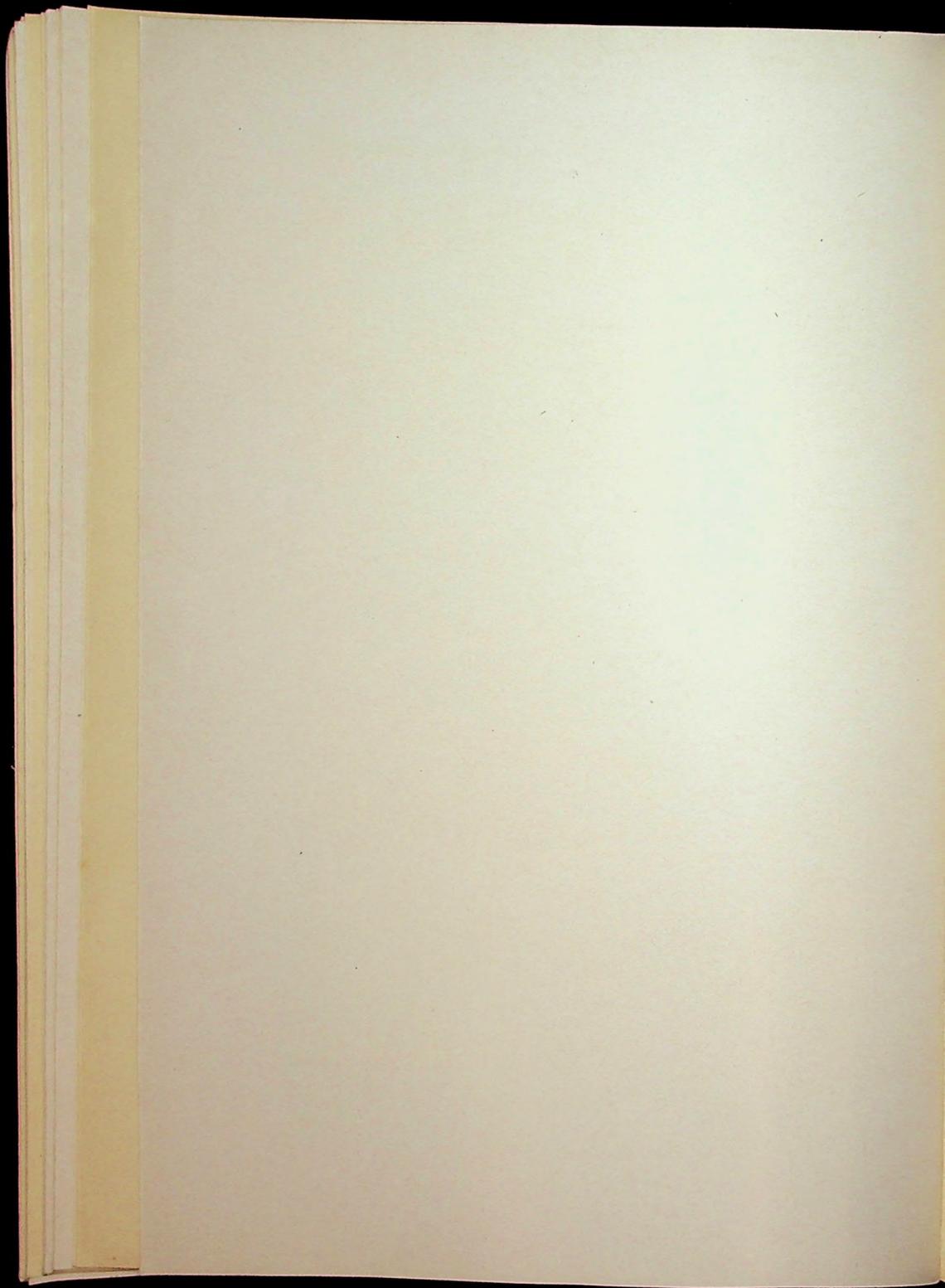
It will be seen that the new method is a development of, and is essentially the same in principle as, that of Adams. However, it differs from his in that here, instead of observing spectrum lines, the continuous



The 36-inch Refractor at Lick Observatory.



Lick Observatory, California.



absorption at the end of the hydrogen series is utilized. The latter necessitates the study of the intensity distribution of the continuous background in the ultra-violet region. Further, the method proposed takes into account a new factor, namely, the temperature of the star, a factor which theoretically should be included, but which until now has been left out of consideration.

I have tested this method for 63 Class A stars and found the distances derived through its use to agree satisfactorily with those determined trigonometrically. While my results show a slightly better agreement than those obtained by Adams, the data at hand are not sufficient to establish with certainty the superiority of the method. It seems that from the theoretical standpoint the proposed method is an improvement. However, whether it will prove better adapted practically remains to be seen. The problem awaits further investigation. The greatest weakness of the new method seems to lie in the necessity of knowing the temperature of the stars with high accuracy, an accuracy not reached at the present stage of astronomical investigation. For a detailed technical account of this work the reader may be referred to my original articles which appeared in Lick Observatory Bulletin, No. 375 and No. 380.

In conclusion, I should like to emphasize the fact that while all spectroscopic methods of deriving stellar distances have proved superior to and more powerful in their application than the old triangulation method, they are, nevertheless, all based on data obtained trigonometrically. For this reason the old method is still fundamental, and is by no means to be discredited and discouraged. In fact, more results thus obtained will be of great value. For they will not only serve as checks to those derived otherwise, but will also furnish additional fundamental data for the spectroscopic methods.

SCIENTIFIC NOTES AND REVIEWS

BIOLOGY

THE AMPHIBIANS OF FUKIEN: In an interesting article in the September-October, 1927, issue of *Natural History*, the bi-monthly illustrated magazine of the American Museum of Natural History, Mr. Clifford Pope describes his experiences while collecting for that museum in Fukien. The article is entitled "Frog Hunting in Fukien, China," and is delightfully written and well illustrated. It contains accounts of many of the remarkable frogs that occur in this district of China, and in some cases tells of their breeding habits and eggs. Amongst others he describes the eggs of the giant frog of the high mountainous region, *Rana spinosa*, and of the large green tree frog, *Polypedates dennysi*. The former are found under boulders in streams, adhering firmly to the bottom, and are as large as marbles, while the latter are laid in "a rubbery, sticky mass of froth" which is hung from bushes over water, and from which the tadpoles escape into the water below in due course. The tadpoles of a frog known as *Staurois ricketti*, with sucking disc and poison gland, is

also shown. This tadpole lives in fast running streams, hence its need of some means of holding firmly to rock surfaces. Altogether some twenty varieties of frogs were secured. While in this area, his chief and best collecting ground being the zoologically famous district of Kuantun, he also collected numerous reptiles, fishes and some interesting mammals. We understand that Mr. Pope hopes to return to China some time in the not too distant future to continue the excellent work he has been doing.

NEW ANT-LOVING BEETLES FROM THE FAR EAST: Doctor F. Silvestri, who some few years ago made an extended trip through China and the Far East collecting entomological specimens, describes in the *Bollettino del Laboratorio di Zoologia generale e agraria*, Vol. XIX, pp. 261-8, October 25, 1926, two new genera, each represented by a new species, of ant-loving beetles. The paper is entitled "Descrizione di due novi generi di Coleotteri mirmecofili dell' Estremo Oriente," and the new forms are *Ambrosiger gravis*, gen. et spec. nov., and *Eucurtiopsis mirabilis*, gen. et spec. nov., the former having been secured at Macoa and the latter at Funkiko, Formosa, and both from ants' nests. *Ambrosiger gravis* belongs to the family *Pselaphidae*, while *Eucurtiopsis mirabilis* belongs to the *Histeridae*. Both are very small, and are of very remarkable form. Good illustrations are given.

ANTS FROM INDO-CHINA: Amongst the insects collected by Dr. Silvestri were a large number of ants from Indo-China, which have been described by the well known authority on ants, Mr. William Morton Wheeler, in the *Bollettino del Laboratorio di Zoologia generale e agraria*, Vol. XX, May 6, 1927, pp. 84-106. Altogether some 67 species and varieties are listed, of which no fewer than nine are new species, one a new subspecies and one a new variety. The new forms are:

Odontomachus silvestrii from Dong Mo.

Odontomachus silvestrii var. *substriatus* from Tocco.

Monomorium silvestrii from Yen Bay (type locality) and Van Phu.

[*Monomorium lippulum* from Port Lincoln, South Australia, type taken by Mr. A. M. Lea, and workers taken at the McDonnell Range, Central Australia by Mr. J. W. Finlayson.]

Anelcus cribriceps from Dong Mo.

Oligomyrmez (Hendecatella) capreolus from Van Phu.

Anillomyrma decamera Emery subsp. *continentis* from Van Phu.

Tetranorium indosinense from Hanoi.

[*Dolichoderis (Hypoclinea) feae* var. *caligatus* from Chiangmai, Siam, (H. E. Crampton).]

Acropyga (Rhizomyrma) silvestrii from Coxan.

Pseudolasius silvestrii from Tocco.

Pseudolasius lasioides from Coxan.

Paratrechina (Nylanderia) picta from Laokay.

The paper is well illustrated throughout.

NEW FISH FROM KOREA AND JAPAN: In *Annotationes Zoologicae Japonenses*, Vol. 11, No. 2, July 31, 1927, Professor Tamezo Mori publishes a paper entitled "Notes on the Genus *Sarcocheilichthys*, with the Descriptions of Four New Species," in which he reviews the various members of the genus *Sarcocheilichthys*, a genus of cyprinids (or carp-like fish) peculiar to China, Japan, Korea, Manchuria and neighbouring Eastern Siberia. He gives eleven species, of which four are described as new, namely:

Sarcocheilichthys microoculus from Lake Biwa, Japan, and Kumamoto, Kiusiu, Japan.

Sarcocheilichthys wakiyae from Choko, south-western Korea.

Sarcocheilichthys kobayashii from Southern Korea,

Sarcocheilichthys koreensis from Southern Korea.

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The other species listed, with their distributions, are as follows: *S. morii* Jordan and Hubbs, the Ping-yang River, Korea; *S. sinensis* Bleeker, Central and Northern China; *S. lacustris* (Dybowski), North Manchuria; *S. maculatus* (Günther), Shanghai (= *Leucisus scitius*, Abbott, Tientsin); *S. czerskii* (Berg), Northern Manchuria to Southern Korea; *S. soldatovi* (Berg), East Siberia (Primorsk), Northern Manchuria and Northern Korea.

BIG TREE ON EXHIBITION IN CHINA: Through the courtesy of Professor E. D. Merrill, Dean of the College of Agriculture, University of California, and Colonel John R. White, Superintendent of the Sequoia National Park, California, a section of *Sequoia gigantea*, the so-called Big Tree of California, has been donated by the latter gentleman to the Department of Botany of the University of Amoy for display in its Museum of Economic Botany. So far as is known this is the first section of this world famous tree to be brought to China for educational purposes.

According to Colonel White the tree from which this section was cut fell in 1915. At that time the age was estimated as 1,995 years, which means that this was already a sturdy tree when Christ was born.

This section was cut at a point which was 70 feet from the ground when the tree was standing, and yet it still has a maximum diameter of 9 feet, 10 inches, excluding the bark. It is 10 inches in thickness. When crated for transportation to Amoy, the total weight exceeded 2,000 pounds. It required a special open truck to haul it from the forest to San Francisco, being too bulky to be loaded on to an ordinary freight car. When it arrived at Amoy, 50 persons were required to carry it from the jetty to the Biology Building. It proved to be not feasible to raise it up to the second floor where the Museum of Economic Botany is located; so it has to stay on the ground floor just within the main entrance to the Biology Building. According to Colonel White, this is by no means the biggest section for the species. A section cut at the same distance up from the ground from that venerable giant known as General Sherman would be twice as large, but the difficulty in transportation for such a long distance would be unsurmountable.

There will also be specimens of the bark, foliage, cones and seeds, as well as photographs of groves of standing trees as they appear in the forest, exhibited with the wood section, thus giving a complete story of the tree.

ANTHROPOLOGY

ANCIENT HUNTERS AND ARTISTS: The second volume of the "Corridors of Time" series published by the Clarendon Press, Oxford, is under the title "Hunters and Artists," and has been written by Harold Peake and Herbert John Fleure, the authors of the first of the series, "Apes and Men," reviewed in our February issue. It treats of the period of Europe's pre-history from the retreat of the ice at the end of the "Great Ice Age" to late Palaeolithic times, especially with reference to the art and mode of obtaining a living (hunting) of the various types of man that occupied this area during this long period. The first part of the book is devoted to an account of the advance and retreat of the various great ice-caps or fields during the glacial epoch and corresponding changes in climate and vegetation. Subsequently the appearance and disappearance of the various types of Palaeolithic man from the time of the Aurignacian culture to that known as Azilian, embodying all the most recent theories based on the latest discoveries of stone implements, artistic efforts and the actual remains of the men who inhabited Europe throughout that long period, are traced. The book constitutes a very fair summary of the subject, and it may well be recommended to those who wish to take up the study of prehistoric man as something to begin with. The final chapter (9) under the caption "Chronological Summary" is particularly clear and enlightening. It brings pre-history in Europe down to about 4000 B.C., a date at which Egypt and Babylon had reached a high state of civilization.

MEDICINE

CANCER IN RELATION TO SOCIAL CONDITIONS: The fact that cancer of certain parts of the body—mouth, tongue, larynx, throat, stomach and skin—is more prevalent in members of the lower social circles than of the higher in Great Britain is brought out in the Decennial Supplement, 1927, of the Registrar-General, Part II, Occupational Mortality, Fertility and Infantile Mortality: Stationery Office, 7/6. This disease is undoubtedly due to irritation caused by different kinds of foods and drinks; and the practical suggestion is made that if in these matters the condition of all classes could be made to approximate those of the upper classes, the prevalence of cancer would be eliminated to just that extent. In other words, the indication is that cancer is a preventable disease, since clergymen, who live abstemious lives, are the least subject to it, while barkeepers, who presumably do not, are the most subject to it.

CHINESE MISSION TO LEPERS: At the annual meeting of the Chinese Mission to Lepers, which was held on February 23 in Shanghai, it was decided to refer to the Executive Committee the question of starting a Leper Home in the Shanghai area, detailed plans to be presented to the next Board Meeting of the Mission for final adoption.

A. DE C. S.

SHOOTING AND FISHING NOTES

SHOOTING

SNIPE, DUCK AND TEAL: Now that the season for pheasants, bamboo partridges and hares is over, the sportsman in China can devote all his attention to the shooting of snipe, duck and teal. Of these the two latter will shortly be off the list as well, since before the end of the month the majority of them will have betaken, themselves northward, and only a few scattered pairs of such species as the garganey, or summer teal, and the yellow nib, or Swinhoe's duck, will remain. It is always an interesting thing to follow the movements of such birds as our wild ducks and teal, a thing which can be done by gathering together records from the notebooks of sportsmen in various parts of the country. For instance, let us take the falcated teal (*Eunetta falcata*) one of our most handsome wild fowl. All through the winter months this beautiful bird may be shot in the Chapu and Haice Districts, both on the Hangchow Bay. The only other place in China where the writer has found this bird was Kirin Province, Manchuria, during the month of May, at which time pairs were to be seen on every river and stream. But they did not stay there, passing on northward to Eastern Siberia. It would be interesting to know if there are records from any other parts of China. Recently the falcated teal has been recorded from the United States of America. Apparently stragglers have missed their bearings in Eastern Siberia, and, instead of following the Asiatic coast line, have wandered down the North American coast on their southward journey. Another duck whose movements may be traced with interest is the pintail (*Daifila acuta*). The writer has shot this bird on the Yangtze in the Nanking District, at Taiyuanfu in Shansi, near Sianfu in Shansi, and at Tientsin. We have seen specimens shot by natives at Chefoo, but so far have not come across this duck anywhere in the Kiangsu coastal region.

It would be well worth some one's while to collect data of the movements of our wild fowl and publish same for the benefit and interest of other sportsmen.

SHOOTING AND FISHING NOTES

As regards snipe; these are the China sportsman's great standby. At all times of the year, except the impossibly hot months of the summer, when no one wants to shoot, or during the coldest months of the winter, when there is always other game to be had, the snipe offers the sportsman that form of recreation his body and soul most crave. Like the poor, snipe are always with us; and many there be who consider snipe shooting the finest sport to be had. Just now it is the common or winter snipe that we have with us. This bird remains in these parts in varying numbers throughout the winter, and does not take his departure till his cousins, the spring snipe, are well in. Bright March and April days bring our bird down to the marshy patches in great numbers and then the sportsman is in his seventh heaven. By about the middle of April the two kinds of spring snipe begin to appear. These are the pintail snipe and Swinhoe's snipe, the former characterized by having 26 tail feathers, of which the outer six on each side are reduced to pin-like shafts (hence the name), the latter by 20 tail feathers, of which the outer ones are narrow, though not so attenuated as in the pintail. The common snipe has 14 tail feathers, all long and broad. Data is wanted regarding the dates of arrival and distribution of the two spring snipe, and it would be a good thing if sportsmen would run over their bags at the end of the day, sort the birds out according to their species, and jot down the results with dates and any other interesting point that might be noted. As it is we have no positive knowledge as to the dates of arrival of these species; whether they both come together, and, if not, which species appears first and which second, and when. There need be no trouble about the matter. A note-book and pencil in one's pocket is all that is required. The tale is told by the tail feathers of the snipe—26-20-14.

GEESE PASSING OVER SHANGHAI: On March 4, players on the Hungjao Golf Course were greatly interested to note large numbers of wild geese passing over head, flying very low, in a general southerly direction. So low did the birds fly, some of the players tried to hit them with clubs. It may be noted that this phenomenon immediately preceded the somewhat severe weather experienced during the early part of the week ending March 9, and doubtless there is some close connection between the movements of the geese and this burst of severe weather.

A. DE C. S.

SHOOTING IN MANCHURIA, APRIL NOTES: To the sportsmen in Manchuria April is a busy month, for by now the first timid flocks of geese and ducks of the end of March have multiplied a thousand fold and the great spring migration is in full swing. But blessed as we are in Manchuria with an abundance of game, on the other hand we are cursed by lack of proper ammunition, powder and other shooting equipment, due to the stringent attitude of the Customs and Chinese military authorities towards importation of explosives and arms into this country. Moreover each wild fowler has his own favourite geese load and turns a cold shoulder to ready loaded ammunition, and so each pound of incoming foreign powder is booked long ahead. At home, to the distress and disgust of the lady of the house, everything is turned upside down, and tables and desks are littered with shells, shot and other hunting paraphernalia. The dogs, to whom the meaning of greased boots and cleaned guns is well known, are mad with joy after the long months of enforced winter rest and add their share to the general confusion.

Theoretically North Manchuria, with its numerous waterways and large number of lakes, should offer wonderful opportunities for wild fowling, but in practice, although the number of birds seen remains tremendous, the bags themselves have been steadily decreasing from year to year. Each spring sportsmen wander further and further afield in search of better locations, and the recent introduction of inland motor-traffic in Manchuria may prove of great assistance in that respect. This season several distant motor expeditions are planned with Tzitzihar and Hailar as starting points.

Live wild geese and ducks have also already made their appearance on the local market, they being supplied by Chinese farmers who have their own way of capturing them. Along sand bars, lake shores and other favourite resting places of wild fowl, the Chinese spread Indian corn soaked in crude alcohol, and these grains are eagerly

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pecked up by incoming hungry flocks. Half an hour later the birds are lying dead drunk on the ground and can be gathered without difficulty by the waiting Chinese.

By the end of the month the Hingan hills will resound with the love calls of blackcock and higher up, in the dense larch forests, the first tentative clicks of the capercalzie will be heard at dawn.

Bear have left their dens for good and roam about in search of food. Hunting them is made comparatively easy by the absence of foliage and the soft humid ground underfoot, which allows of a silent approach. The favourite haunts of bear at present are southern slopes which already show the first timid signs of vegetation.

For roe deer and wapiti the most painful season of the year has arrived, for it is now that the larvae of the deer-fly begin to hatch under their skins, the eggs having been deposited there last fall. The harassed animals are restless and try to retard the hatching process by keeping in cool, shady locations, and sleeping and rolling in still existing snow-patches.

V. DE FRANCK.

FISHING

FISHING IN THE TIENTSIN DISTRICT: The following letter has been received from an angling enthusiast in Tientsin.

DEAR SIR,—I am taking the liberty of writing you in connection with "Fresh Water Fishing" round about Tientsin, in the hope that you may find what little experience I have had in this neighbourhood of some interest to you, and in return would gladly welcome any suggestions you may have to offer in regard to Tackle, Bait and Method most likely to succeed.

My experience so far only covers two years, beginning in the spring as soon as the ice has gone and fishing right through the summer and autumn. I regret to say that those who are interested in the gentle art are very few in number, which makes it very difficult in coming to any conclusions as to whether one's own method is the best. A few comparisons would help considerably. During the period mentioned I have fished in company with a Mr. C. Smith, and Mr. Greenslade whom I believe you know. I am sorry to say that our luck has been nothing extraordinary, considering the quantity and size of the fish here to be had. In giving you an idea of what success we have had up-to-date I will take things in some sort of order and try to make it as clear as possible:—

FISH MOSTLY MET WITH

KNIFE FISH.—This fish we have had up to 15-in. in length, using worm as bait, sometimes fishing just under the surface and at other times deep, all depending where one is fishing. On warm summer evenings the fish can be seen moving just under the surface, when if one casts a worm over them they take readily and give you quite good sport especially if you are using a light Fly Rod. I have caught them on Gentles but never on Bread or Paste. They also go after Flies (both house or artificial). Mr. Greenslade has had some success this way but they did not run so big on an average as those caught with a worm.

CULTUR.—There are plenty of this fish about, some of them running to a good size. On quiet evenings I have seen some beauties leaping clean out of the water. They looked to be anything up to 10 lbs. in weight, possibly more, but then it is very hard to judge when one only gets a glimpse of them in the air. The biggest I have had was just under 3 lbs. in weight, a nice deep and strong fish. I happened to see him playing about one evening so just cast a worm over him with the result that he took it with a rush and as I was using very light tackle he gave me a few anxious moments but I eventually tired him out. These fish seem to like hanging about pipes. By pipes I mean large drain pipes connecting different creeks. There is often a slight movement of water round these places which seems to keep the fish moving. Knife fish seem to have the same habits, too: they are to be found together. Worm again seems to be the best bait.

CARP.—These are very numerous, running from a few ounces to monsters somewhere in the neighbourhood of 10 lbs. in weight. The large fish I will have



A magnificent Tiger recently shot in North Kirin, Manchuria, on the Eastern Section of the Chinese Eastern Railway.



SHOOTING AND FISHING NOTES

something to say about later on. The average size caught runs from $\frac{1}{2}$ to about 2 lbs. Bait used is worm, fishing on the bottom. When they bite they take your float down in a very decisive way and hook easily, are strong fish and give you good sport. They seem to feed at irregular times, coming on for a while, then suddenly disappearing. I fancy they keep on the move and as the extent of water is pretty large, it is very hard to locate them at times. Of course one might bait up a pitch or two but that means running out every day to see it done unless one is able to do it oneself. I have never taken this up seriously, so I am not in a position to state whether it would meet with success.

IDE.—This fish is also quite numerous and runs to a good size. I was fortunate enough to hook into a big one last Spring but failed to hold him, my tackle being too light. The time was just after the ice had melted. I saw him lying up in one of the shallows, basking in the sun, throw in and he took me immediately. The hook drew and he went off a few feet, so I tried again. He again took the bait. This time I had a bit of a fight with him, but as I have said above, my gear was too light, and the hook drew again and that was the last I saw of this fish, he was a beauty too. One can see quite a number of the smaller ones, say about 3 to 4 lbs., swimming round the edge of the ponds on a summer evening and I have seen them jumping as well, after flies. I caught one only, about 4 lbs. but this is mentioned later in another paragraph.

HUANG-CHUAN YU.—I am not certain whether I have got hold of the right name, but you will know the fish I mean by the description I give. A few of them have been seen, in one pond especially. At times you can see their fins out of water and on occasions you can see their rushes when on the feed. Mr. Greenslade is the only one who has had any luck with them since I have been here, and then he has only had the runs, never landing one. Every time he has been taken unawares I think and it has been invariably at or after dusk. One wants a considerably amount of line on one's reel and a good stiff rod, for they run off at a fearful pace nearly emptying your reel for you before you can check them. Both of us mean to have a real try for them this spring, which seems the best time for them. We use live bait (knife fish). Mr. A. E. Almond of the B. M. C. sometimes has a go at them with a spinner. I do not know whether he has been taken at all, or had any strikes. It is difficult with a spinner on account of the weeds which give one the impression that you have hit a fish at times when it is only a catch in the weed. A lot of these fish seem to have disappeared in the last year or so, whether they have died off or have been poached, it is very difficult to say.

SERPENTHEADS.—During the summer months one sees quite a number of these fish, varying from 2 to 8 lbs. in weight. The bigger the fish the poorer the markings and more sluggish it is and *vice versa*. They are easy to catch: I have got as many as 5 in about 15 minutes, one after the other. They seem to hang about together. They give no fight beyond a sort of bulldog shake of the head when hooked and come in like a log of wood. I have seen the smaller ones jumping after grasshoppers and frogs, but never tried for them that way, those I have caught being on worm when after carp. They are easy to hook but brutes to get the hook out of, nearly always gorging the bait.

MISCELLANEOUS.—There are one or two other fish met with, one of them being the catfish, which is most unpopular, being a pest. Another one sometimes met with and of which I do not know the name, is something like a catfish but has not spikes and has a tail something similar to an eel. It also has a couple of whiskers protruding out of the mouth. It has a powerful jaw but is sluggish when hooked and very slimy to handle. One often gets hold of one when after carp. With regard to eels, I have seen one or two caught, they were of a very light colour similar to the silver eel, and a good size, but I have never had one myself. Then we come to turtles which are a nuisance, as they very often break one and are useless. Other pests are crabs and shrimps, which are numerous in the hot weather and which never leave ones bait alone.

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MANDARIN FISH.— I had nearly forgotten this fish, possibly because I have not seen one, let alone catch one. Mr. R. P. Sanderson some time ago had a lucky catch of about half a dozen, using small fry as live bait, but they seem to have disappeared from the waters around the Race Course. About two years ago, a lot of fish died off. It was in the spring when the water was very low. There is a lot of alkali always seeping through at different places, which may have had a lot to do with it.

TACKLE USED.— I use a general rod for the ordinary fishing and a pike rod for the live baiting. In the way of tackle, there is not much to choose from up here: one has to take what one can get. I try to get gear that is suitable for roach fishing and it seems to cover all I want. For hooks I have got hold of some Stewart tackle, about size 10. On fine gut, it works well, keeping the worm bait alive and more natural, than when threaded on single hooks. For floats I use a fine quill and often I use no float at all, just casting in and leaving it lying on the bottom. This method is all right till the warm weather when the crabs get busy. They are always biting through ones line.

BAITS.— One can purchase rather a fine worm up here from the Japanese, who apparently get them from up country where the soil is of a richer nature. I have tried to find out where from, but they are not giving anything away. The worm is a ringed one about 2 to 3 inches in length, it is firm and not muddy and takes well. Some of the Japanese and French use a small frog and dapple for the serpentheads. I have tried it but it is too strenuous in hot weather. Last spring I started in to breed grubs from liver, tried them and found they answered well, but one wants such a small hook for them, and size 14 is not procurable out here. Paste or bread or cheese have not met with any success so far, I have tried all kinds of mixtures but no good. When I first started I tried for the big carp the same as one does at home. Cast far out leaving your reel free and keeping as far out of sight as possible, but met with no success. I think I had about two runs in the whole of the time I was fishing, even then I was not sure whether they were carp or not. How about this way for the larger ide? Taking everything into consideration, I have found worm to be the best bait for float fishing and the knife fish the best for live baiting. This fish lasts well if you are careful not to damage him when putting him upon the tackle. One sees them chased often by the big fish.

BEST TIMES TO FISH.— The best time of the year is undoubtedly in the spring, from the time the ice disappears till when the weed starts growing and the crabs get busy, when also the fish seem to get dopy and go off the feed. With regard to time of day, it is very difficult to make any definite statements. I have tried early morning and right through the day and can say that it does not seem to make any appreciable difference, the fish come on the feed at any time and then one has to make the best of it while it lasts. This applies to bottom fishing. For surface fishing (knife fish and cultur), evening seems to be the time when they get on the move, especially later in the cool of the autumn when the mosquitoes get busy: they seem to feed on them quite a lot.

Last summer I had a good opportunity of seeing some of the larger fish at close quarters. When the British and American reinforcements arrived here, the Race Club Committee had the centre pond on the Race Course itself cleaned out and dragged so that it could be used as a swimming pool for the troops. I myself was not present, but Mr. Greenslade tells me that they got a good number of most kinds out in the net, but a lot of the big ones escaped by leaping the net. This pond was found to be too muddy for bathing in, so another spot was chosen that had a more sandy soil, and the pond in question was left alone. Some weeks later I thought of having a try, as previous to it being dragged I had had some very nice carp out of it. On approaching the spot I usually chose I was surprised to see a couple of fine carp shoot out from the edge into deep water. After that I went cautiously, kept my distance and crawled along about a rods length from the bank. All along that bank on a shallow shelf where the weeds and long grasses had been cut, there were fish galore, all sizes from a few ounces to, well I should put some of the ide down as at the least 20 lbs. Carp 10 lbs., cultur round about 5 or 6 lbs.

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There were scores of them all lying up along the edge. I tried casting over them, but the best I could do was to make them take off into deep water, and in doing so they looked for all the world like torpedoes, the fuss they made. I did manage to get one ide. There happened to be a bunch together, and I got my worm over them but they bolted, one of them very kindly taking my bait along too. He gave me a good time before I tired him, his weight was about 4 lbs. I often used to visit this spot, sometimes to fish and other times to watch. I have actually crept up close enough to touch the fish with my rod point. The carp would have half their backs out of water just rolling and sucking in the mud shallows. At times I have wished for a grain or harpoon, just to try my luck and see what size they actually are. Even if they will not take, it is well worth while just quietly watching them playing round. This year I am going to try and get some photos, the water being so shallow and clear (before the rains), that I cannot help thinking that one could get some interesting snaps. It is well worth trying on a bright day. Taking everything into consideration I cannot help but feel disappointed over the fishing here, especially as they seem to be in such numbers and run to the size they do. It may be possible that I am not going about it the right way, but as I have said previously, so few people have taken up fishing that it is impossible to get any comparisons or data. It is not for the want of trying on my part, for I have hardly let a day go but that I have been out, either fishing or spying out the ground. There is one thing we lack here and that is any kind of shelter in the way of trees or scrub, that makes it very difficult to approach ones ground without scaring the fish, most of which seem to hang close round to the shore.

Mr. Greenslade and I intend to make a start as soon as possible this year, and I hope to be able to report good bags. We are both puzzled about paste or bread being of no use, cannot understand it at all.

This I think exhausts all information that I have to give on the main points. I trust that I have not been too long winded, it is very hard to stop when one is on a favourite subject. In conclusion I would like to say that both Mr. Greenslade and myself will much appreciate any advice you may be able to give us when you can spare the time. As I write, the ice out at the Race Club is fast disappearing, so hope to make a start in a week or so.

Yours faithfully,

R. STEWART-SCOTT.

P.S.—Mr. A. E. Almond, Assistant Supt. of Police, has contributed the further information to the "Huang Chuan Yu," which I enclose. The American Marines have an air force at the Race Club ground, I shall try and get them to spot out any fish when the water is low and clear. By this way, we may be able to final out their ground where they lay up when not on the move.

5 Victoria Terrace, Tientsin, February 25, 1928.

HUANG CHUAN YU: This fish which greatly resembles a salmon although belonging to the carp family, appears, from the information of natives to be plentiful in the Hsi Ho near Tientsin. The late George Detring a "father of Tientsin," stocked some of his ponds about 1900 with this fish, which grew to a great size, the species being a very fast growing fish. The late Mr. Williams (Acetelyn Bill), a keen angler, hitched on to one in a small pond in the Detring grounds and wondered what had happened. Although using light fly tackle he managed to land it; weight 35 pounds. It was served up at a dinner at the Astor House. Whether or not it was considered a luxury I am unable to say, as this fish unless caught in a running stream is apt to be muddy. The next period of fishing for *huang chuan* appears to have started with a visit of the large Handy Page aeroplane, in 1913, which took visitors aloft, and, in hovering over the Race Course, the large fish were seen in the clear water looking like torpedoes. This put the Secretary, Mr. R. P. Sanderson, on his mettle, and with some local improvised spinners he managed to land some fine fish, notwithstanding the loss of a quantity of line and a few broken rods. Perhaps the keenest and most successful fishermen we have had was Captain

Blackensay, who was keen on live baiting. On one afternoon he landed four fish ranging from 12 to 27 lbs. During the spring and summer of 1926 this fine piece of water in the centre of the Race Course became almost denuded of fish through some disease. It was most distressing to walk around the course and see all kinds of fish in the last gasps. This disease, or whatever it was, seemed to affect the Mandarin fish most. One *huang chuan* I saw was being carried by two coolies, and was certainly 6 feet long; a magnificent fish. In spite of the fish dying it does not appear to have affected their edibility as far as the natives were concerned, and no doubt many found their way to the local markets. It has always been a mystery as to the cause of pollution, since the course is practically enclosed. I am inclined to think, after reading an article in the home papers on the effect of floods in Germany which washed large quantities of hay into the rivers, with the result that a poisonous culture was formed, which was supposed to have reached as far as the celebrated Dogger Bank, that something similar effected the Tientsin water. The decaying vegetation under the ice in winter may have formed some gas which poisoned the water, with the result that fishing in this water has been ruined for some time to come. I should like to hear from more experienced anglers on this subject through the columns of the *China Journal*, who might be able to throw some light that would prevent a recurrence.

A. E. ALMOND.

THE KENNEL

DOG RACING: Now that dog racing is coming to Shanghai in the near future, the following account of the matching of a fast race horse against the champion whippet runner, Arroyo Sloe Eyes, should prove of interest to many.

The race was run at San Francisco before a crowd of four thousand enthusiastic spectators. The betting was ten to seven in favour of the whippet. Distance to be covered two hundred yards.

Upon the crack of a pistol, both animals got away to a perfect start. The whippet sped down the track like a flash of lightning, looking neither to right nor left, while the horse and jockey threw every ounce of energy into the dash.

At the fifty-yard mark the whippet was leading by eight yards, at the hundred-yard mark by four yards, at the three-quarter mark the whippet was still leading by two yards, and like this both animals raced along for the finish. The grandstands went wild with excitement, when, suddenly, within ten yards of the finishing line, the jockey commenced whipping, and the horse, straining every muscle, dashed ahead of the dog, winning by a scant yard.

The horse was clocked in 11 $\frac{2}{5}$ seconds, the dog in 11 $\frac{3}{5}$ seconds.

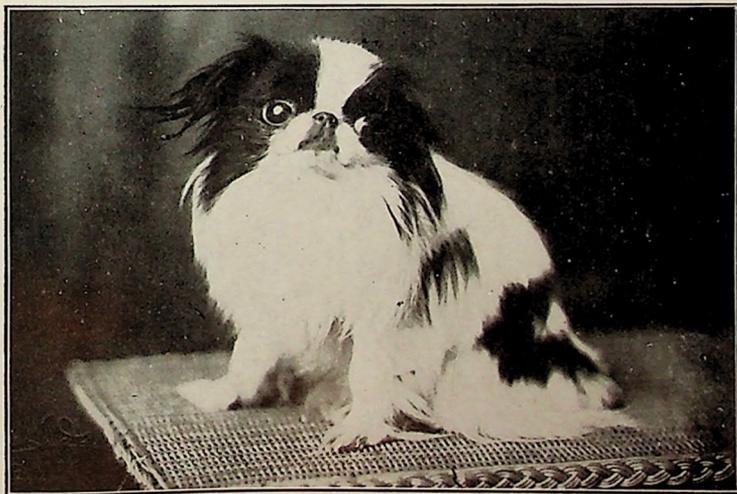
RAISING THE PUPPY AND CARING FOR THE GROWN DOG: The most important factor in the successful raising of a puppy is the right kind of food and plenty of it.

Most puppies here in China are sold at the tender age of four to six weeks, and often the people who buy them have no idea of how to feed them.

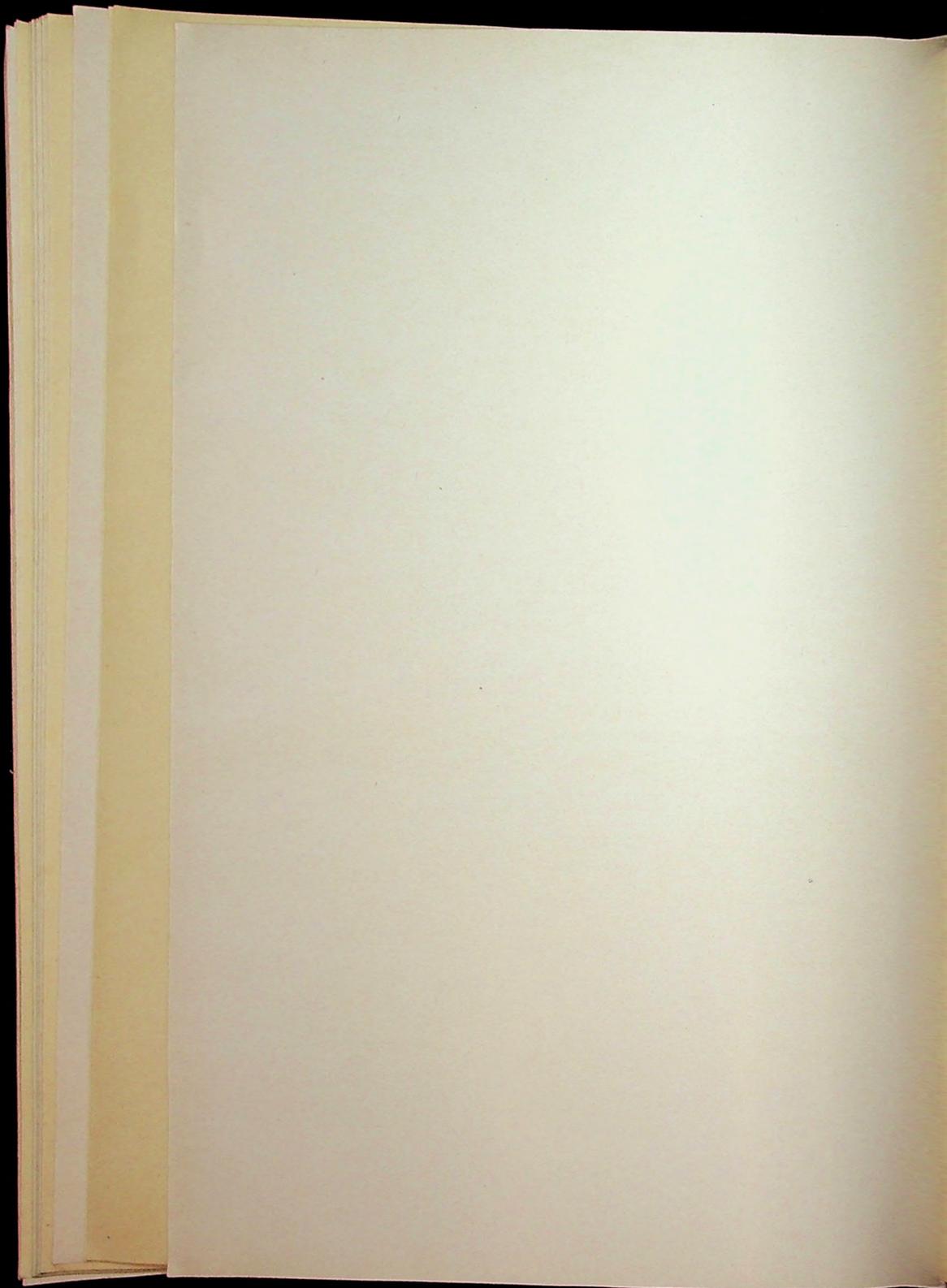


An Example of Bad Feeding of Pups.

The above picture is a good illustration of the importance of proper feeding. These two puppies, Flieder and Flux, are litter brothers. The small one, Flieder, was the first choice of the litter, the largest, heaviest puppy. Both puppies were sold when quite young, Flieder to a Chinese who did not give him enough to eat, Flux to a foreigner who gave him every care and attention. Flieder was brought back to me when he was four months old, a miserable undernourished little thing with a bad case of rickets. After two months of careful treatment the rickets had disappeared, but Flieder will never be the dog he would have been, had he been started right in life. When this picture was taken the puppies were six months old. Flieder measures $22'' \times 24\frac{1}{2}''$, Flux $25'' \times 28\frac{1}{2}''$.



"Johnnie," Mrs. L. W. Thornton's Japanese Spaniel Dog, which won the First Prize in his Class in the Dog Show in Tientsin in 1924, since which time he has not been exhibited.



THE KENNEL

A five week old puppy should be fed at least five times a day. The following is a good diet :

First thing in the morning : 1 cup of slightly warm milk (not tin milk) 1 spoonful of cod liver oil, two slices of stale bread. Mix together.

Three hours later : $\frac{1}{4}$ -lb. of raw ground beef.

Three hours later : $\frac{1}{4}$ -lb. of boiled meat and rice (rice to be boiled quite soft)

Mix in a spoonful of finely cut fresh green vegetables.

Four hours later : 1 cup of milk or beef tea ; 1 raw egg.

Last thing at night : 1 cup of milk or beef tea, 1 raw egg, 2 slices of stale bread.

Mix together.

This ration is for a puppy of the larger breeds. As the puppy grows older, the quantity of food should be gradually increased, but the number of meals cut down. At three months the puppy should be fed four times a day, at six months three times and at nine months twice a day.

The full grown dog needs one light and one heavy meal a day. For the full grown dog I have found this to be a very good diet :

At noon : One raw bone with plenty of meat on, two raw eggs, one dry dog biscuit.

At night : 1 $\frac{1}{4}$ -lb. of soupmeat boiled with rice. Mix into this a little finely chopped green vegetable.

The nursing bitch, especially of large litters, needs a good deal of extra nourishing food, more than ever so from the time the puppies are two weeks old until they start eating.

The sick dog, especially in case of distemper, should not be fed the regular heavy diet twice a day, but should be fed four or five times a day and only light and nourishing food, such as raw eggs, milk, beef tea, oat meal, etc.

In this country a puppy should be wormed for maw-, tape- and hookworms every three months ; a grown dog once or twice a year.

One thing which should never be forgotten when raising a puppy or handling a grown dog is : *Never, under any circumstances, use a whip on your dog.* This is true of any breed, but more especially so of the Alsatian because of his unusual intelligence and great sensitiveness. A mongrel may turn cringingly round and lick his master's hand after an undeserved thrashing and in a day or two he will have forgotten all about it, but a true Alsatian will remember a thrashing all his life. If he is of the high-strung very sensitive kind, he will turn into a finching hand-shy animal, if not he will become a sullen, obstinate, reserved dog. In any case he will have but small love for the person who has abused him ; but treat him rightly and he will reward you with the most absolute devotion, and will try his utmost to please you.

HOUSEBREAKING : Many people are in the habit of rubbing a puppy's nose in the dirt he has made, then whipping him and putting him outside. This treatment is very wrong. The puppy will not understand it, and will get frightened and distrustful. If you do not want the puppy to dirty the carpets, take them off the floor until the puppy is clean, which will usually be when he is about three months old, or two months if the doors to the garden are open. When he dirties the floor, speak to him in a sharp tone of reproof and put him outside for a few minutes (not longer or he will forget why he was put out). If he is especially bad, give him a slap on the nose at the same time. That will be quite sufficient.

Never lunge after a puppy with a newspaper, slipper or any other thing which you may happen to have in your hand, when you catch him up to some mischief. Call him to you in a severe voice (and see that he comes without having to be run after and caught) scold him and slap his nose. However, tearing up things is a puppy's nature and should not be too severely punished. He will begin to outgrow the habit when he is about five or six months old. The best method is to remove temptation from his way.

THE ALSATIAN

REGISTRATION AND KENNEL NAMES: At home all good kennels register their puppies shortly after birth, so that the purchaser need not worry himself about this matter. The puppy comes to his new owner supplied with name, kennel name and registration number. The pedigree is, of course, signed by the secretary of the Kennel Club.

Out here, on the contrary, the registration of the puppy is nearly always left to the purchaser. Of course all puppies cannot be registered; only such puppies as can show at least three generations of ancestors which have all been registered, can without trouble be registered as thoroughbred in the country in which their ancestors have been registered. Once registered there, they can be registered in any other country also. However, very, very few puppies in China can show a pedigree in which the first three generations of ancestors are all registered, but registration can also be obtained for a puppy if the sire (or dam as the case may be) is registered, and the dam's parents are both registered.

Even when applying for the registration of a puppy of all registered ancestry it is necessary to produce both the signature of the breeder (owner of the bitch) and that of the owner of the stud dog. When applying for the registration of a puppy out of an unregistered dam, the signatures of the owners of the two registered parents of the dam should accompany the application. All further particulars can be had from the Shepherd Dog Clubs of the various countries. The address of the German club is: Verein für deutsche Schäferhunde SV., Augsburg 3, Germany. The British club's address is: Alsatian League and Club of Great Britain, 18 Queen Anne's Gate, London S.W. 1. The American club's address is: Shepherd Dog Club of America, Inc., 1482 Broadway, New York.

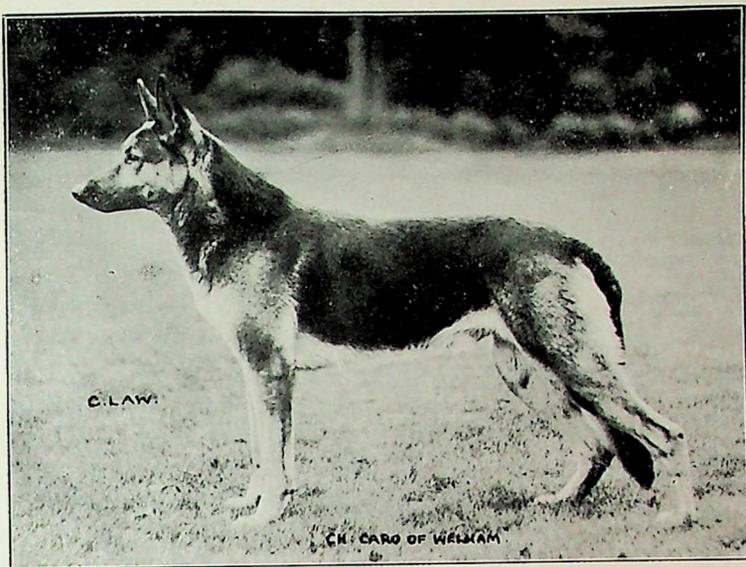
When choosing a name for the puppy to be registered, it must be remembered that no surname which has already been entered in the books, will be accepted, nor any combination of two already used names. A surname or kennel name is just as much the property of the breeder as his dogs are. All dogs bred by the same kennel will bear the same kennel name, but no two dogs from the same kennel will have the same first name. The kennel name is a kind of guarantee of quality, as the best kennels only breed very superior dogs.

FAMOUS PRODUCERS OF TO-DAY: As these notes are meant for the novice, I shall not here go into detail about the bloodlines and prepotency (ability to transmit own excellent qualities to their get) of the famous dogs of to-day, and much less of those of the past, but merely mention the very brightest stars.

The old saying "Good never sprang from bad" was never more true than when speaking of Alsations; from parent to get—or at least from grand-parents to grand-get—the Sieger titles have been passed down through the generations; the English and American champions of to-day as well as the German "V" dogs are also practically all sons or daughters or grandsons and granddaughters of Siegers, champions or German Sieger Show "V" dogs.

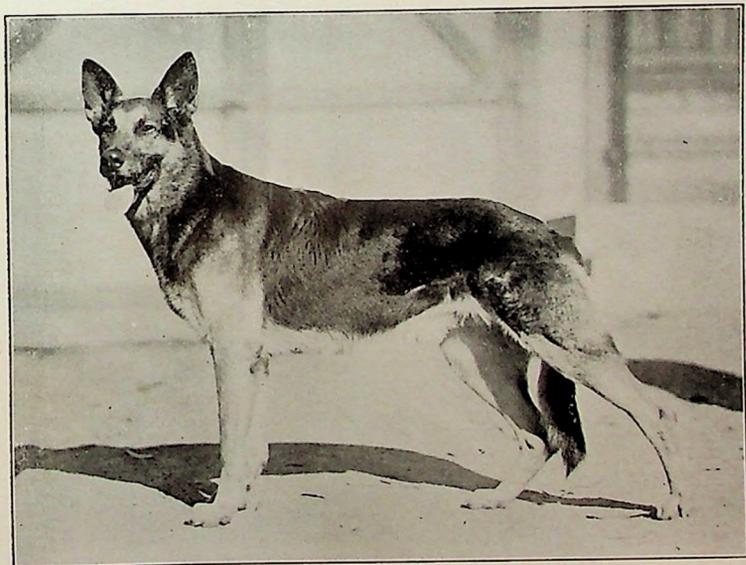
The most famous strains of earlier days are perhaps the Uckermark, Riedekenburg and Kriminalpolizei. As individuals and producers Horst von Boll SZ 8306 and Flora Berkemeyer SZ 25573 rank at least as equals of the Siegers. As a brood bitch Flora Berkemeyer remains unequalled; she is the founder of the famous Riedekenburg strain, being the dam or grand-dam of nearly all Riedekenburg dogs. Another famous dog and very prepotent sire was Alex von Westfalenheim SZ 59298.

Among the several million Alsations of to-day, Erich von Grafenwerth SZ 71141 stands supreme. Not only is he himself a perfect specimen, but to him belongs the far greater honour of being the most prepotent Alsatian sire in the world (i.e. having sired more champions than any other dog). And Erich's prepotency does not stop with the first generation, for when looking through the pedigrees of the young champions and fliers of to-day, it will be found that over half of them are grand-children of Erich; one has already reached the top: Donar von Overstolzen, who at 18 months took the 1924 Sieger prize of Germany, then the Dutch and Aus-

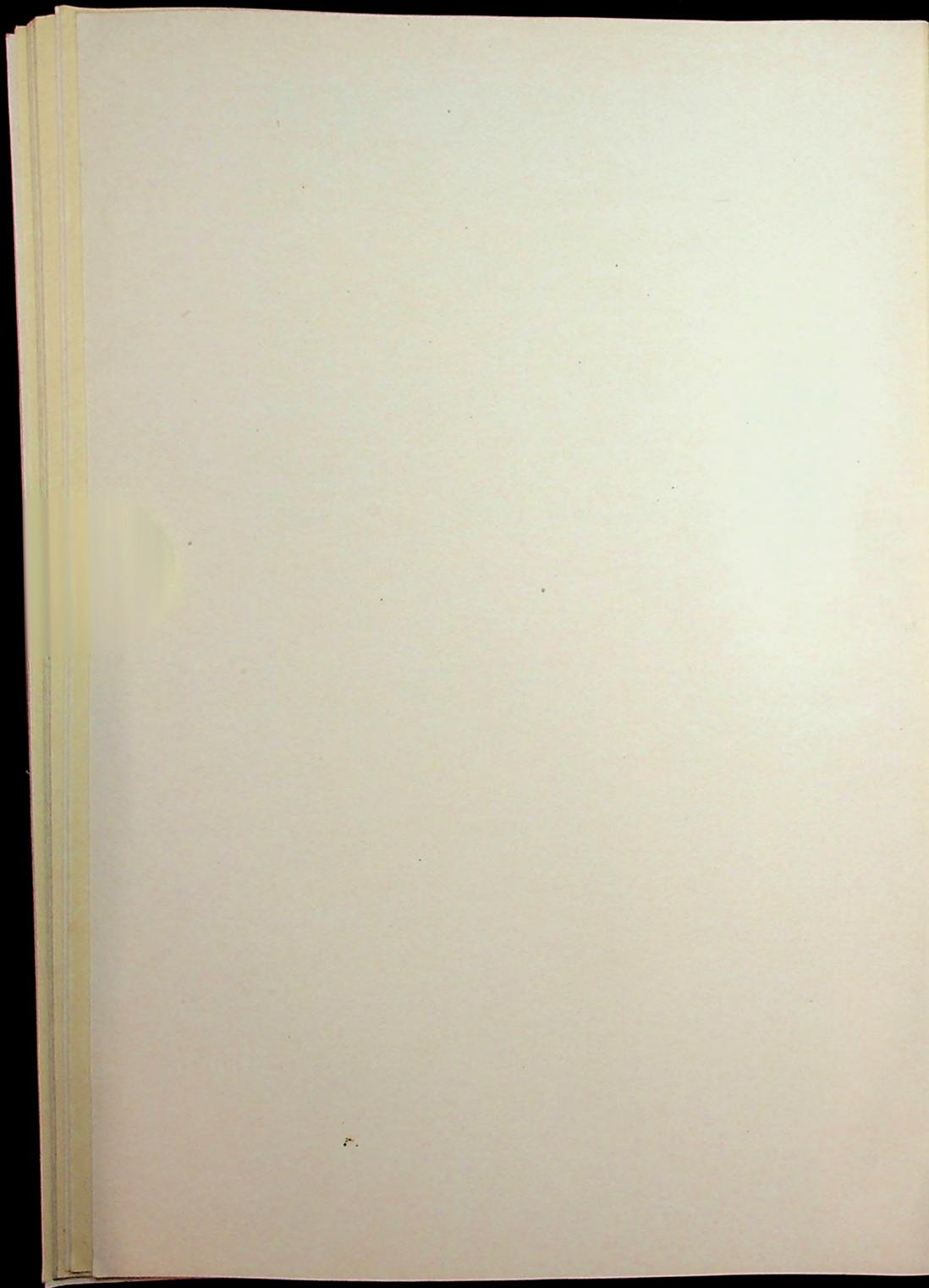


Photos by C. Law.

Grand Champion "Caro vom Blasienberg of Welham." Sire: "Curt von der Morgensonne;" Dam: "Centa von Michelsberg." Owner, Major F. N. Pickett, England.



International and Grand Champion "Geri von Oberklamm." Sire: "Arnim von Riedekenburg;" Dam: "Alice von Karlsprung." Owner, Mrs. Nina Dexter, Graustein Kennels, U.S.A.



trian Grand Championships of 1925, and later became the 1926 Grand Victor of the United States. No dog has ever bettered the breed as a whole to the extent that Erich has.

Four other very prepotent sires are Nores von der Kriminalpolizei, who however often transmits an uncertain temperament, Geri von Oberklamm, Claus von der Fürstenberg and Caro von Blasienberg of Welham.

The Siegers of the last few years: Cito Bergerslust, Donar von Overstolzen, Klodo von Boxberg, Erich von Glockenbrink and much less the 3 year old Arko von Sodawaberg, have not yet had time to prove to the full what they are worth as producers, but the promise some of them hold out for the future is very bright.

Many other great dogs ought to be mentioned when writing of the famous Alsatian stud dogs of to-day, but as I have already said, these notes are for the novice, and for the novice too many names would only be confusing.

SOME NOTES ON RECENT GRAND CHAMPIONSHIP SHOWS: The most important shows of the year are the annual Grand Championship shows of Germany, the United States and England. (Germany registers about 32,000, the U.S.A. 19,000 and England 8,000 Alsatisans per year). In these three countries as well as Holland, the Alsatian leads all other breeds.

By breeders and fanciers the world over the German Sieger, or Grand Championship show, is regarded as the most important event of all. Some notes by the eminent English authority, Major J. Y. Baldwin of the Picardy Kennels, on last year's Sieger show will be of interest to all owners of Alsatisans.

The show which this year was held at the cavalry barracks at Crefeld, comprised as usual only four classes: adult dogs (over 2 years), adult bitches, young dogs (under 2 years) and young bitches.

There were four rings, and all four classes were started at the same time. The two rings for the adult classes measured 85 square yards, or five times round to the mile. The dogs were sent walking round the ring all the first day for hours at the time with only short intervals of rest. Each dog needed two or three attendants to take him round. Only the youth classes were finished by the evening of the first day.

"The general quality right through these enormous classes was wonderful" says Major Baldwin. "If we had to compete with the German dogs I think that our very best could hold their own with their very best, but, if we had to take a team of 50 or 40 against theirs, then we should not be in the picture at all."

"It might be thought that with all these dogs about there would be great opportunities to pick up some great bargains. Perhaps the medium quality ones can be bought cheap, but the very best are not being given away. I asked the prices of eight different dogs, and they ranged from £200 to £800. So it is in England also that the medium ones are easy to buy, but the really tip-toppers are either not for sale or at a very big price."

The 1927 American Grand Championship show was held at Chicago, December 3rd and 4th. The ring measured over one acre. The judge was Herr Ernst Otto of Germany. The classes entered the ring in succession, each class being walked round about two or three hours. The novice class consisting of only 38 dogs, entered the ring at exactly two o'clock and emerged at half past five. (Shanghai exhibitors who complained about the time it took to judge the Alsatisans at our last local show, please take note).

ELSE DUNCAN,
Hoffnungsheim Kennels.

TRAINING

The secret of training a dog is patience, repetition and exactness.

The average man is not capable of training a dog, but almost anyone can, with a little patience, teach his dog to come when called, to go at heel and to lie down.

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Every master owes it to his dog and to his neighbour to teach him strict obedience in these three requisites :

COME : To teach a dog to come when commanded, take him to a place where you can be alone with him, a room or the garden, it does not matter which. Attach a rope to his collar, about twenty feet long. Let him wander about and then call "come," at the same time pulling a little in the rope. If he comes willingly, praise him and repeat. If he refuses to come, pull him slowly to you, praise him and repeat. Length of lesson 15 minutes every day until the dog comes immediately upon the command "come." Then try without rope. If he fails, repeat with rope. Always insist upon obedience, and always praise when he reaches you whether you have to pull him or not. The idea the dog must fix in his mind is that it is always a pleasure to go to his master. Never lose your temper or raise your voice.

HEEL : When the dog has learned to come, take him for a walk, preferably along a quiet road, and call "come." Praise and attach a short leash to his collar. Hold him close to the left knee and move forward, at the same time giving the command "heel." Check any effort he makes to go forward or backwards by holding him close to the knee and continuing to walk while repeating the command "heel." In the case of a grown dog who continually strains on the collar without heeding his master's command, a jerk at the collar and a crack with a light switch will bring him to attention. The switch must be discarded as soon as possible, and in any case should never be flourished in a threatening manner. The dog must under no circumstances learn to fear any kind of switch, whip or stick, and the man who has the patience to teach his dog without the help of the switch will be well rewarded. Patience, repetition and a soft voice will do the work.

DOWN : Call "come," praise and put on leash, and command "down ;" at the same time kneel and gently force the dog down. Hold him down while repeating the command, and pat him. After a minute or so give the command "up" and stand up. If he does not get up, pull him up and praise when he is in a standing position. Repeat as before.

Extensive training depends entirely upon the ability of the trainer to make the dog understand what he is required to do, and to see that he does it willingly. This in my opinion requires a sixth sense upon the part of the trainer. Some dogs are naturally one man dogs, but very few ; such dogs are more attentive to their master and therefore can be more easily trained. Companionship after all, based upon real affection between dog and man, is the real foundation for mutual communication and understanding. Therefore the man who can make a companion of his dog instead of a pet will find his faithful friend reading his thoughts and wishes, and the problem of training an easy one.

P. H. DUNCAN,
Hoffnungsheim Kennels.

THE GARDEN

SOME NOTES ON CHERRY TREES AND BUSHES.

Cherries are intimately connected with the history of the European race from the Roman period. Lucullus, the Roman conqueror of Mithridates, is reputed to have introduced the cherry from Armenia into Rome about sixty-eight years before the Christian era; and so popular did this fruit become that Pliny says, "in one hundred and twenty years after it is growing in other lands over Britain beyond the ocean." Accepting this statement implies that modern progress in colonization, agriculturally, follows closely the Roman ideas (See the History of Para Rubber in the March, 1927, issue of this journal.)

Hume, as an argument to prove the youth of the world says "Lucullus was the first to bring cherry trees from Asia to Europe; though that tree thrives so well in many European climates that it grows in the woods without any culture. Is it possible that, through a whole eternity, no European had even passed into Asia and thought of transplanting so delicious a fruit into his own country? Or if the tree was once transplanted and propagated, how could it ever perish? Empires may rise and fall; ignorance and knowledge give place to each other; but the cherry tree will still remain in the woods of Greece, Spain and Italy, and will never be affected by the revolutions of human society."

To-day the charms of this luscious fruit have not withered, but rather appear more attractive, as may be gathered by its extensive use both raw and in our many confections.

Cultivated cherries are grown in Europe, America, Australia, South Africa, and elsewhere, where Europeans reside and the climate is temperate. There are numerous horticultural varieties, differing in size, shape and colour. The two best known groups of varieties are the "Duke" and "Heart" cherries.

In addition to these, which are derived from *Prunus cerasus*, Linn., two other species, found wild in the woods in Europe, are the gean (*Prunus avium*) and the bird cherry (*Prunus padus*), the fruits of which are used for food. The cherry offered in the Shanghai markets in May (invariably during Race week) belongs to a distinct species, *Prunus pseudo-cerasus*, Lindley, a native of China and cultivated in Japan.

Interesting, economically at least, as are the fruit-bearing cherries, it is with the flowering ones, particularly of Japan, that we are here mostly concerned.

Cherry blossoms are admired as personal adornment in most north temperate regions. The Scotch lassie with flowers of the black cherry (gean), the English maid in a Kent orchard and the American girl wearing the flowers of the sand cherry, give an impression of beauty and chaste simplicity. In order, to get a colourful idea of the beauty and worship evoked by cherry blossom, however, a visit to Japan in May is essential, where, underneath hundreds of trees smothered in flowers, white, pink, nearly red and yellow, little Japanese maids in fluttering kimonos of brilliant hues may be seen playing in bright sunshine, under clear skies, forming a picture never to be forgotten. Equally as artistic and full of colour, though more stately, is the picture of beautifully dressed girls in the temple grounds, dancing beneath cherry trees, the famed "Cherry Blossom Dance," which forms an important feature of a national holiday decreed by the Emperor to be held annually in honour of the cherry blossom. This yearly ceremony would appear to be a survival of a form, a beautiful one, of nature worship.

The cherry belongs to a group of fruit and flower bearing trees known generically as *Prunus*, and while on the subject we may as well deal with the whole group. Some of the forms are now given generic rank, as for instance the peach, *Amygdalus*.

APRICOTS.

Flowers solitary or in twos, before the leaves; fruit is velvety when ripe; stone usually sulcate on the margins, peduncle separating from the ripe fruit. The

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apricot is *Prunus armeniaca*, Linn. Its variety, *siberica*, is known as the Siberian apricot. *Prunus mume*, is the Japanese apricot.

Prunus brigantia, "Alpine Plum," or Apricot.

Prunus dasycarpa, Ehrh, Purple or Black Apricot.

PLUMS.

Flowers mostly in March in most species, in the north, without leaves; in the south with leaves; fruit, smooth and glaucous; stone not prominently sulcate; peduncle slender, usually remaining with the fruit. "Garden plum," (*Prunus domestica*, Linn. var. *institia*, Bailey); damson and bullace plums; sloe, blackthorn, (*Prunus spinosa*, Linn.)

SUB-GENUS AMYGDALUS.

Almonds, peaches and nectarines. Fruit, normally soft, hairy; stone, furrowed and pitted. Flower, cup short and wide spreading.

Almond (*Prunus communis*, Fritsch.)

Peach (*Prunus persica*, Sieb. and Zu.)

Nectarine (*Prunus persica*, var. *nucipersica*, Schneid.)

Flat Peach. (*Prunus persica*, var. *platycarpa*, Bailey.)

CERASUS "CHERRIES."

Perunus japonica Thunb.

MAHALEB SECTION.

Macgregor's Cherry, (*Prunus macgregoriana*, Koenne.)

Fruiting Cherry, (*Prunus cerasus*, Linn.)

Chinese Fruiting Cherry, (*Prunus pseudo-cerasus*, Lindley.)

Japanese Flowering Cherries:—

Prunus subhirtella, Miquet.

Prunus yedoensis, Matsumura.

Prunus campanulata, Maximowicz.

Prunus incisa, Thunb.

Prunus nipponica, Matsumura.

Prunus serrulata, Lindley.

Prunus sieboldii, Witmack.

Prunus apetala, Franchet and Savatier.

Cherry Laurel, *Laurocerasus* (Evergreen).

Portugal Laurel, *Prunus lusitanica*, Linn.

English Laurel, *Prunus laurocerasus*, Linn.

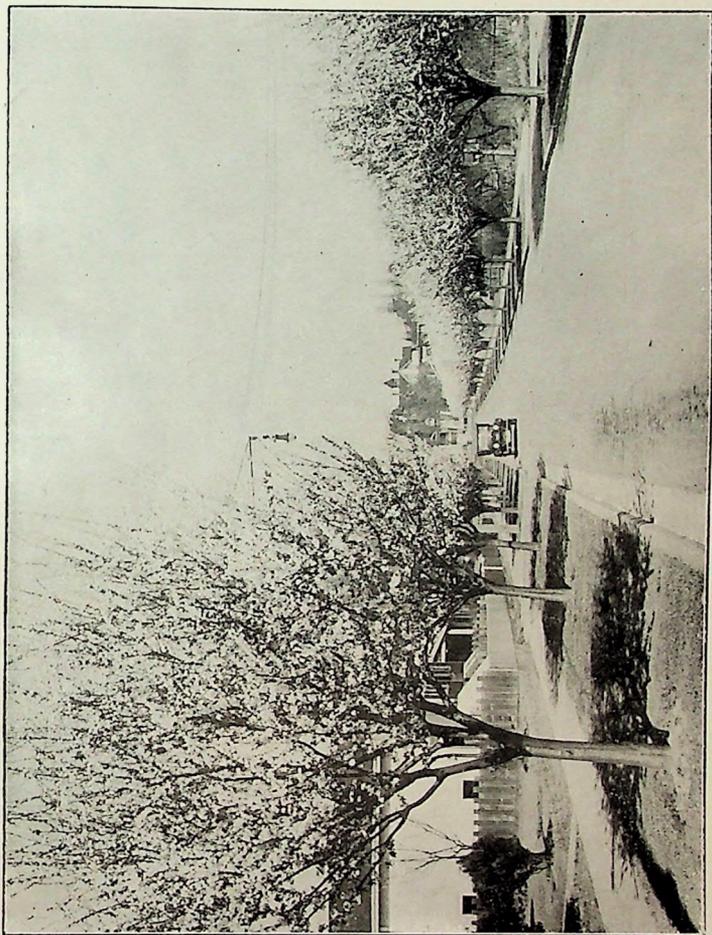
Mountain Cherry, *Prunus iticifolia*, Walp.

ALMONDS.

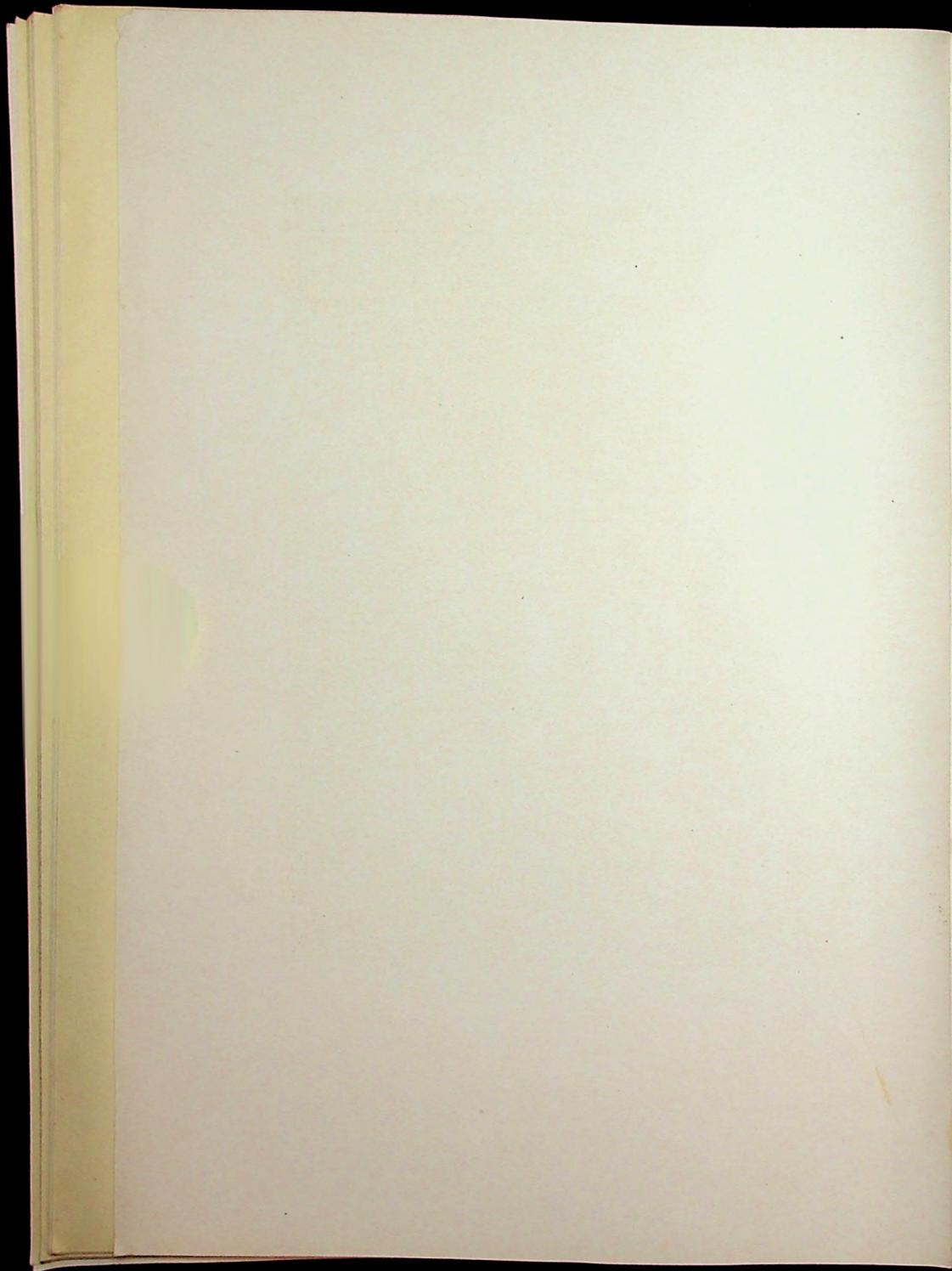
These are frequently grown for their peach like blossoms in gardens, where, in the early part of the year, they form decorative features. The stones, however, constitute the main reason for their cultivation. They form two marked groups, one, bitter almonds, the stones of which are used in flavouring extracts and in the manufacture of Prussic Acid; and the other, sweet almonds, divided into soft shelled varieties and hard varieties. The trade in almonds is largely confined to the Mediterranean region. In America almonds are grown to a considerable extent, in California exceeding 3,000 tons per annum.

PEACHES.

Where they grow freely, peaches cultivated for their fruit are of considerable economic importance. They are too tender to grow as orchard trees in Great Britain,

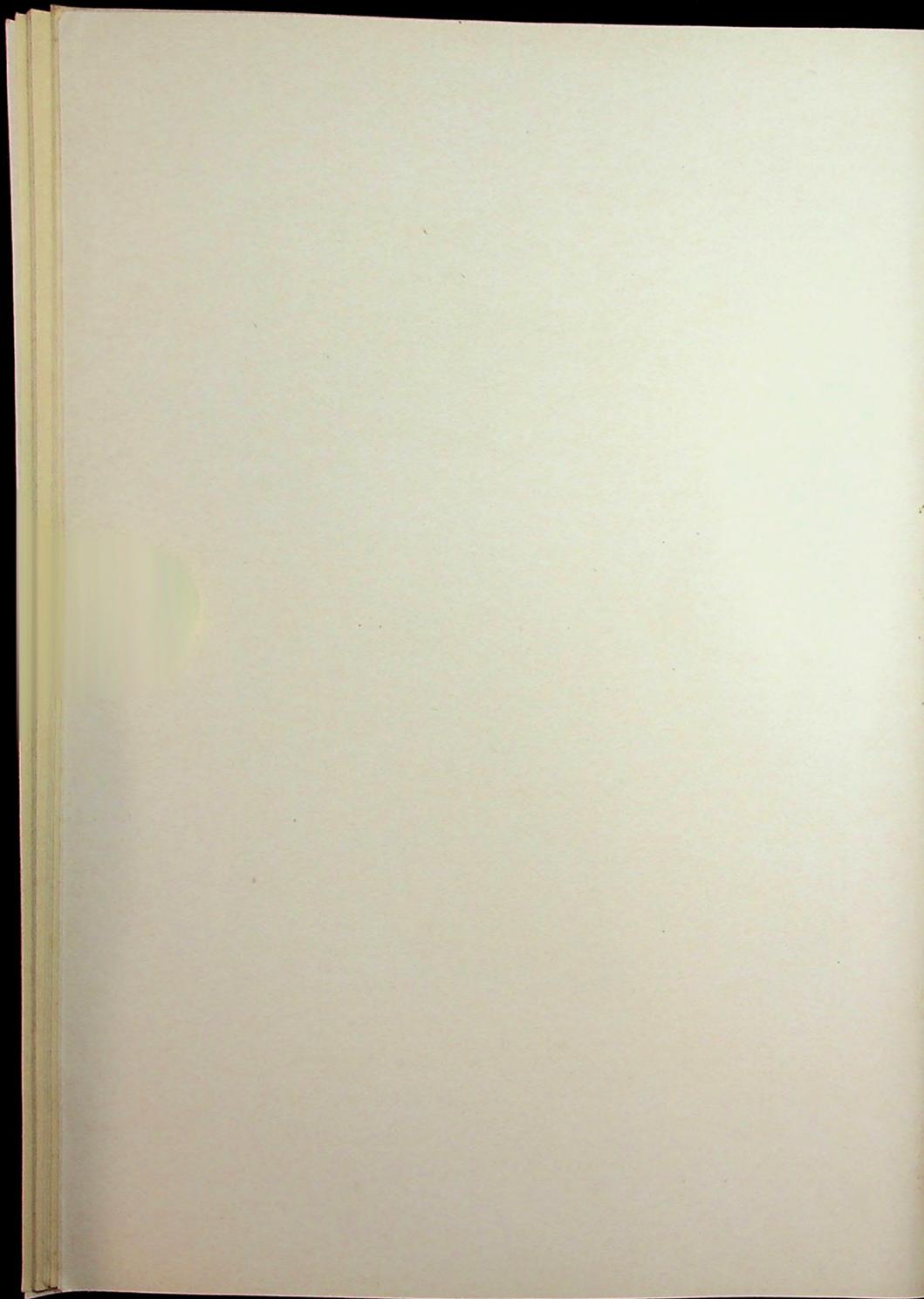


Japanese Cherries in bloom on a Street in Victoria, B.C., in February.





Japanese Cherries in full bloom at Jessfield Park, Shanghai, growing in Soil specially mixed for them.



but it is doubtful if finer fruits can be obtained anywhere than those grown under glass. In America, Australia, South Africa and South Europe peaches are grown in large quantities, and, where the demand is not equal to the supply for fresh fruits, canning is resorted to. The ophrastus, 322 B. C., refers to peaches, and they have no doubt been grown in Europe since the period of the Roman Empire. It was generally assumed that they were natives of Persia, hence their specific name; but more recent exploration tends to the assumption that they are natives of China. Some botanists have even considered *Prunus davidianus*, the wild peach of China, as possibly the original type. The varieties of peaches grown for their flowers are varied, there being both single and double flowering varieties, bearing white, rose and nearly crimson coloured flowers. One double flowered variety invariably bears both white and red flowers on the same trees.

FLAT PEACH: This is a distinct type not usually cultivated except in China, where it is considered to possess a richer flavour than the other varieties. These flat peaches are grown to a considerable extent in the environs of Shanghai, particularly in the Sicawei District, where the soil contains more sand and is better drained, thus giving conditions favouring their cultivation.

NECTARINES: These may be best described as smooth-skinned peaches, and, as with the common peach, there are numerous named varieties in cultivation.

CHERRIES.

Prunus japonica, Thunb. A flowering shrub attaining a height of about 6-ft., planted freely in many Shanghai gardens. There is the single flowered form, which, when allowed to grow with a minimum of pruning, form much branched plants bearing delightful sprays of white to pink blossoms frequently followed by small cherry like fruits. The double flowered forms bearing white and rose flowers are especially showy. Plants are usually pruned hard back a month after flowering, and the resultant growth gives, when in flower, numerous nearly erect shoots up to 4-ft., densely clothed with blossoms.

Prunus macgregoriana, Koehne.

This is a new species described in "Plantae Wilsonianae," in compliment to the writer of these notes, who contributed a collection of herbarium specimens, collected near Ningpo, to the Arnold Arboretum, Mass., U.S.A. It is of botanical interest and not in cultivation.

JAPANESE FLOWERING CHERRIES.

In a monograph on "The Cherries of Japan," by Mr. E. H. Wilson, which is the standard work on this subject, he groups flowering cherries under eleven specific headings, some of which contain numerous varieties. The following notes are extracts from "The Cherries of Japan."

Prunus maximowiczii, Ruprecht.

A distinct species found in thickets and forests from Hondo north to Saghalien. The tree attains a height of 6 to 16 m.; bark grey; branches slender; flowers white; fruit black.

Prunus pseudo-cerasus, Lindley.

"The Chinese Fruiting Cherry" was found by Mr. Wilson in Japan only as a cultivated plant especially in the vicinity of Nagasaki.

Prunus subhirtella, Miquet.

This is the spring cherry and perhaps the most delightful of all Japanese Cherries. It is unknown in a wild state, but is very generally cultivated in western Japan. Small bushy tree attaining a height of 8 m.; branches ascending; bark on trunk somewhat rough and grey on young branches, grey changing to brownish purple in the second and third years. Flowers white to pink usually appearing before the leaves. Fruit black and subglobose.

THE CHINA JOURNAL

Variety *pendula*, Tanaka.

In its typical form the tree is as weeping as a Babylon Willow. It is found in the court yards and grounds of temples, old castles and in the cemeteries all over Japan, except in the more northern districts.

Northern variety *ascends*, Wilson.

This is the prototype of *Prunus subhirtella*, Miquet, and variety *pendula*, and is found wild in Shinano Province, as a garden plant, this variety is the least ornamental of the species.

Prunus yedoensis, Matsumura.

This is the cherry so generally planted in parks, temple grounds, cemeteries and streets of Tokyo, and its flowers herald an annual national holiday, decreed by the Emperor. In all, over fifty thousand trees of this species are growing in the precincts of the city of Tokyo. Tree up to 16 m., in height; branches, thick and spreading; bark, pale grey and smooth; leaves stout strongly nerved and sharply toothed and are hairy on the under side of the veins; flowers slightly fragrant in clusters of two to several; colour from white to pink; fruit shining black and globose or nearly so.

Variety *shojo*, Wilson, bears flowers, large double and rosy pink.

Prunus campanulata, Maximowicz.

This species is commonly cultivated in the neighbourhood of Kagoshima, forming a bushy tree, 3-8 m. tall; shoots greyish or yellowish brown changing to purple with age. Leaves shining green above, double serrate. Flowers large, campanulate, deep rose coloured.

Prunus incisa, Thunb.

Found growing freely on the east slopes of Fuji-san and Hakoni mountains.

It attains a height of 8-10 m.; bark on old trees grey and rough; branches spreading, branches twiggy, forming a round headed tree. Flowers usually nodding, white to pale pink, petals fugaceous; fruit nearly ovoid, black.

This species is the only Japanese one that can be fashioned into the so-called dwarf trees and grow and flower freely in small pots.

Variety *serrata*, Koidzumi.

Distinguished from the type by its leaves which are less markedly biserrate, each tooth terminating in a long aristate point.

Prunus nipponica, Matsumura.

This is the Alpine cherry of central and northern Japan. It forms a bush about 6 m. tall with ascending spreading branches. In the third year, the shoots are clothed with a polished chestnut brown bark, which characteristic distinguishes this species from other Japanese cherries. Flowers white to pale pink. Fruit black and globose.

Prunus serrulata, Lindley.

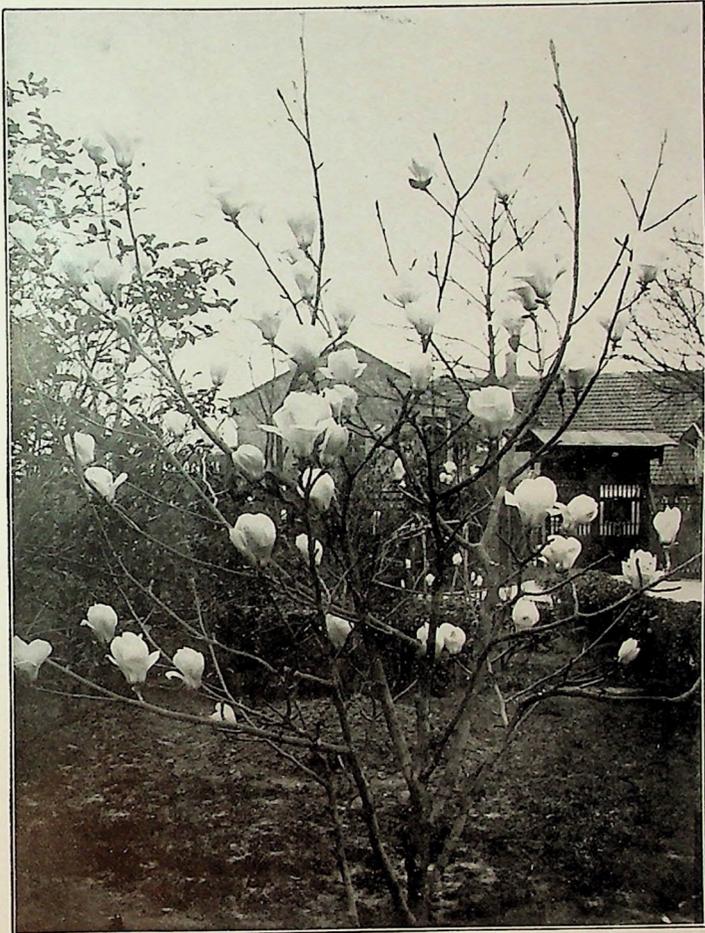
This is the parent species of some twenty distinct forms of for the most part double flowering cherries, it also is found in China, where, however, double flowered forms are unknown. It forms a small tree up to 5 m. in height, has horizontally spreading branches, grey to chestnut brown bark. Flowers double, white in racemose fascicles, inodorous.

Variety *pubescens*, Wilson.

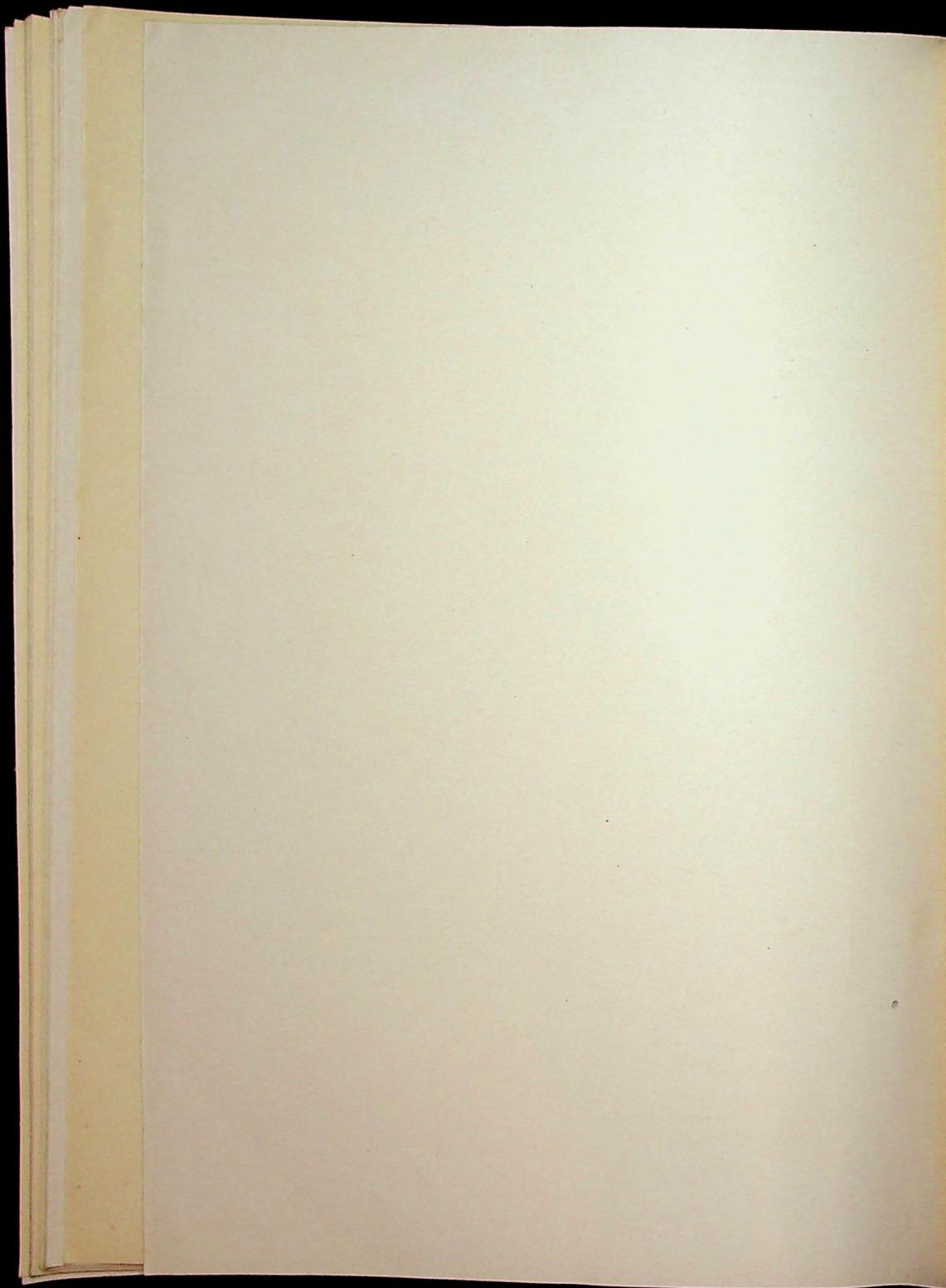
This variety has the widest distribution of any Japanese cherry. It runs up to 16 m. tall, and bears double white, rose and pink, inodorous flowers.

Variety *sachalinensis*, Wilson.

In Hokkaido it forms a tree up to 25 m. in height, bearing inodorous double white, rose and pink flowers, 2.5 to 4 cm. across. It is known as the Mountain Cherry and is the parent of some of the finest double flowered forms.



The Fragrant Magnolia (*Magnolia denudata*, Desr.), which has been in full bloom during the latter part of March, the blossoms being particularly fine this Year.



Prunus lannesiana, Wilson.

Like the preceding species, this constitutes a considerable section of the flowering cherries of Japan. Its flowers, however, are fragrant, white, pink in bud stage. A rapid growing, apparently short lived tree attaining to a height of 6-10 m.

Prunus sieboldii, Wittmack.

This cherry has not been discovered in a wild state, but is generally cultivated in central Japan, and is easily recognized by the dense soft pubescence which clothes the leaves. The tree does not exceed 8 m. in height; flowers normally pink, double or semi-double appearing before the leaves.

*Prunus apetal*a, Franchet and Savatur.

A bush bearing flowers some times in pairs, petals pink and so fugaceous as to give rise to the specific name. The species is not ornamental and is of botanical interest only.

EVERGREEN CHERRIES.

Prunus laurocerasus, English or Cherry Laurel.

During the last century, when formal designed gardens were the rage, this shrub was planted so freely as to appear as though it were practically the only shrub suited for planting in English gardens. To this day it is found frequently occupying the space that might well be devoted to more decorative shrubs.

The only large plants known in Shanghai were imported about twenty years ago by the late Frank Maitland, and planted in his garden at the "Back O' Beyond," where, to-day they form excellent specimens. Cuttings, taken from these plants some years ago, are growing freely in Jessfield Park. Flowers white in racemes, shorter than the leaves. Leaves ovate lanceolate, light yellowish green.

Prunus lucitanica, "Portugal Laurel."

Like the preceding species, this was formerly planted in gardens in considerable quantity. It was very frequently trained as a plant with a clean stem some four feet in height and round head of about four feet in diameter. In general appearance, it much resembles the local privet. Flowers white, racemes erect, longer than the leaves. The plant attains a height of 20 feet.

Prunus illicifolia, "Holly-leaved."

An interesting and distinct evergreen cherry from California. Flowers white and small; fruit red to black about half an inch in diameter.

D. MACGREGOR.

GARDENING NOTES, APRIL

Seeds of vegetables to be sowed: sweet peas, carrots, giant and early variety, radish, beetroot, turnip, parsley, herbs, cucumber, French beans, celery, late cabbage, late cauliflower, onion, leeks, cabbage lettuce, cos lettuce, capsicum, eggplants, tomato, Indian corn, artichoke and spinach.

Conservatories: Prick out seedlings of leeks, parsley and onions.

Plant early cabbage, early cauliflower, cabbage lettuce, tomatoes, artichokes, eggplants and capsicums, which were pricked out in February.

Pot up Salvias, Chrysanthemums, Dahlias, Nasturtiums, Lobelias and Petunias, which were pricked out in March.

Repot Fuchsias, Begonias, Crotons, Coleus and Plumbago, which were potted in March.

D. MACGREGOR.

SOCIETIES AND INSTITUTIONS

ATOMIC POWER DISCUSSED BEFORE THE QUEST SOCIETY: On March 12, Dr. Herbert Chatley presented an able lecture before the Quest Society on the subject of "Power from the Atom." After giving voice to a few printed remarks on the present wastage of the world's sources of power, such as coal and oil, the lecturer stated that this makes the fact that the atom contains immense power possibilities extremely interesting, and that only by some such discovery as how to make use of this power can it be hoped to continue improving the standard of living. The study of the radiation from radium, he said, first gave an inkling of the possibilities that lay in the atom, but, unfortunately the energy thus given off comes so slowly that it is useless as power. It seems clear that the collapse of atomic structure is taking place in the sun and stars and possibly in the larger planets, and all kinds of studies are being made in the hope that heat, pressure or special subdivision may enable the problem to be solved.

THE ORIGIN OF DESERTS: At a meeting of the Royal Asiatic Society, North China Branch, held on March 15, Dr. A. L. Englaender presented an able paper on the "Origin and Growth of Deserts," in which his main contention was that are the result of human or herbivorous animal agency. He pointed out that all deserts civilizations, in so far as we could trace them, had their origin in areas that are now deserts; that man is a confirmed destroyer of vegetation; and that it was because he destroyed the vegetation in what are now desert areas, the deserts formed and drove him out. Whether we agree with this theory entirely or not, it cannot be denied that the wealth of detail and information introduced into his paper by the learned doctor made it one of the best and most interesting that we have ever listened to, and we shall look forward to seeing it published in complete form. Meanwhile, we may say that while we are in the fullest agreement with Dr. Englaender regarding the vegetation destroying propensities of man, and freely admit that these greatly accelerate the formation and advance of deserts, proof must be produced if we are to ascribe the formation of deserts to this alone. The glacial epochs, for instance, have had a great deal to do with varying climatic conditions on the earth's surface, and there is ample evidence to show that the vegetation in Europe varied from that of the steppe to pine forests and then oak forests and back again more than once and in close co-ordination with the advance or retreat of the great ice-caps of the Glacial Epoch. On the other hand, it must be admitted that everything points to the fact that in most desert areas vegetation of some sort will grow if allowed to by man, his flocks, or wild herbivorous animals, as the case may be, and that this vegetation is liable to produce conditions that will work towards the appearance of other and possibly more vigorous forms of vegetation. A remark made by the lecturer and worthy of consideration and thought was to the effect that, if we were to surround any desert with a fence and keep all men and herbivorous animals outside of it, the desert would soon be covered with vegetation and cease to be a desert.

PAINTERS OF THE TANG DYNASTY: An interesting lecture was delivered before the members of the British Women's Association, Shanghai, on March 13, by Mrs. H. H. Sun on the subject of the painters of the Tang Dynasty. The lecturer displayed an intimate knowledge of her subject. She laid emphasis on the greatness of the painters of this period, explaining that this lay in their adherence to rhythmical vitality, anatomical structure, conformity with nature, natural colouring, composition and copying of models. Han Kan, the painter of horses, Lih Su-hsun, the landscape painter, Wang Wei and Wu Tao-tze were all mentioned and their work described, the last named being accorded the supreme position amongst Chinese artists of the Tang or any other period. With his death, the glorious age of the Tang painters passed away.

EDUCATIONAL NOTES AND INTELLIGENCE

EDUCATING THE MASSES: According to recent reports the Nationalist Government at Nanking has appropriated the sum of \$2,000,000 for the carrying out of a scheme for the education of the masses in the province of Kiangsu. The programme for this excellent work is in the hands of Miss Yu Ching-tang, head of the Department of Extension Education of the Kiangsu University. It is proposed to have a Provincial Mass Education Training College for administrators and supervisors with a full two-year course. Each of the 61 district magistracies (*hsien*) of the province will be required to send from four to eight candidates, who will be chosen upon examination at Nanking. The College will be situated at Soochow.

NEW PRESIDENT OF SHANGHAI COLLEGE: At an elaborate ceremony held at the Shanghai College on March 24 Dr. Herman C. Liu was installed as President, in succession to Dr. F. J. White, who is leaving China for America on furlough, after having filled this important position for the past twenty years. After the ceremonies, ground was broken for the new library building. Many important Chinese were present.

TUNG WEN COLLEGE: The 24th annual commencement exercises of the Tung Wen College, Shanghai, took place on March 11, when a large gathering of prominent Japanese, Chinese and Europeans assisted in the proceedings. The proceedings were in Japanese; several speeches were made, reports given and certificates to 87 students presented.

STUDENT TROUBLE IN CHENGTU, SZECHUAN: According to reports in the Shanghai newspapers, there appears to be serious trouble amongst student classes in Chengtu, the capital of Szechuan. Shortage of funds has prevented many government schools from opening, with the result that the students are indulging in agitations of a serious nature. An example of the lengths to which things may go when students get out of hand is afforded by a tragic occurrence in the Provincial First Middle School. Owing to the activities of communists amongst the students, it is reported, and instigated by a disappointed party who failed to get the appointment as Principal of the school, the students attacked and killed the existing Principal, subsequently throwing his body down a well in the school grounds. Immediately following this outrage, the local military took control of the school, and fourteen students were apprehended and shot, while others were taken into custody and held pending further enquiries. This is an extreme case of the unruliness of students in China to-day, but it must not be taken as a typical example. However, the incident may well serve as an object lesson to Chinese students in general-- a Principal murdered and fourteen students executed as the result of lack of discipline and the harbouring of communists amongst the ranks of the scholars.

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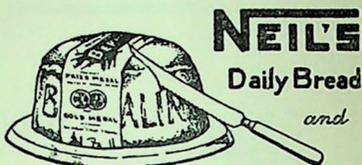
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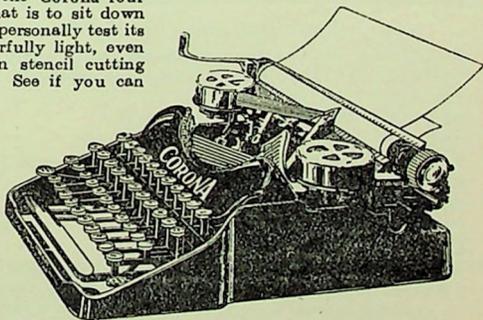


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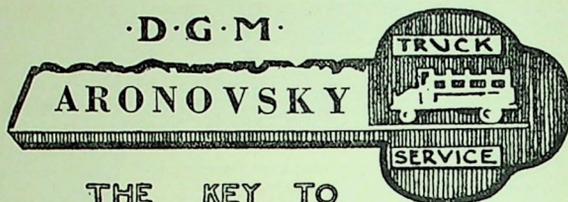
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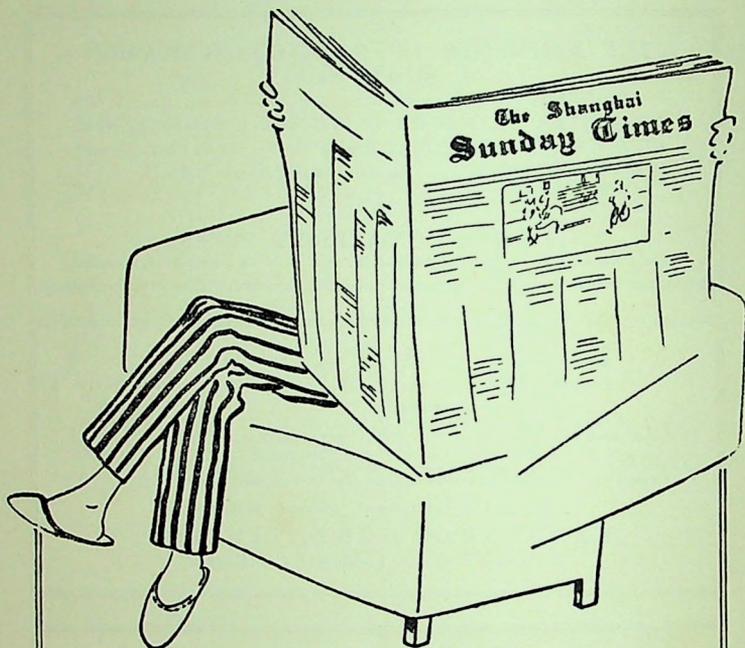
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