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JOURNAL OF THE

NORTH-CHINA BRANCH

OF THE

ROYAL ASIATIC SOCIETY

VOLUME L—1919

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BYE-LAWS RELATING TO COMMUNICATIONS TO THE SOCIETY.

1. Every paper which it is proposed to communicate to the Society shall be forwarded to the Hon. Secretary for the approval of the Council.

2. When the Council shall have accepted a paper, they shall decide whether it shall be read before the Society and published in the Journal, or read only and not published, or published only and not read. The Council's decision shall in each case be communicated to the author after the meeting.

3. The Council may permit a paper written by a non-member to be read and, if approved, published.

4. In the absence of the author, a paper may be read by any member of the Society appointed by the Chairman or nominated by the author.

5. No paper read before the Society shall be published elsewhere than in the Journal, without the permission of the Council, or unless the Council decide against publishing it in the Journal.

6. All communications intended for publication by the Society shall be clearly written, on one side of the paper only, with proper references, and in all respects in fit condition for being at once placed in the printers' hands.

7. The authors of papers and contributors to the Journal are solely responsible for the facts stated and opinions expressed in their communications.

8. In order to insure a correct report, the Council request that each paper be accompanied by a short abstract for newspaper publication.

9. The author of any paper which the Council has decided to publish will be presented with twenty-five copies : and he shall be permitted to have extra copies printed on making application to the Hon. Secretary at the time of forwarding the paper, and on paying the cost of such copies.

Agents for the Sale of the Society's Publications:—

SHANGHAI, HONGKONG, YOKOHAMA & SINGAPORE:
KELLY & WALSH, LIMITED.
LONDON: KEGAN PAUL, TRENCH, TRÜBNER & CO., LD.
PARIS: ERNEST LEROUX, RUE BONAPARTE, 28.

Application for Membership, stating the Name (in full), Nationality, Profession and Address of Applicants, should be forwarded to "The Secretary, North-China Branch of the Royal Asiatic Society, Shanghai." The name should be proposed and seconded by members of the Society, but where circumstances prevent the observance of this Rule, the Council is prepared to consider applications with such references as may be given. *Remittances of Subscription for Membership (*$5 *per annum, which entitles the Member to a complete annual set of the Journal for the year in which payment is made) should be addressed to* "The Treasurer, North-China Branch of the Royal Asiatic Society, Shanghai." A Member may acquire "Life Membership" by payment of a composition fee of $50.

Editors and authors wishing to have their works reviewed in the *Journal of the North-China Branch of the Royal Asiatic Society* are requested to send *two* copies to the Editor of the Journal, one copy being presented to the reviewer, the other remaining in the Society's Library. Papers intended for the Journal should be sent to the Editor.

It has been decided by the Council that the Society's publications shall not for the future be issued to any Member whose Subscription is one year in arrear.

It is requested that Subscriptions be sent to the Treasurer at the beginning of each year. Forms for payments may be obtained from the Secretary, by which members having a Bank account in Shanghai, can authorize a Bank to make the necessary payment at the appointed time every year. This is a great convenience to members, and to the Honorary Officers of the Society.

For information in connexion with the publishing department, Messrs. KELLY AND WALSH, LIMITED, Shanghai, should be addressed.

ROYAL ASIATIC SOCIETY CHINA
SHANGHAI
上海

JOURNAL

OF THE

NORTH-CHINA BRANCH

OF THE

ROYAL ASIATIC SOCIETY

FOR THE YEAR 1919

VOL. L.



SHANGHAI:
KELLY & WALSH, LIMITED
1919

OFFICERS FOR 1919-1920.

President	A. Stanley, M.D.
Vice-Presidents	Rev. F. L. Hawks Pott, D.D
	Samuel Couling, M.A.
Curator of Museum	A. Stanley, M.D.
Librarian	Mrs. F. Ayscough.
Honorary Treasurer	Mr. A. C. Hynes.
Editor of Journal	Rev. Evan Morgan.
Councillors	H.E. V. Grosse.
	Mr. H. A. Wilden.
	Mr. G. Lanning.
	Mr. L. Lyall.
	Rev. A. P. Parker, D.D.
Honorary Secretary	Mr. Isaac Mason.

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VOL. L.—1919.

EDITED BY EVAN MORGAN.

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PROCEEDINGS

ANNUAL GENERAL MEETING

The Annual General Meeting of the Society was held on Thursday, June 12th, 1919, at the Society's hall, Dr. Arthur Stanley presided in the absence of the President, Sir Everard H. Fraser, K.C.M.G., and was supported by Mrs. Ayscough and Mr. I. Mason, Hon. Secretary.

The Chairman in his introductory remarks announced that Sir Everard Fraser's resignation of the Presidency had been accepted with regret, owing to his leaving for home. The Society was much indebted to the retiring President for having held the office for six years, and for the interest he has taken in the Society for a much longer period.

The Honorary Librarian's Report.

Mrs. Ayscough read her report which was as follows:—

During my absence in America Mrs. McGrath performed most ably the duties of Hon. Librarian and last year presented the Annual Report. In August 1918 she left China for good and I beg to express, on behalf of the North China Branch of the Royal Asiatic Society, deep appreciation for the services which she has rendered during the past six years.

I have now the honour of presenting to the Members of the North China Branch of the Royal Asiatic Society the Report from June 1918 to date.

A number of interesting publications; which are all reported under "Library Accessions" have been acquired by gift and by purchase.

During my absence it was decided that the rule which decrees that only works presented to the Library should be reviewed in the Journal, was made operative. Therefore, several important books which have been obtained by purchase, are not reviewed in the forth-coming Journal. A letter is being addressed to publishers in Europe and America informing them of the rules of the Society and a certain

number of specimen Journals are being forwarded in the hope that in future the presentations to the Library may be more numerous.

Since the Armistice various books delayed in publication on account of the war, have appeared; notably Vols. II and III of *The International Relations of the Chinese Empire*, by H. B. Morse; the 2nd edition of Hillier's *Pocket Dictionary* which has been edited by Messrs Backhouse and Barton; and the 2nd edition of Prof. Giles' invaluable *History of Chinese Pictorial Art*.

A very fine catalogue which has been presented is *Chinese Pottery of the Han, T'ang, and Sung Dynasties*, issued by Parish-Watson & Co. Inc. the letterpress is excellent and the plates above praise. The result of the great interest taken in the West in Chinese Art is that in the Metropolitan Centres of Europe and America one can see, in three hours, more examples of Great Chinese Art than one can see in China in three years.

An interesting table of Meteorological Observations has been received from an Observatory at Chên Shan Nan-tung which has been newly established by a public-spirited Chinese gentleman and which promises to do good work.

Several important works have been obtained by purchase; notably "The Ajanta Frescoes, being Reproductions in Colour and Monochrome of Frescoes in some of the Caves at Ajanta after Copies taken in the Years 1909-1911" by Lady Herringham; "The Beginnings of Buddhist Art" by Foucher; and the fine Japanese publication reproductions of Chinese Sculptural Works of Art, which has lately appeared.

The most important new exchange is "The New China Review" Edited by the Mr. Samuel Couling, M.A., an ex-Secretary of the North China Branch of the Royal Asiatic Society, which promises to fill a long felt want, and which we are very glad to welcome.

Several years ago the Librarian commenced to compile a classified index of articles in various Journals, but was interrupted by the exigencies of War Work. During the last winter this work has been taken up by Mrs. Maurice Price who has completely indexed the *Chinese Repository* and who has brought up to date the indices of the Royal Asiatic Society of Great Britain and Ireland, and the North China Branch of the Royal Asiatic Society. For this valuable work the thanks of the Society are due.

It is hoped, during the coming year, to issue a new and more perfect class Catalogue of the books in the Library. Members in Shanghai can always consult the Card Catalogue in the Library, but members who live in other places and who yearly use the Library more and more are dependent

upon the printed Catalogue, which appeared in 1908 and which is, naturally, completely out of date.

Each year the number of members who use the library increases. A fact which is most gratifying, and which is most hopeful for Sinology. Now that the War is over it seems quite legitimate to hope that much time will be given to the study of Far Eastern affairs and that important works will appear.

The last week has witnessed the manifestation of an extraordinary movement throughout China.

Foreigners have been puzzled at the sudden homogenity of public opinion and at the silent force behind its expression, which gave it power. The lack of comprehension of the movements about them arise not so much from lack of intelligence as from lack of information. Locally, the majority of foreigners have but a superficial knowledge of China and her politics—past and present—they therefore fail to comprehend perfectly logical developments. A careful perusal of the volumes on the shelves of the North China Branch of the Royal Asiatic Society would help to provide the information needed, and in these days, when mutual undersanding is so all important, the foreign residents in the Far East would do well to avail themselves of the opportunities at their hand.

It is hoped that authors and publishers will not forget the existence of a Society which was formed in 1857 and which has devoted itself to the furtherance of understanding between the East and West, and that the books which treat of Far Eastern subjects may, as a matter of course, be sent for review in the Journal and for use in the Library. The clerical work in the library has been efficiently conducted by Mr. Wu and Mr. Chao.

The Honorary Treasurer's Report.

In the absence of the Treasurer, Mr. A. C. Hynes, the Financial Statement for the year was read by the Secretary, and is given herewith :—

NORTH CHINA BRANCH OF THE ROYAL ASIATIC SOCIETY.

In Account with the Honorary Treasurer of the Society.

CASH ACCOUNT, JUNE 1ST, 1918, TO MAY 31ST, 1919.

RECEIPTS.

Balance at Credit 31st May, 1918		$1,723.08
Subscriptions of Members :—		
Annual	$1,815.89	
Life	125.00	
		1,940.89
Municipal Grants :—		
International	$1,368.55	
French	137.55	
		1,506.10
Interest on Debentures :—		
Mackenzie & Co., Ltd.	$57.14	
Shanghai Waterworks Co., Ltd.	33.01	
Shanghai Municipal Council	46.84	
		136.99
Rent for Lecture Hall		130.00
Sale of Journals, etc.		466.33
Shanghai Museum		47.45
Sale of Stewart Lockhart Coin Books		26.00
		$5,976.84

Audited and found correct,
(*Signed*). A. FERGUSSON.
Shanghai, June 6th, 1919.

EXPENDITURE.

Museum		$ 682.80
Journal		1,552.56
Library		331.00
Library Account in London £20		119.58
Salaries		872.00
Stationery		74.48
Postage		36.72
Public Meetings		162.36
Exhibition		7.00
Building Maintenance		198.74
Building Improvements		102.00
Apparatus		210.24
Furniture		93.00
Taxes		241.72
Insurance		138.51
Purchase of Debentures		482.57
Interest Paid		50.55
Sundries		35.55
Cash held by Secretary	$200.00	
Balance at Credit, 31st May 1919, with H. & S. B. C.	385.46	
		585.46
		$5,976.84

(*Signed*). A. C. HYNES,
Hon. Treasurer,
Royal Asiatic Society, North China Branch.

The Honorary Editor's Report.

Ample material has come to hand from contributors to make a bulky Journal. These contributions obviated the necessity of using several articles dealing with various aspect of Chinese thought that had been prepared and held in reserve in case there might be a paucity of material. Some contributors have given us their reminiscences of events long gone by: others their experiences in travel far and wide over this empire: pictures of Chinese life and so on. These form the lighter and more popular side of the Journal. A young Russian writer has contributed a lengthy article on the Agriculture and Zoology of certain parts of China. We have lists of birds and beasts by other writers. These articles it is true, are encumbered by long Latin names. It is the scientific habit. In spite of this somewhat forbidding aspect the editor ventures to think that these articles should prove acceptable to merchants and others. For the bird that bears the incumberance of a strange name, for which he is in no sense responsible, may give an indication of climate and help us to know how the wind blows. Agriculture also, the rices and barleys and other things may labour under the same difficulty of names, and yet the multitude of items supplied may have an important bearing on scholarship and commerce.

The Honorary Secretary's Report.

Mr. Isaac Mason, the Hon. Secretary, then read his report which was as follows:—

The past Session has been a quiet one, yet the good attendance at the public meetings, and the increase in membership indicate that the Society's activities are very well appreciated.

Eight meetings of the Council have been held, at which the ordinary business of the Society has been transacted. Our Honorary Treasurer Mr. R. R. Hynd having gone on leave, the Council conveyed to him the warm thanks of the Society for his valuable services during the past few years. Mr. A. C. Hynes kindly consented to accept the Treasurership for the unexpired portion of Mr. Hynd's term. Mr. Maybon also left for home during the session, and his genial presence and helpful counsel have been missed by his colleagues.

We have to record with deep regret, the death of our honoured Vice-President Dr. Timothy Richard, in England on April 17th. Dr. Richard has been a member of this Society for 25 years, and for 50 years has been connected

with China where his honest efforts for the good of the Chinese have met with an appreciation such as few men have been privileged to see.

Dr. J. C. Ferguson has been elected to honorary membership in consideration of his valuable services to the Society during many years, and we are sure that members will cordially approve this action.

Six public meetings have been held during the Session. The Papers read and Lectures given were as follows:—

"The Land of Ararat," by Dr. G. M. Daniel. (October 31st).

"Touches of Life in China," by Dr. W. L. Hall. (December 5th).

"The Land of Peach Bloom," by Mr. C. Kliene, F.R.G.S. (January 16th).

"The Caucasus and its Peoples," by Mr. E. St. John Catchpool. (February 13th).

"The Chatham Islands," by J. Huston Edgar, F.R.G.S. (March 20th).

"A Local Biological Survey," by Mr. N. Gist Gee, M.A. (May 8th).

Two excellent exhibitions of paintings and drawings of China and Chinese by Mr. A. Iacovleff were given by the kindness of the artist, each lasting several days, and attracting a large number of visitors.

The membership of the Society continues to increase. Forty-six new members have been elected during the year, subject to the approval of this meeting. The names are:—

William Ironside, William Nicholson, C. C. Williams, Dr. A. H. Skinner, J. B. Nicholson, W. S. P. Deas, A. T. Milhorat, T. Kashiwada, W. R. Leete, Miss E. S. Lester, G. D. Drago, B. W. Skvortzow, R. C. Grierson, R. E. Wilson, E. B. Bruce, A. T. Beltchenko, E. P. Gish, D. W. Lyon, Dr. King, H. K. Wright, E. C. Kopp, J. A. E. Bates, W. A. Stursberg, W. R. Kellogg, M. E. Weatherall, Mrs. A. Q. Adamson, Mrs. J. E. Denham, A. W. Hummel, W. L. Oakes, E. T. A. Stedeford, Mrs. C. H. Webb, G. W. Fisk, G. W. Bishop, F. S. Upham, J. Woets, A. C. Hynes, C. A. S. Williams, Mrs. M. Benjamin, Miss S. M. Bosworth, E. W. Perry, Capt. Cockell, Mrs. M. Price, W. R. Wheeler, G. Richert, A. J. Cominys and H. E. Morriss.

There have been seven resignations, and deaths have been recorded as under:—A. H. White, J. Jackson, H. W. Brazier, K. G. Kring, J. Dyer Ball, G. M. H. Playfair, and T. Richard.

A number of other names have lapsed for various reasons: the present membership is 523 a net gain of 8 over last year.

The financial position of the Society is good, enabling us to spend a little more liberally on the library and in equipment for the benefit of members and the public generally.

The Report and Accounts were adopted on the proposal of Rev. A. P. Parker, D.D., seconded by Mr. G. Lanning.

A vote of thanks was passed to the Council and Officers for their services during the past year, proposed by Mr. S. Couling, and seconded by Miss H. C. Bowser.

Election of Officers.

On the proposition of Mr. Mencarini, seconded by Dr. Noel Davis, the following officers were elected to serve during the forthcoming year:—

President.—A. Stanley, M.D.; Vice-Presidents—Rev. F. L. Hawks Pott, D.D., Samuel Couling, M.A.; Curator of Museum—A. Stanley, M.D.; Librarian—Mrs. F. Ayscough; Honorary Treasurer—Mr. A. C. Hynes; Editor of Journal—Rev. Evan Morgan; Councillors—H.E. V. Grosse, Mr. H. A. Wilden, Mr. G. Lanning, Mr. L. Lyall, Rev. A. P. Parker, D.D.; Honorary Secretary—Mr. Isaac Mason.

The Honorary Curator's Report.

The Report of the Curator, Dr. Stanley, was next given. Dr. Stanley said:—

The Museum collection has been satisfactorily maintained. The trouble entailed in caulking all the cracks and crevices in the cases, and not permitting any opening up between April 1 and October 31, has been repaid by absence of destruction by parasites and dust.

The list of acquisitions presented show that interest in the Museum continues unabated notwithstanding the unsettled conditions that prevailed. The disturbed state of Fokien province, where the regular Museum collector has been working for some years has, however, rendered his collection less interesting than usual.

A taxidermist is not now maintained throughout the year available for the public wanting birds and animals prepared and mounted. The Museum Collector now comes for a limited period during the winter months to overhaul the bird and mammal collections, and is then sometimes available for taxidermist work for the public. This latter work in the past has had a detrimental effect on the Museum and it is considered generally desirable for the Museum to discontinue the mounting of birds and other animals for the public. As a taxidermist unconnected with the Museum has been

available of late no inconvenience to the public in this respect seems likely to result.

The policy has been to maintain the Museum as a Natural History Museum almost exclusively, with a practical educational purpose. By means of descriptive labels in simple scientific language the main object is to stimulate an interest in and love of Nature. The mere labelling a specimen with its specific name of course has its special use and importance, particularly where special knowledge is available in respect to particular sections of the work; but not necessarily for exhibition to the public. Such collections are, where possible, kept for the use of specialists. For the public, and especially for the young, a general outlook on Nature without unnecessary detail is vastly more interesting and educative.

A visit to Weihaiwei during the past summer afforded an opportunity of roughly working out the natural history of the island (Liu Kung tao). Specimens of practically all the reptiles and amphibians were obtained, of which the pretty little Argus lizard (Eremias argus) and the extraordinarily beautiful Fire-bellied Toad (Bombinator orientalis) may be specially mentioned as particularly abundant. The moment of first finding the latter species, which I have been trying for in China for many years, was the brightest spot in the year's nature study. Unfortunately this animal loses much of its beauty lying dead in spirit. I had hoped to show it alive but the last of 30 specimens brought to Shanghai succumbed a few days ago.

From time to time suggestions are made for the establishment of a museum on a larger scale than the present, including an art section. Were a liberal endowment provided such a Museum could probably be established and maintained commensurate with the size and importance of the place. Shanghai is, however, mainly a place of temporary sojourn even in the case of the Chinese population. Private collections are seldom left behind. Moreover, there is a considerable demand from abroad for Chinese works of art and archeology. The suggested Museum would probably have to depend mainly on purchase for the acquisition of its exhibits. The endowment of the suggested Museum would, therefore, have to be on an especially liberal scale.

The Society's Museum may be regarded as a symbol of the effort to study practically Chinese subjects. Its purpose is not to collect and exhibit curiosities, but rather to stimulate that divine curiosity which leads to knowledge and wisdom. It may be noted that the Society has by means of occasional exhibitions and lectures been able to maintain a keen interest in Chinese Art.

MUSEUM ACQUISITIONS.

FROM JUNE 1, 1918, TO MAY 31, 1919

	PRESENTED BY
Clutch of 5 eggs of Suya crinegera, Smoky quartz, Large snail shell, Cochlostyla roussyana, Cochlostyla intorta, Gilt tiles from 'Golden Pagoda' (2), Glazed tile from Ming Tombs, Clay tablets from Lama Temple (5), Pair of modern silver ear-rings, Old Chinese hair ornament, Glazed faience fragments from the ruins of Yuan Ming Yuan, Pair of old Chinese iron stirrups, Sung pottery jar, Ten-cash copper coin Hung-hsien period.	Peter J. Bahr, Esq.
Specimens of Szechuen decorated woodwork and veneer (4), 'Insect' tea from Luchow, Szechuen.	Walter T. Herbert, Esq.
Miscellaneous molluscs, crinoids, sponges, etc., from Chijiwa, Japan Bats (2), Solitary wasps with nests and various specimens of insect life from Shanghai. Native sulphur, Molge pyrrhogaster, snakes (3) and one snake cast from Unzen, Japan.	Dr. A. Moore.
Hemiptera (14 species) from Mokanshan.	Prof. Gist Gee.
Photograph of crane from Japan.	B. T. Prideaux, Esq.
Eremias argus (3) from Weihaiwei.	Reginald Stanley
Various shells from Weihaiwei.	Miss B. Walker
East India Company Copper cent from Pootung Cemetery.	G.T. Turnbull, Esq.
Gordian worm from Shanghai.	K. S. Koy, Esq.
Molge pyrrhogaster (2) from Kiukiang.	Dr. Ida Kahn
Tropidonotus tigrinus from Kihungshan, S. Honan.	Bishop White
Petrophila manilla and Japanese Green Pigeon from Nagasaki.	I. P. Christiansen, Esq.
Gallinago solitaria (shot Oct. 25) and pig monstrosity from Hunchun, Manchuria.	H. K. Lindholm, Esq.
Zamenis mucosus (2), Naia naia atra (2), Tachydromus sexlineatus, from Hongkong.	Dr. Heanley
Skin of Crocodilus porosus, Malay War Drums (2).	H. F. Pringle, Esq.
Iridescent Anthracite coal, Specimens of shale with fossil ferus from Hongay Coal Mine, Tonking.	Capt. H. E. Laver
Antherœa pernyi and cocoons (3) from Manchuria.	Miss Hilda Bowser
Gecinus guerini from Shanghai.	Charles Hill, Esq.
Zaocys dhumandes ; Tropidonotus piscator, Coluber phyllophis from Hwaiyuan.	Dr. Samuel Cochrane
Thibetan Tsanpa dish and charm locket, Chinese child's life-preserving locket from West China.	Rev. James Hutson
Water beetles, shells and crustaceans from Foochow.	B. W. Skvortzow, Esq.

	PRESENTED BY
Bronze and iron arrow heads of Yuan, Han and Chow dynasties (11), Flint nodule with adherent chalk.	E. Luthy, Esq.
Various echinoderms, Tropidonotus tigrinus (2), Bombinator orientalis (10) from Weihaiwei, Specimens illustrating the complete metamorphosis of the Privet Hawk moth and various insects.	Brian Stanley
Various rock specimens, echinoderms, arachnids, etc., from Weihaiwei.	Dr. Stanley
Porpoise from Shanghai River (Skeleton prepared).	Purchased
Various insects (3,000) amphibians, molluscs, echinoderms, crustaceaus, reptiles, birds and fish nest.	Collected

ARTHUR STANLEY
Honorary Curator.

THIRTY THOUSAND MILES IN CHINA

CHARLES KEYSER EDMUNDS, PH.D.,
President of Canton Christian College and Observer-in-Charge Magnetic Survey of China, Carnegie Institution of Washington, 1906-1917

Coming to China fourteen years ago, after several years of experience as a physicist in the field as well as in the laboratory and classroom in America, I naturally desired to exercise the same dual functions in China. Urged by the Editor, I presume to recite some aspects of such field work as the interims in my increasing scholastic duties and absences in America have allowed.

Among the many problems which China faces to-day, some of the most pressing are of a physical nature, such as reforestation, control of rivers and canals to prevent floods, construction of railways, development of mines, and many others of a similar sort. In connection with the surveys which are necessary in any comprehensive or co-ordinated development along these lines, it is highly desirable that the magnetic field of the earth be known as accurately as possible throughout the country. For it is with the aid of the compass that the most rapid and economical surveys can be made. Hence the proper corrections to apply to compass and dip needle pointings on land are of value to surveyors and railroad and mining engineers, just as they are to the mariner for sea areas.

As the reputed inventors of the compass for use on both land and sea, it is quite appropriate that the Chinese after a long period of arrested development along such lines, should have the assistance of scientists from the West in securing as soon as possible an accurate knowledge of the magnetic elements throughout their territory in which these physical developments are being inaugurated and throughout the adjacent seas on which so many Chinese risk their lives.

Besides these practical applications, a detailed knowledge of the earth's magnetic field is essential for any adequate conception of the cause or causes of such magnet-

ism, and for the solution of this large problem data must be had for all parts of the globe both on land and sea.

Therefore, when in 1904 "The Department of Research in Terrestrial Magnetism" was created by the Carnegie Institution of Washington with the special object of securing magnetic data in the regions of the globe where most needed and where no organizations are prepared to undertake this work, I was glad to offer my services to the Director, Dr. L. A. Bauer, for such work in China as he might authorize and support.

Already some observations had been made by the Observatories at Hongkong and Zikawei, by various naval officers at coast and river ports, and by an occasional party of travellers from abroad; but nothing like an adequate or comprehensive survey had been thought of.

Thanks to the liberal support accorded by the Carnegie Institution of Washington, and to the aid given by the Hongkong and Zikawei Observatories in the loan of instruments for the first few years, by the Chinese Government through its customs and postal services and local civil officials generally, and to the co-operation of consuls and missionaries wherever encountered, as well as to the courtesy of the Canton Christian College in granting furloughs, it has been possible to carry to a successful conclusion not only the whole programme for a preliminary reconnaissance of China proper but to extend the survey into Manchuria, Mongolia, Chinese Turkestan, French-Indo-China and Siam, and to do so practically "on time," in spite of the fact that the period of our work has been one of almost constant political unrest in China.

From the first, care has been taken to avoid giving the Chinese any impression that we are intending to invade their field, but only to encourage and assist them in the accomplishment of the preliminary stages of a work which, when their government is sufficiently organized to maintain a scientific service on its own account, will properly fall under their meteorological department. With this end in view I have always included in my party a Chinese student to act as recorder and assistant observer.

In French-Indo-China and Siam, the hearty co-operation of the respective Governments was accorded and free transportation provided for the expeditions.

The results secured in the period 1905-13 have been published by the Carnegie Institution of Washington with similar observations in other parts of Asia and of the globe under the title "*Land Magnetic Observations*" in Volumes I and II of Publication No. 175, by L. A. Bauer, Director



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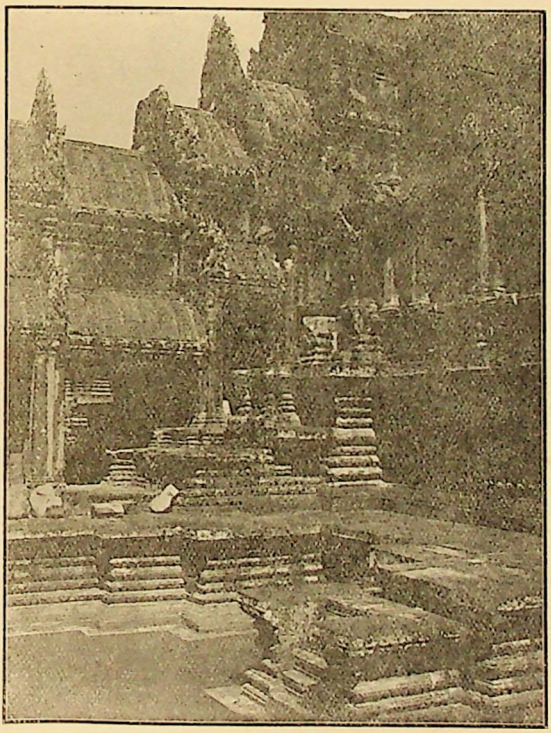

INNER COURT, BATHING CAVE, STAIRWAY,
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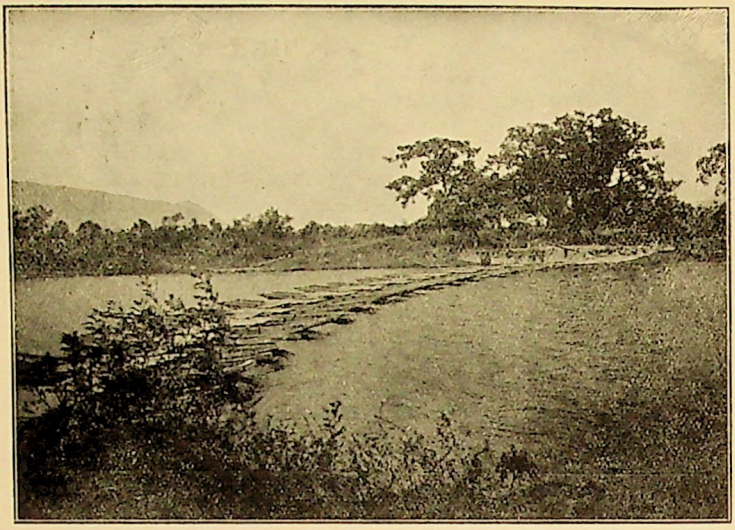

A BRIDGE OF BOATS KUANGHSI.



ON THE YUNNAN RAILWAY: CENTRAL SECTION.

of the Department of Terrestrial Magnetism. A third volume is in course of preparation.

At each station astronomical observations of the sun, usually by means of a theodolite, are made so as to determine the latitude and longitude of the station, and the azimuth or true bearing of some distant fixed mark as seen from the station. Elevation above sea level is determined by hypsometer or aneroid barometers. Standard mean time is given by a battery of watches and chronometers very carefully carried. With a magnetometer the magnetic declination or deviation of the compass from the true or astronomic north is determined and also the intensity of the earth's magnetic force at that place, while with a dipcircle the dip or inclination of the magnetic needle in the vertical plane is observed. These three elements—declination, dip, and intensity—give a full knowledge of the earth's magnetic force at that place both as to its magnitude and its direction for the time when the observations were made. But the case is greatly complicated by the fact that both the direction and the magnitude of the earth's force at a given place undergo cyclical changes throughout the day, with monthly and secular variations superposed. It becomes then a difficult task to ascertain the precise correction to apply to any given compass reading in order to ascertain the true bearing at the time of observation. Continuous records of these changes in the earth's field must be secured at as many permanent stations as possible while at a large number of well distributed points throughout the intervening territory detailed observations must be made and repeated from time to time, so that both the absolute values and the rate of change may be determined. The only station in China where continuous records are being secured is at Lukiapang, under the Zikawei Observatory, itself an integral part of the missionary establishment of the French Catholic Church.

The extensive observations already made throughout the world, both on land and sea, under the auspices of the Carnegie Institution of Washington will, when combined with the results of surveys maintained by the various governments, give the first comprehensive magnetic survey of the globe and thus afford the basis of a much more intelligent solution of the problems of terrestrial magnetism than has hitherto been possible. Any more detailed reference would be out of place here; but it is a cause for congratulation that China has been included in the areas studied even ahead of the time when her own government will be able to undertake such work and thus contribute her just share as a full-fledged modern nation to the solution of a world problem.

In this magnetic survey of China and adjacent territories some 65,300 miles have been travelled not counting trans-oceanic voyages. Eliminating duplications, for some of the routes have been traversed more than once, gives 43,240 miles as the total of our lines, not counting 2,600 miles in India by my colleagues D. C. Sowers and C. G. Fuson who journeyed from Peking to Bombay by way of Kansu, Chinese Turkestan, Kashgar and the Karakorum Pass. My assistant Mr. Frederick Brown has traversed Mongolia in two directions and has done Kweichow besides filling gaps in other provinces. The total number of stations where observations have been made (not counting repeats) is 394 plus 63 occupied by Sowers and Fuson within Chinese Dominions. The average interval between stations is about 60 miles, varying from 15 to 150 miles according to circumstances. Average cost per station has been about U.S. $50, not counting observer's salary.

My own share of travel has been a total of 45,500 miles, of which about 12,000 have been in repetition so that irrespective of duplication my single routes amount to about 33,500 of which 3,500 have been in Indo-China and 30,000 in China. In Siam I have gone only where railways could carry me, but in French-Indo-China I have traversed every province, while in China proper and Manchuria I have traversed every province except Kansu (the S.E. corner of which I have just entered) and Kweichow, and have skirted the real physical boundary of Inner Mongolia and of the Szechwan-Tibetan borderland.

Naturally a great mass of data has been collected, especially with reference to the physical features of China, and I cherish the hope that some day the pressure of my college work will lessen sufficiently to permit the preparation of a comprehensive volume. For the present I must content myself with only a brief outline of the field that has been covered, with some indication of the most striking features.

The Rule of Five.

According to ancient custom most ideas in China come in fives. One might substitute "funf" for "drei" in the German saying and apply it to Cathay. Life consists in the five relationships: between sovereign and subject, husband and wife, parent and child, brother and brother, friend and friend. There are five classes of society, five orders of nobility, five rites, five degrees of mourning, the five-clawed dragon (which doesn't exist) and the so-called five-coloured porcelain (which isn't five-coloured!). There are the five

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elements: metal, wood, water, fire, earth; though the all surrounding air is omitted! There are the five senses, the five virtues, the five planets, five colours, five musical notes and the five classics, the learning of which by a cast-iron method has in several hundred years wasted enough energy for ten millenniums of true education. There are the five races, the five cereals, the five seasons and of special value to the traveller the five points of the compass: North, East, South, West and *Center;* indicating that it is just as important to know where you *are* as it is to get your *direction*! Hence even under the risk of being considered too artificial, I shall present my subject according to the ancient rule of five.

The *five corners of my own area* of travel are significant in their contrast.

In the south-east Hainan, the Island of Palms; in the north-east Dolonnor and the Salt Marshes of Inner Mongolia; in the north-west the Snow Mountains of Sungpan Pass, the Switzerland of China; and in the south-west the jungles of Laos and Siam, and in China proper, the elevated lakes of Yunnan.

My separate expeditions might be characterized as follows: (1) Along the China Coast from end to end; (2) Overland from Peking to Canton *via* Hankow, Changsha, Kweilin and Wuchow; (3) The Yangtsze Kiang from Tibetan Borderland to the sea; (4) The Yellow River's Middle Course; (5) Over the Meiling from Canton to Kiukiang; (6) Across Shantung, China's Holy Land; (7) A Loop in Inner Mongolia, *via* Hannor Pass, Dolonor, and Jehol; (8) From Canton to Mandalay, but stopped half way by a Revolution; (9) Partout en Indo-Chine; (10) China's Far West, Shensi, Kansu and Szechwan.

These journeys have taken me to the *five Sacred Mountains* of China:—Taishan in Shantung, Hengshan in Hunan, Wutaishan in Shansi, Omeishan in Szechwan and Hwashan in Shensi. Of these Omei is the highest (10,000 ft.) and affords the greatest variety of scenery, Hwashan (6,000) presents the most interesting ascent because of the steepness of the artificial way prepared for devotees, while Tai Shan (5,000) has the most valuable historical connection with China's Chief Sage, Confucius, who ascended this mount about 500 B.C. Each bears numerous temples and each is visited annually by thousands of pilgrims from far and near. The lastnamed is now very accessible even for the tourist since the Pukow-Tientsin railway passes through Taian which lies at its base.

The *five great engineering feats* of the Chinese have been seen.

1.—*The Great Wall*, begun as early as 240 B.C. and added to as late as A.D. 1547, to keep out invaders who nevertheless have made an effective entry, has been followed for long distances in widely separated sections of its tortuous course of 1,250 miles.

2.—*The Grand Canal*, the oldest and longest artificial waterway in the world, built in three sections in three different periods (from 550 B.C. to A.D. 1283) and finally completed for the inland transport of grain from Hangchow in the South to the Capital in the North, has been traversed practically from end to end of its 1,000 miles, in spite of the dilapidated condition of its northern section.

3.—*The Hangchow Bore Wall*, built about A.D. 915 and still protecting millions from a twice-daily flood from the sea, has, though less known impressed me as worthy of a greater share of fame than the Grand Canal or the Great Wall, because of the dynamic difficulties to be overcome in the construction of 180 miles of a wall which so effectively shuts out one of the most gigantic and powerful tidal bores in the world.

4.—The exceedingly clever and extensive *irrigation system of Kwanhsien* inaugurated probably about 200 B.C. and still responsible for so much of the prosperity of Szechwan has been investigated from the headwaters of the Min that feeds it to the by-canals of the Chengtu plain where it supports millions on what would otherwise be barren land.

5.—*The brine wells of Tzeliutsing* also in Szechwan, sunk *by hand* to a depth of 3,000 feet and operated by crude machinery with water-buffalo as the motive power have been seen and marvelled at. Dating, as some of the wells do, from as early as A.D. 250 this region still supplies an enormous quantity of that most essential commodity, which in China is the Government's one monopoly, salt, which under the recent administration of Sir Richard Dane has added so greatly to the nation's revenue.

Note, please, three significant characteristics of these engineering feats: Each is of fairly ancient origin; each is of great magnitude; and each is a work of utility, all but one (*i.e.* the Great Wall) being of important use to-day. Contrast these with the useless monuments which the ancient Egyptians have left as marks of their former prowess and you will readily admit the superiority of the Chinese. Remember too that the Chinese are the only great nation to-day that has survived from any remote past.

Remember that before Abraham left Ur of the Chaldees, China's system of education began, which with a revision in A.D. 627 continued until 1905 to drill all the scholars and statesmen of the realm in a system of ethics the cardinal principle of which is filial piety, and then compare their history with the promise contained in the Hebrew decalogue which says "Honor thy father and thy mother, that thy days may be long in the land which the Lord thy God giveth thee," and I, for one, believe that you have noted at least one of the reasons for the survival of the Chinese people.

Five Imperial Burial Grounds have been visited. Near Peking in three different directions are three such areas: The Ming Tombs near *Nankow*, much visited by tourists and possessing the finest setting of any of the imperial graves by reason of a great ampitheatre of mountains; the *Tungling* or Eastern tombs at Malanyu, east and slightly north of Peking by cart, where the *late Empress Dowager* lies buried behind a series of ornate buildings with most gorgeous roofs of yellow glazed porcelain; and the *Shihling* or Western Tombs to which one may journey practically all the way by rail *via* Kaopeitien on the Peking-Hankow line. Here the *last Emperor* lies buried. At both the Eastern and the Western tombs there are immense graves of cypress in the midst of which stand the shrines.

At *Nanking* are the tombs of the Southern Mings with a mile of huge stone figures flanking the avenue of approach just as at Nankow in the north.

In Southern Shensi and Western Honan are the enormous but simple mounds of earth which mark the resting places of the *Hans and the Tangs*. These and the two Ming burying grounds are of Chinese kings, while the Eastern and the Western tombs are of Manchu monarchs. All are truly imperial in their conception and dimensions.

Nor can we forget our pilgrimage to the birth and burial-place of Confucius, at Kufu, in the ancient Kingdom of Lu (now the province of Shantung) where the 75th lineal descendant of the Sage so worthily bears to-day the title of Duke, and cares for the graves of his ancestor marked by a stone bearing the simple yet majestic inscription "Most Holy Ancient Teacher."

There are *five principal* kinds of highways in China, just as elsewhere in the world; though up till now the relative importance of certain ones is much greater in China than in most other countries: Waterways, footpaths, pack trails, cart roads, and railways. Roughly speaking China is a country of no good roads. The chief reasons are not far to seek. In the great delta regions of the West and Yangtze

Rivers, in the best sections of the Great Plain and in Szechwan land is so valuable for cultivation that as little as possible is spared for highways. Then, too, these are the very regions where the population is so dense and labor so cheap that most transport on land is by human bearers who need only a footpath. And finally the frequency of waterways on which the cheapness of transport in boats of all sizes controls the situation for both short and long hauls even up stream.

The Five Rivers of First Importance.

Waterways both natural and artificial are tremendously used wherever available and China for the most part is well supplied. Of rivers one thinks first of the mighty Yangtze, a veritable aorta of trade that traverses the entire width of China proper from Tibet to the sea, and is navigable for ocean going vessels for 600 miles, by smaller steamers for 400 more and by still smaller steamers for another stretch of 400 miles, while junks of fair size can proceed still another 100 miles or so.

The navigation beyond the first 1,000 miles is, however, quite precarious. We think secondly of the Si Kiang or West River and its tributaries in South China. Rising in Yunnan this stream is a great river by the time it reaches the Kwangsi-Kwangtung border. Marked in its upper and middle courses by fine gorges and in its lower course by a magnificiently fertile delta, it is navigable for coasting vessels as far as Canton and for smaller steamers as far as Wuchow while launches ascend the higher courses of its tributaries as well as of the main stream for another 150 miles or so and smaller craft go clear to the Western boundary of Kwangsi and to the Northern boundary of Kwangtung. This river system is second in importance only to that of the Yangtze from an economic point of view.

Next in importance is the Han, which joins the Yangtze at Hankow. This rises on the Shensi-Szechwan boundary. It is navigated by small steamers as far as Siangyang a distance of 300 miles, and during summer by cargo boats and houseboats and by smaller craft in all seasons up to Hanchung 600 miles further. In its course across Shensi it traverses abrupt gorges and its bed is rock-stream. It becomes readily navigable only at Laohokow where it widens rapidly to a width of 2,600 feet. Further down it again narrows and at its mouth is but 200 feet wide in low-water season. In this lower part of its course, it has the peculiar feature enjoyed also by the Yellow River, of a bed higher than the adjoining plain so that embankments are necessary.

During the summer the water-level of the Han rises 20 feet, sometimes more, above the adjacent plain.

Of the Yellow River one can hardly speak as of a highway; for the most part it is useless except as a means of drainage and irrigation, and is one of the most unmanageable rivers in the world. In length it is but little inferior to the Yangtze, being 2,500 miles.

Rising in Tibet it is already a stream 200 yards wide when it enters north-western Kansu where its bed is 8,000 feet above sea level from which it drops 5,000 feet in its north-easterly passage across the province. From Kansu the Yellow River runs north to the high land of Mongolia where its course is changed to almost due east. At Hokow the river turns sharply to the south and continues in that direction for about 480 miles until it is joined near Tungkwan by the River Wei and turns again sharply to the east.

The Wei rises in Eastern Kansu and flows south-eastly to Shensi, and crosses that province in a nearly straight line from west to east. Its well-watered valley was the birthplace of Chinese civilization and is full of relics of the past. It has also the reputation of being the most fertile land in China. About nine miles from the river on its right bank, and half-way across the province, stands the great city of Sian.

At the Tungkwan bend the bed of the Yellow River is still 1,300 feet above sea-level. At the Sanmen rapids, which no boat can ascend, the river again enters the hills, to leave them finally at Mengching, a place above Menghsien, in Honan, about 200 miles below Tungkwan. Here the great river, running from four to six miles an hour, finds itself on the level plain, with still 400 miles to go before it can reach the sea.

This is where it is most to be dreaded, because the mud and sand carried down by its stream have actually raised the bed of the river until it is several yards above the level of the surrounding country. Consequently there are few important towns on its banks. At its crossing with the Grand Canal, its bed is 16 feet above the level of the Canal.

During the whole known historical period, this river has frequently changed its course for the last 350 miles. These changes have swept over a fan-shaped area of 60 degrees in one of the most densely populated and highly cultivated regions in all China, and have, consequently caused great loss of life both directly by flood, and indirectly by consequent famine through destruction of standing crops as well as of stored food supplies. This has earned for it the title of "China's Great Sorrow."

To hinder its overflowing, embankments hem it in, some nearer, others farther, ranging one behind another at variable distances. In this manner, if one gives way, another prevents the inundation. In their present state, these works are still very inefficient, the dikes being weak and constructed with materials that offer insufficient resistance.

Nowhere throughout its length is the Yellow River navigable without difficulty. Its highest reaches are rock strewn and only rafts can be used with any degree of safety. In the long southward reach between Shansi and Shensi navigation in crude boats can be accomplished downstream but only with considerable difficulty owing to the many rapids, and at one point navigation is completely interrupted by the young niagra of Lungwang or Dragon King, 250 miles below Paote. Above the falls the river is about 200 yards wide, and the channel is broken up by rocky ledges. The bulk of the water, a tumbling mass of a coffee colour, flecked with foam, plunges into a narrow crack in its bed near the Shensi shore. The depth of the fall is about 60 feet, but the bottom is a seething cauldron which cannot properly be seen owing to the clouds of spray that rise from it. The remainder of the water falls into the same fissure at right angles to the main fall in a series of cascades 500 yards long. There is a spot some distance below the fall where, standing on the roadway by the river-bank and looking upstream, one sees a cloud of blue mist rising from the middle of the water without apparent cause, while at one's feet the whole volume of a great river rushes for three miles down a narrow canyon in places not more than 15 yards, and nowhere more than 40 yards wide.

A day's journey below the falls is the famous Lungmen gorge, ending in the straits of Yumenkow. This gorge is about 10 miles long. The river is a deep, still stream 150 yards wide, and races between precipices of reddish-grey sandstone 800 feet high. Above the precipices the cone-shaped tops of the hills covered with green scrub rise for another 800 feet. At Yumenkow the banks contract to 50 yards, and upon each side of the strait there is a fine temple. Coming down-stream, when one's boat rushes through this strait there is a striking transformation, the river suddenly leaving the hills and spreading out over a sandy flat to a breadth of three miles.

At Yumenkow coal brought by mulepack from the mines of Southern Shansi is loaded on so-called "Honan" barges, curiously bedecked with bells, which carry their cargoes to Tungkwan and also up the Wei.

In its lower reaches the Yellow River is really navigable only in two stretches: to the north of Honan and in the last 25 miles of its course. But even in these parts shoals prevent boats except of very light draft from passing.

The control of the Yellow River is to-day one of the most pressing of China's physical problems. Experience has shown that the diking of such rivers is insufficient and almost futile. Captain William Tyler, coast inspector of the Chinese light house service, has presented a report on the Yellow River published by the Inspectorate-General of Customs at Shanghai in 1906, in which he proposes to control the river's lower reaches by providing for the depositing of the silt by deliberate flooding of large areas along the river, that is, to regulate its floods.

Of the *Grand Canal* we have already spoken. In the great delta regions natural and artificial waterways are as frequent as the cross roads in an American country.

In the south the highways are mere "single-file" footpaths on the tops of low ridges between cultivated fields. In some sections these are paved with stone slabs. The only native carts I have seen south of the Yangtze are the low slung ox-carts in the southern part of the Island of Hainan and the high hung ox-carts of mid Hunan, and of these the chief part is their "squeak." In the Yangtze basin, Central China, and especially Shantung, wheelbarrows are used both for passengers and for goods; and some of these affairs are veritable "ships o' the land." In some sections of the Chengtu plain in Szechwan smaller one-passenger low slung barrows were encountered and used, though the sedan-chair is the "palace car" here as in most parts of China. In these regions the roads are generally wider than in the south, but hardly any better.

In the north generally, both east and west, carts are much used. Village and city streets as well as roads are hence of a better width than in the south. Throughout mountainous regions pack animals, usually mules or donkeys, are used, though in some regions human carriers alone can negotiate their way. While across the desert regions camels are the monarchs of the road.

In some regions, as in the loess country, the roads have become deep ruts worn below the general level of the land to a depth of 10, 20, 30 and even 70 feet! And these in the dry season are dusty beyond description and in rainy weather are deep in mud of a peculiar stickiness.

Along with the development of railways China needs improved roads everywhere.

There are, as might be expected, *five sorts of native transport;* some though few of them could be called transports of delight! which I have used extensively, as follows:

I.—*Boats*: junks, houseboats, triple-deck passage boats, canoes, slipper boats, footpower boats (2 kinds: rotary and direct), sampans, cargo boats and rafts, engine-driven, rowed, towed, yulowed, sailed and poled. In many provinces.

II.—*Carts*: closed and open, narrow (3 ft. 6 in.) and wide (6 ft. 8 in.), drawn by one, two or three animals (not counting the driver!) and always springless. In North China especially.

III.—*Wheelbarrows*: single platform, double-sided, small wheeled, large wheeled, pushed by man, pulled by man or donkey or both, sometimes aided with a sail. In Central and North China. Avoided by me as much as possible.

IV.—*Bipeds*: men and women, with loads carried on the back, across the shoulder at the two ends of a balanced rod, or between two carriers using one pole or two parallel poles. Sedan chair, two, three or four bearers; mountain chair, two, three or four. In every province.

V.—*Quadrupeds*: Horses, mules, donkeys, oxen, cows, camels and yak; with or without pack saddles, but for riding purposes *always* with a foreign saddle. Used for riding, pack or draft or for carrying a chair or litter slung between two animals. In Northern and Western China.

During the travel by cart, mulepack or carriers I have for the most part gone myself on foot, partly from preference and partly to insure a more gentle transport of the chronometers in my belt or hand.

One of the most remarkable developments in the way of more rapid transportation in China has been the installation of so-called "launch trains," especially in the middle and lower sections of the Grand Canal and throughout the Canton delta. For instance, in the custom house at Canton hundreds of steam launches are registered as towing between it and neighbouring cities and villages, and anywhere distant from 10 to 100 miles. These launch-towed are exceedingly well patronized both for passengers and for freight. Launch building ship-yards have been rapidly developed in Shanghai, Canton and elsewhere. But, for the more rapid and adequate development of that class of communication upon which so much depends for the binding together of China, we must look to the railways.

Railways in China.

Railroads and other ways of transportation of commodities are related to the life of a nation in pretty much the same fashion as the circulatory or blood system of the human body is related to the life of the individual; and similarly the lines of electric transmission of intelligence and the postal lines correspond pretty closely to the nervous system whose functioning is so intimately a part of our bodily life. Each of these systems, the circulatory and the nervous, has a dominating centre which has a relationship of mutual dependence with all parts of the body and all functions of its life. No part can live alone. So the development of a national life in China depends necessarily largely upon the development of these two systems within her borders, the one for the easy, cheap and rapid distribution of commodities, so that the people of one region may readily relieve the hunger or want in another region, and the other for the quick and effective transmission of intelligence which will cause the thrill of the new national life to be felt in the remotest parts and by every individual.

In a study of the present development of railways in China several features at once impress themselves upon us. First, most of the lines already in operation serve the north-eastern quarter of China; the great trunk lines that will connect the far west with the seaboard and the north with the south have yet to be completed. Second, very little has been accomplished or is even projected under purely native auspices; and third in arranging for the financing and construction of these arteries of trade on the basis of concessions to foreign capitalists China has become involved in a complicated five-fold international web which is without parallel elsewhere in the world. In this allotment (present and future) of so-called "spheres," or more correctly "strips" of influence, the associated French, Russian and Belgian interests have a predominating share, followed by Japanese and by British in close rivalry, while German interests are small. American were almost nil until increased by concessions to the American International Corporation through the Siems-Carey Company to some of which considerable opposition has been offered from other quarters. The lines to be built with American capital and by American engineers are widely separated and total about 1,600 miles supplemented by concessions as to priority in certain other regions for which the lines are, however, not yet defined.

For China's sake it is to be hoped that this co-operation in railway building will be properly fostered.

The lines now in operation or contracted for will serve to join the capital to at least nineteen out of the twenty-one provincial capitals and to the great sea-ports of both the Northern and the Southern coasts. At present nine of the provincial capitals are connected with Peking by rail.

After the War in Europe ends there will surely be a revival of activity in China on the part of the various concessionaries, and a great development of trade.

Five Experiences on the Road in China.

One incident will illustrate the difficulty of getting in China reliable information as to the nature of the road even from those who live nearby. On the afternoon of September 22, 1915, we made an early halt for the night on account of a heavy rain. We were told by the innkeeper that we were within easy reach of Jehol, that the road was free from any hills worth mentioning and that by starting at dawn we should reach Jehol by sunset. Instead of this, however, noon of September 23 found us on the ascent of a steep pass, the road bed consisting of great slabs of smooth rock up which it was impossible for the horses to pull the carts as they were. After feeding both the animals and the men and emptying the carts, we had to hitch the four horses to one empty cart and with all hands pushing and all mouths yelling we managed to get the carts over and then down on the other side of the pass, and after carrying the equipment and stores, box by box, over the pass and reloading the carts at the bottom we were able to proceed after four hours of very hard work. We then expected to make Jehol by 10 p.m.; instead, that hour found us again on the slope of another such pass, only steeper than before. Fortunately there was a good moon and by repeating the process of the afternoon we at last got over this barrier to easy travel and made Jehol at one on the morning of September 24, having been 21 hours on the go, and we had not been off the main highway, said to be a good *cart* road!

On a certain day in Western Chihli two connected incidents illustrating how wary the traveller must be in making bargains for his transport would have greatly amused us if they had not caused such delay in our progress. The first was that although we had the day before bargained for an open cart with three mules and a closed cart with two, and had made the man state definitely that only *big mules* would be supplied, when in the morning the vehicles arrived, the first was drawn by two cows and the second by a single small-sized mule, and yet the price agreed on was demanded!

Evidently the carter did not realize that we were experienced travellers in China and could not be thus played with. Still it required more than an hour of argument and even threats of official punishment before suitable animals were brought and even then we had to be content with one less than the total number bargained for, but we had the satisfaction of withholding a dollar at the end of the day's journey.

The second was that on reaching the small village at the foot of the mountains where pack-mules were to be engaged to carry our equipment to Yingchow in Shansi, the young muleteer with whom our advance agent from the inn at Liangkochwang had begun negotiations, shouted out in front of a whole crowd of onlookers that the price would be seven dollars (Chinese Currency) a day per mule! Now the ordinary price for which a native could hire them would be about 70 cents. We therefore could only laugh at his offer, as did all the bystanders. His ridiculous claim being thus publicly made he could not accept any reasonable offer from us without great loss of face. I had finally to seek out the headman of the village, invite him to our inn to have tea, and get him to talk the whole matter over with the muleteer who finally under pressure accepted my original offer of one dollar per mule per travelling day and 40 cents per mule per day of halt. Having thus "overcome" him at the very start he and his associate muleteers proved to be the best set we have ever employed, in spite of their initial intention to swindle us. To the headman of the village we presented a tin of salmon, with great ceremony on our part and great appreciation on his! Thus ended a half-day devoted to the "diplomacy" of the road in China.

In 1907 before the building of the Tientsin-Pukow Railway we journeyed by cart from Tsinan the capital of Shantung to Tsining on the Great Canal and at Taian on the way ascended the Sacred Tai Shan. Evidently the day of leisure which our carters had enjoyed while we visited the Holy Mountain had been too much for them and had spoiled their sweet dispositions, for the next morning, when we expressed our desire that they should proceed southward as agreed, they refused unless they were paid more money. They had already been paid a half of the full bargain and had not yet proceeded half way on the journey. They would not listen to reason and became violent, locking up the inn and attempting to prevent our exit. However, we produced our passport, which we handed to the keeper of the inn and asked him to convey our compliments to the nearest magistrate and request his presence to settle the dispute. We finally went to the magistrate ourselves with the paper and after some parley

with the officials secured reprimand for the carters, but were forced to agree to the payment of another allotment on the contract. This was a mistake, as was afterward proved, for it only made the carters that much worse.

The magistrate furnished us a supposed military guard of two men to see that the carters behaved themselves during the rest of the journey, but as a matter of fact, this guard was of very little use and were nearly quite as bad as the carters themselves. The carters would not start early in the morning, sometimes not before 8 or 10 o'clock, and then would wish to stop for the day at 4 or 5 p.m. and not proceed any further, in spite of the fact that they were being paid more than double the proper rate. Matters went from bad to worse on this section of the trip, until finally when we knew that we were within one day's march of another magistrate, we secured the soldiers' acknowledgement that they were in charge of the expedition and charging them to take care of our things, we hastened on on foot, covering some 25 miles by two in the afternoon.

We laid our complaint before the magistrate and were very courteously received. We were utterly exhausted by our rapid march and evidently our looks bore witness to this fact. For without any preliminary enquiries or warning, the servants began bringing in plateload after plateload of fried eggs and bowl after bowl of tea. We did more than justice to this simple but ample fare. I'm sure that I ate between ten and twenty eggs and drank at least six bowls of tea! Between bites and sips we explained our plight. A deputy on horseback was sent to secure the carters and bring them in and they were questioned separately and then severely reprimanded and lightly beaten. They were not allowed any further pay and we were advised to take carrying coolies from this point on, which we did, and in a forced march of 24 hours we reached Tsining on the Grand Canal. Here, through the magistrate, we hired another team, this time of two mules in tandem, which guaranteed to make the trip to Kufu, the birth and burial place of Confucius, in three days for a price way below what we had been paying the previous carters.

In February, 1916, we reached Lungan in Northern Szechwan and desiring to cross the Snow Pass to Sungpan we found that it would be impracticable to take our pack-mules over this route because of its elevation and the narrowness of the trail which in many places is cut out of the face of a rock wall. So my student-assistant, Ip, and I accompanied by one coolie to carry a minimum of cooking gear and food, together with four others to carry the observing tent and instruments and our two cots and blankets, proposed to nego-

tiate the pass and from Sungpan to descend the Min to Mochow where we would be joined by our mules which in the charge of our cook would travel first south and then west over easier roads while we went first west and then south. All went well with us in spite of our ascent to 13,000 feet in the middle of February. I had anticipated a trying time because each of the two parties who to my knowledge had in recent years traversed this route had reported that the wind and cold and snow on the pass were quite severe in May and in August when they had crossed. To our surprise we found it much easier and whereas these narrators had said that a few minutes on the pass "sufficed" for them (some members of one party even succumbing and later dying from the effects of their experience in this crossing to Sungpan) we spent a half day and a night just a little way below the summit on the Eastern slope to make magnetic observations and the next morning stopped for half an hour on the actual summit to determine its altitude. These more favourable conditions were doubtless due to the fact that the precipitation and the wind are both less in mid-winter than in summer at this altitude.

But though we fared well in getting over the pass and in descending the Min as far as Mochow, there our troubles began; for there we had expected to meet our mules and also to replenish our purse and our larder from a remittance through the Chinese post, but on arrival we found no mules, no money, no mail and no missionary, though one was "stationed" there. He, we found, had left ten days before on account of the disturbed state of the region. We had just enough money to pay for transport to Weichow the next place where a missionary was stationed, and stopping but one day for observations we pressed on. Arriving at Weichow we could get no word of our mules though they were now according to original schedule some five days overdue. When we were heartily welcomed by Rev. J. H. Edgar, the pioneer missionary of Batang, we made bold to suggest that a little loan would be a help as we had just paid out our last coin to the coolies and didn't know where our mule-caravan was; he said, curiously enough, that he was just on the point of asking a loan of us! He and his colleague were anxious about the state of the region and had been discussing which of them should go to Chengtu and return with funds sufficient to enable them to take their families to the capital for safety. Having heard of my approach they had waited thinking that I might have extra money and here I had arrived in distress myself! It was very evident, however, that much less money

would be required to get me and my small party and light equipment to Chengtu than to transport two whole families and their gear. So they managed to put thirty dollars at my disposal and I undertook on reaching Chengtu to send back to them three hundred.

Mr. Edgar in his wholehearted manner accompanied us some ten *li* on the road and directed us where to look for the castles of the independent Tibetan lord high up on a bluff on the opposite bank of the stream. We had journeyed only an hour or two after he left us, when we met coming northward our long-lost mules who should have been travelling southward. The cook's arm was in a sling and with much weeping he related how the caravan five days before had been attacked by a large number of armed bandits (50 he said; ex-soldiers of Szechwan, I suspect) at about nine in the morning at a point some 15 *li* north of Mienchuhsien where two small houses stood, one on either side of the road. As the caravan came opposite the farther end of these houses the bandits without warning opened fire and began by killing one of the military escort of eight who were accompanying our train of mules, and who had no chance to put up a defence. Two of them were taken prisoners and have never been heard of since, while the other five with the cook and the four muleteers made good their escape, the cook injuring his arm badly in falling from his perch on top of a pack saddle. From a safe distance our men watched the robbers and later returned to gather up the fragments that remained! Every box had been smashed in with stones and the contents of all thrown out. All money, various small articles of value (such as my safety razor, cuff-links, etc., and all Chinese clothing were taken, but none of the foreign style clothes of Ip and myself. All my records of observations for several months back were thrown out, but thanks to the diligence of the cook and the muleteers on their return to the scene of the encounter every sheet was recovered though many were crumpled and muddy. You can imagine how anxious and even ill I felt until I reached Chengtu and had an opportunity to go carefully over everything and how relieved I was to find no essential sheet of observation missing! I did, however, lose the photographic negatives of a month's taking and one of the chronometers, which since it needed repairing had been discarded and was to be returned to Washington from Chengtu. All the other instruments, fortunately, were with me on the more western road. It has been suggested that if I had been with my caravan probably it would not have been attacked; as foreigners, in recent years at any rate, have very rarely been subject to attack in Szechwan, and that my

caravan was probably taken for that of a Chinese. I do not know what credence to give to this idea.

After gathering up what the bandits had left, the cook and muleteers reported the incident to the magistrate at Mienchuhsien who immediately sent out a posse of two hundred to hunt for the robbers. He also ordered the road-side houses to be razed on the principle that their tenants were responsible to know what sort of characters congregated there, even if they were not actually in league with the band. The magistrate made a complete inventory of all that was left, forwarding one copy to the Commissioner of Foreign Affairs at Chengtu and one to me. He also furnished sufficient funds to feed the mules and men as far as the next magistracy where again money to carry the caravan to the next place on their way to join me was given.

We made an early halt for the night on the day that I met the mules and on going hastily through the boxes I found things in such a state that about two or three entire boxloads had to be thrown away as debris, and the cook and "crew" had to be supplied with an entire new outfit of blankets and bed-skins and extra clothing as they had been left only what was on their backs.

When we reached Kwanhsien in the late afternoon of February 29, we found the city in a state of siege and it was only after considerable difficulty and long waiting that we managed the next morning to get to the China Inland Mission in the suburb for assistance and advice. It was rumored that a band of 1,800 ex-soldiers were threatening the city for its loot. As soon as our observations were finished and we had inspected the irrigation works at Kwanhsien as the best we could under circumstances we hastened on to Chengtu. Arriving there in the mid-afternoon we were forced to wait hours at the city gate. Finally we were allowed to enter and found a hearty welcome from the foreigners residing there, especially from Postal Commissioner Doodha and his staff, the French and British Consul-Generals, and the Faculty of the West China Union University.

All of these were exceedingly helpful in their respective ways. The University folk made me feel entirely at home and on their campus I established my observing station. Mr. Doodha had heard of the attack through Chinese sources and had at once sent word to the post-offices in that region to render me every possible aid in case I turned up in their district and had even on his own initiative sent fifty dollars in notes to the office where I was most likely to apply, so that I might have money to come on with. Mr. Smith, His British Majesty's Consul-General, counselled me regarding

the representations to be made to the Chinese authorities, not with any view of claiming indemnity but of spurring them on to more active measures for the suppression of such bands in the interests of all good citizens, foreigners and Chinese alike. The Commissioner of Foreign Affairs, who by the way had been educated in Berlin and spoke German but not English, promised to take such steps as were possible to capture the culprits and to recover the property, but I felt that the proposition was hopeless and have not been surprised that no result has followed.

Szechwan unfortunately has been in a very disturbed state, even at the Capital itself, for the last year and a half and still is in some respects in several districts. This is due not only to the maraudings of discontented soldiers turned bandits, but also to the conflicting political aims of several military leaders within Szechwan itself and also from Yunnan who have been attempting to gain supremacy in this fairest of the provinces. Meanwhile the people suffer.

It would be very erroneous to infer, however, that there, off the beaten track in China is entirely made up of incidents like those just recorded. While many if not most innkeepers and professional roadmen such as carters, muleteers, etc., are ready to "do" the unwary traveller and to impose on him in every way, still I have found many exceptions to this spirit even among these classes, and from the peasant folk *per se* I have never received any but the kindest and most helpful treatment, being furnished food and shelter and guidance (for raiment I always preferred to rely on my own "stock"—for obvious reasons) not only on reasonable terms but often with most positive refusal to accept any compensation. Off the beaten track especially the native hospitality is most hearty and sincere, tinged only with an element of curiosity concerning the ways and things of the foreigner, which is only natural under the circumstances.

My first real experience with this element of curiosity was on the west coast of the Island of Hainan. When observing near Hiongpo, I had erected as is usual for magnetic work a small tent to shield my instruments from the sun. A great crowd gathered to watch and it proved utterly impossible to keep them from pressing as close to the tent on all sides as they could. Careful inspection showed that none carried any iron articles or implements and the only trouble came from their constant chatter, because during part of the observations I had to listen to the tick of the box chronometer placed some feet away and carry the tick in my head while my eye was at the telescope pointed on the oscillating magnet. The unexpected and strident noises which proceed from a

Chinese crowd do not aid one in such observations! Some idea of the numbers present and of their chief or at least secondary occupation while watching me may be had from the fact that next morning having need to return to the same spot I had no difficulty whatever in locating my station for in the midst of a great field all covered with the refuse of *chewed* sugar-cane there was a bare spot eight feet square that marked where my tent had stood.

For the most part we lived in the regular inns when on the main roads, though when not on a trade route and inns were not available we often spent the night in the open during warm whether and during wet or cold weather sought shelter in some lone hut or cave-dwelling or if in a village applied to some friendly shop-keeper or house-holder for space to spread our cots and cook our meals. While often we had to search for such accommodation this was usually only because anything like a suitable space was hard to find, not that the people were unwilling to aid us. In most cases in fact, where we had to rely on the goodwill of a householder and not on that of a regular innkeeper our entrance necessitated a shift of a considerable part of his household or of his goods, and taking everything into consideration the hospitality afforded us was more than could reasonably be expected.

But in some regions, especially in Northern Shansi and Northern Shensi also, we encountered a peculiar and disagreeable anti-foreign attitude on the part of many innkeepers even in the larger towns. Generally when approaching a town or village in which we intended to stop for the night I would let the cook go on so as to arrive well ahead of us and have time to select and secure a proper place. Several times it happened that even though his patronage had been eagerly solicited by rival inn-keepers and there was evidently no lack of room, and he had definitely engaged his choice, when I appeared and the inn-keepers saw that I was a foreigner, a fact which the cook had been careful not to reveal, we were flatly refused admittance and often had the outer doors locked against us with an utter refusal to treat with us at all. In such cases we would seek out the Christian Chapel if there were one and hope for better treatment at the hands of the caretaker or if a mission chapel were not available which was more often the case, we would seek the assistance of the highest official in the town or of the headman in a village. But even under official pressure it was difficult to gain an entrance to an inn in some of the towns of northern Shansi and Shensi and sometimes it was 10 p.m. before we secured a resting place though our caravan had

arrived hours before. On the other hand in some places we were readily accommodated even on arriving late in the night.

One difficulty encountered frequently throughout Shensi and Szechwan during the winter of 1915 and the Spring of 1916 was the prevalence of large numbers of soldiers not only along the main routes but often also in out of the way places. Since they were not in camps, but were quartered on the villages and towns inn-space and even house or shop-space available for us was difficult to find and under such circumstances we secured accommodation only by applying to the officer in command who always did what he could for us, even moving a small company of soldiers to make room for us, but as a rule the individuals so dislodged were not over friendly. The ranks of the Chinese army as a rule are not composed of the very best material.

The Outlook.

Doubtless there will be within a reasonably short period tremendous development of railways in China and they in turn will have a tremendous welding effect upon the country. It is necessary that within her borders there should be developed well equipped technical schools in which the Chinese may be taught the arts and sciences necessary for the construction and maintenance of railways and other works.

There is hardly space to refer in detail to the development of the postal system or telegraph lines in China, except to point out the tremendous success with which the postal system has been developed in that full-fledged post offices with the various departments are in operation all over the country and at lower rates than in Europe and America.

Telegraph lines connect all provincial capitals with Peking and this system is being extended. It is not thoroughly understood as yet by all the people just how these things work and I am reminded of two instances which have come under my own observation to illustrate this.

An old man in Shantung hearing of the function of the line of wire that ran across his fields declared that men who could devise such a method for the transmission of intelligence could do anything; whereupon one of his neighbours remarked that he did not think much of it, for he himself had sat for two weeks watching that line very closely and had not yet seen anything go by.

The other instance was of Hunan carrying coolies tossing their worn out straw sandals on the telegraph lines to secure for themselves a fleetness of foot equal to the speed of the electric message.

The telegraph and the postal system have already, in combination with the development of the public press in China, done a great deal toward unifying the people and may confidently be counted on for a much larger effect in the future and this combined with more adequate railway facilities will surely foster a greater feeling of nationhood and of closeness of relationship between the various provinces.

We have seen something of the various physical problems which China faces. It is significant that the greatest physical feat of the ancient Chinese, the Great Wall, which was executed to shut out foreign intruders, has been broken down in all essential respects, and China is to-day fairly ready for foreign assistance in solving her problems, if it be friendly and not predatory.

The solution of China's physical problems largely depends on education; the education of the people to furnish the background of general enlightenment and the education of the native leaders upon whom must rest the responsibility for carrying out in detail such plans as may be formed for the alleviation of the conditions I have referred to. In order to determine just what remedial methods should be followed, there should be first a thorough study of present conditions by the best consulting engineers and scientists who can be secured. There is at the present time, it seems to me, a most important function for foreign experts to fill in connection with the development of China, and their work is a necessary preliminary and hence it is all important that China seek and use the assistance of such men, although it is also true that her need for such assistance will be temporary, and the application of the remedies, which they in their wisdom suggest after a study of the field, will still depend upon native talent.

The new national flag of China embodies, I believe, some significant lessons in the present connection. The sewing together of five stripes of silk to form one flag is easy, but to make a united nation of five peoples so widely separated, linguistically and geographically, in a country so greatly accidented by mountains, and so harassed by flood and famine, and so lacking the ways of quick transport and general modern education which must precede the development of resources and of ways of communication, requiring native captains of industry and native leaders of all sorts—a very much greater task. It is just here that one of the functions of our mission colleges in China comes in—to train these leaders *in situ*, without loss of connection with China; for they need to know China as well as Western science and institutions and methods. They need to be qualified and

unselfish, then the five points of the compas assumed by the Chinese may be rightly adopted—for the north, east, south and west will then all be centered around the common pole of service to China, and from the provinces to Peking and from Peking to the most distant provinces, the people will be united in an efficient, peaceful and helpful state, at least within the boundaries left them by their at present more powerful and predatory neighbours.

. . . .

China is destined to become one of the foremost producing nations of the world, a vast market, a huge stabilising, peaceful power if allowed to develop her great wealth in her own way. The problem of China is a world problem, culturally as well as commercially.

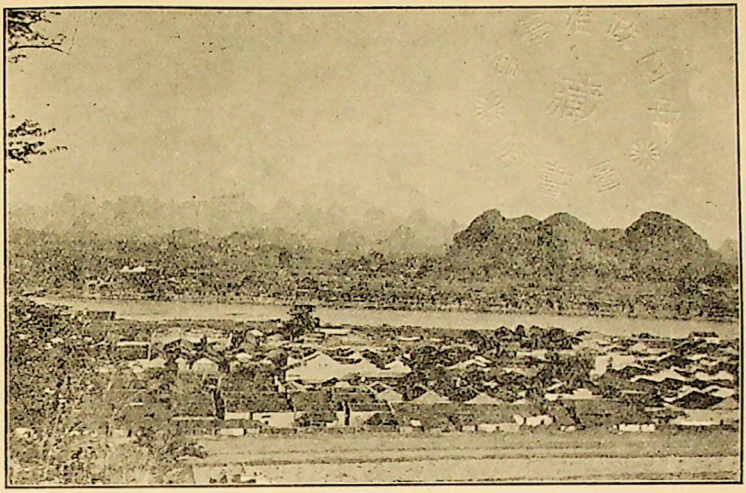
The issue in the Orient is sharply drawn: Independent national development for China, and continued progress of the other free Asiatic states; or the subjection of China, and the endangering of all free nationality in Asia.

The loss of free nationality in Asia would probably be a calamity to mankind. However justly the occidental may pride himself on his mastery of the art of living, however truly he may rejoice in his achievement throughout the whole reach of life, a sane modesty, taught him by his own science, should keep him from regarding Western peoples as the whole race of man, or from looking with scorn upon entire divisions of the race, whom his training has not fitted him to appreciate.

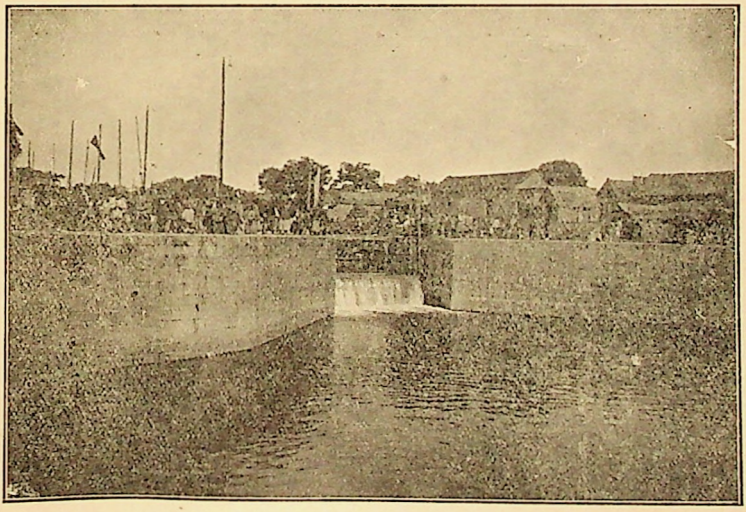
A proper reverence for humanity will not allow him to exalt his own position at the expense of the entire East, or to attempt crudely to force upon a whole continent external domination or those forms of civilization which are the product in some part of himself.

From the higher level of human development, expansion and domination we may well feel that the world is destined to profit greatly by events in the Far East if they result in restoring to humanity the whole Continent of Asia, free to join in making the history of the next hundred years, free to be itself and to supplement, with all of good there is manifest or dormant in it, the strength and goodness of the West.

The shortest road to a partial success in this endeavour to preserve free nationality in Asia is the development of China's material resources, which will not only enrich China and the world, but will help to arouse the people from their age-long sleep; and it may be that military development consequent upon this awakening will serve to maintain the nation's independence.



KUEI LIN, CASSIA RIVER.



A LOCK IN THE GRAND CANAL.

But China's independence should concern her friends in the West chiefly because such independence is essential to something far more important: true freedom for the Chinese people.

The dormant powers now awakening in this race and promising such a future for it in the commercial and political affairs of the world demand imperatively that there be set in motion, side by side with this material transformation, forces far more subtle that shall bring about a true renaissance of the nation by influencing profoundly the intellect and the soul of the race. Only so can the Chinese people be speedily restored to the modern world.

CHINESE METAPHORICAL ZOOLOGY

C. A. S. WILLIAMS.

"Man, by nature, is never satisfied,
Like a snake swallowing an elephant;
In Life, when all is said and done,
The praying-mantis pounces upon the cicada."
(人心不足蛇吞象。世事到頭螳捕蟬)
From a poem by Lo Hung-hsien (羅鴻先).

Figurative description has been reduced to a fine art by the Chinese, and owing to the almost total absence of abstract nouns in their language, they have borrowed largely from nature in order to give point to their written and spoken ideas.

Animals and birds, both natural and mythical, are perhaps more frequently utilised for this purpose than any other objects of nature, and the different characteristics of the denizens of the zoological kingdom have provided apposite similies for almost every phase of the human emotions.

The dragon (龍), according to the Chinese, has the head of a camel, the horns of a deer, eyes of a rabbit, ears of a cow, neck of a snake, belly of a frog, scales of a carp, claws of a hawk, and palm of a tiger. It is the type *par excellence* for the highest qualities of man, was emblematic of the Emperor, and represents masculine beauty and boldness in general.

The phoenix (鳳凰) occupies an exalted place in the national estimation, and is a fabulous bird of good omen, said to resemble a wild swan before and a unicorn behind; it has the throat of a swallow, the bill of a cock, the neck of a snake, the tail of a fish, the forehead of a crane, the crown of a mandarin drake, the stripes of a dragon, and the vaulted back of a tortoise. The feathers have five colours, which are named after the five cardinal virtues,[1] and it is

[1] Charity (*i.e.* natural goodness of heart), duty to one's neighbour, propriety, wisdom, and truth (仁義禮智信).

five cubits in height; the tail is graduated like Pandean pipes, and its song resembles the music of that instrument, having five modulations. It is generally adopted as a simile for feminine beauty and purity.

The dragon and the phoenix together are often symbolical of the husband and wife.

The unicorn (麒麟), is a mythical creature which brings good fortune, and holds an important place in the thoughts of the Chinese. It is recorded to have the body of a deer, the tail of an ox, the scales of a fish, and one horn covered with flesh (denoting that though anxious for peace it is ready for war). It is typical of general excellence, and is often metaphorically applied to a filial son, or a distinguished man.

The Chinese regard the tiger as the king of beasts, and this animal, together with the fox, monkey, deer, tortoise, crane, eagle, and parrot, are the possessors of many mythical attributes, such as power to change their shape, etc. The tiger typifies ferocity, the fox witchcraft and trickery, the monkey cunning, the deer, crane, and tortoise longevity, the eagle boldness, and the parrot wisdom.

When a man is said to be *anxiously hoping for the unicorn's appearance* (麟趾念切), it is evident to the Chinese mind that he wishes to be blest with a son of his own, to carry on the line and worship him after death. Should this *son sent by the unicorn* (麒麟送子) turn out to be a credit to his father, and become a great man, he will be called *a crane among the chickens* (鶴立雞羣), or, as we should say, "a Triton among the minnows"; should he prove to be a better man than his father, he is styled *the calf of a brindled ox* (犁牛之子), or *a colt which passes beyond the hoof-marks of its sire* (跨竈之兒), and it is then his duty to be *a son who controls his father's weevil-like depredations* (幹蠱之子), and make up for his shortcomings by virtuous conduct. Since even *a lamb kneels to take its mother's milk* (羊羔跪乳), so should a son be filial. If the father is advanced in years at the time of his son's birth, he is said to be *an old oyster producing a pearl* (老蚌生珠), and if this precious child carries out his filial obligations, his constant care will be to ensure that his aged parents will live to see *as many springs as the tortoise and the crane* (龜鶴同春); as the tortoise, according to Chinese records, lives to be 1,000, and the crane to be 500 years old, the son will have his work cut out to accomplish this happy result. The death or departure of a brother is signified by the figurative *breaking of a column in a flight of wild geese* (雁行折翼).

A beautiful girl is often said to cause *the fish to dive and the geese to settle*—from envy at her fairness (沉魚落雁), while if she is the proud possessor of *a head like a cicada and moth-like eyebrows* (蟭首蛾眉), together with a *wasp-like waist and the lissom back of a gibbon* (蜂腰猿背), she is considered fully up to the standard necessary to take a prize in a beauty show. It would not, however, be fully in accordance with the Book of Etiquette to compare a strictly virtuous lady to a pheasant, as this bird is apt to fly rather wild! A young man fascinated by a charming woman is certainly in the position of *a moth caught by the lamp* (撲燈蛾子). Of a woman, who is trying in vain to get married, it would be remarked that she was *seeking for a male phoenix without success* (求凰未就). A widow is described as *a mateless goose flying alone* (孤雁單飛.) To have only one wife is generally advised—though the Chinese are polygamous—on the principle that *one saddle is sufficient for each horse* (一馬一鞍).

Birds in their little nests should agree, but unfortunately they occasionally fall out! Family characteristics vary, or, as the Chinese express it, *the dragon has nine kinds of offspring* (一龍九種),[2] and the members of a human family cannot always be said to resemble *the badgers of one mound*

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[2] According to the *Ch'ien Ch'üeh Lei Shu* (潛確類書), by *Ch'én Jên-hsi* (陳仁錫), the dragon has nine kinds of offspring, which are not regular dragons, and each has its peculiarities. They are respectively :—

(1) The *P'u-lao* (蒲牢), carved on the tops of bells and gongs, in token of its habit of crying out loudly when attacked by its arch-enemy the whale;

(2) The *Ch'iu-niu* (囚牛), carved on the screws of fiddles, owing to its taste for music;

(3) The *Pi-hsi* (蚩吻), carved on the top of stone tablets, since it was fond of literature;

(4) The *Pa-hsia* (霸下), carved at the bottom of stone monuments, as it was able to support heavy weights;

(5) The *Ch'ao-fêng* (嘲風), carved on the eaves of temples, owing to its liking for danger;

(6) The *Ch'ih-wên* (鴟吻), carved on the beams of bridges, because of its fondness for water, and also placed on the roofs of buildings as a charm to keep off fire. Sometimes symbolised by the figure of a fish with uplifted tail;

(7) The *Suan-ni* (狻猊), carved on Buddha's throne, on account of its partiality for resting;

(8) The *Yai-tzû* (睚眦), carved on sword-hilts, in memory of its lust for slaughter;

(9) The *Pi-han* (狴犴), carved on prison gates, as it was addicted to litigation and quarrelling.

A slightly different collection of these nine monsters is given in the *Shêng An Wai Chi* (升庵外集).

(一丘之貉) in the similarity of their natures. When the good wife is inclined to indulge in a little hen-pecking, or when *the hen crows at dawn*—instead of the cock—(牝雞司晨), the peace of the family is apt to be somewhat disturbed, and the downtrodden husband may be driven to extremities, like *the dog in danger, which jumps over the wall* (狗急跳墻), and may possibly take refuge in companionship with bad characters, forming one among *a parcel of foxes and a company of dogs* (狐羣狗黨), with *many teeth and claws* (爪牙甚多)—a decided case of going to the dogs! His better half will no doubt eventually think better of it, and, for fear of pining away like *the mandarin duck in the absence of her beloved drake* (拆散鴛鴦), it is more than likely that the plaintive and bird-like tones of her voice—*her oriole notes and swallow-like twitterings* (鶯啼燕語)—may result in a reconciliation, and *the male and female phoenix will sing in harmony* (鸞凰和鳴), and the wedded pair will *agree like the fish with the water* (魚水和諧), and—perhaps—live happily ever afterwards.

The government officials have frequently been a butt for Chinese sarcasm. Thus a cruel and oppressive official will be called *a fierce beast of the hills* (山中猛獸), or a person *with a human face but a bestial nature* (人面獸心), *preying on his district as on fish and flesh* (魚肉地方). An avaricious official is often called a *wolf stopping the road* (豺狼當道), a man with *a wolf's head and dog's lungs* (狼心犬肺) or accused of *gulping like a wolf and swallowing like a tiger* (狼吞虎咽). When very much occupied with official business, it is said that *affairs are as numerous as the prickles of a hedgehog* (事如蝟集). In speaking of an honest and illustrious official, he is said to have *the gall of a dragon and the marrow of a phoenix* (龍肝鳳髓), *i.e.* rare ability, or to have *spread his wings like the great Roc* (大鵬展翅)[3] and risen to a high and honourable position. When a virtuous official is unjustly discharged, the ingratitude of the government will be denounced in the words *the fish is caught but the fish-trap is forgotten* (得魚忘筌), *when the bird is killed the bow is discarded* (鳥盡弓藏), or *when the hare is caught the dog goes into the cooking-pot* (兎死狗烹).

The *literati*, or student classes, have always been highly respected in China, and many fables are extant which illustrate the ultimate rise of the plodding scholar to a high official position. A determined student is said to possess *the merit of the fire-flies and the snow* (螢雪之功)—a reference to the

[3] The *P'êng*, or Rukh, is a fabulous bird of enormous size, capable of flying 10,000 *li* at a stretch.

story of *Chü Yin* (車胤) of the *Chin* Dynasty, who studied at night by the light of a bag full of fire-flies, as he could not afford a lamp, and *Sun K'ang* (孫康), who worked by light reflected from snow. They both naturally rose to be eminent officials, and provided a stimulating example for subsequent generations! A great scholar is compared to *a rising dragon and a soaring phoenix* (騰蛟起鳳), and a literary hack will humbly designate himself as one who spends his time *engraving worms with little skill* (雕虫小技), though the actual fact may be that *his pen moves like the dragon and the snake* (筆走龍蛇), and his literary efforts are exceedingly brilliant. A literary style full of delicate allusions and recondite obscurities is compared to *a dragon-fly sipping water* (蜻蜓點水), while a book-worm or pedantic scholar may be said to *love learning as a duck loves duck-weed* (鳧藻之士). The student who is successful in passing a literary examination is referred to as *the fish which has leapt the Dragon Gate* (魚跳龍門)—an allusion to the belief that the carp of the Yellow River make an ascent of the stream in the third moon of each year, and that those which succeed in passing the rapids of *Lung-mên* (龍門) in *Honan*, become changed into dragons.

As might be expected, ferocious creatures such as the tiger, leopard, bear, etc., are generally emblematic of great courage. One who is credited with *a leopard's head and tiger's eyes* (豹頭虎眼), *a tiger's back and bear's loins* (虎背熊腰), or *the gall of a soaring eagle* (鷹揚之胆) is valiant beyond compare, while he who *moves like a dragon and paces like a tiger* (龍行虎步) has a brave and martial bearing.

The poor and needy are decidedly in the majority in China. In a lecture on "Chinese Customs," delivered at the request of the Senate of University College, Liverpool, Mr. E. H. Parker stated that "90 per cent. of the Chinese families live on annual gross incomes of less than £10 in cash and in produce combined. Most of the peasants, living as they do upon the produce of their own labour, probably turn over less than £2 a year in actual cash!" It is no exaggeration to compare a poor man to *a fish out of water* (如魚失水), and, while he may be so fortunate as to be suddenly enriched by an unexpected windfall, such as, figuratively speaking, *a fat pig wriggling in at the door* (肥猪嫻門), there is no doubt that, most men being greedy, *like a snake swallowing an elephant* (如蛇吞象), he would regard the succulent porker as his rightful squeeze, especially in view of its being as helpless as *a sheep fallen into a tiger's mouth* (羊落虎口).

Bad characters abound in this world, just as *a number of mosquitoes make a noise like thunder* (聚蚊成雷), and revolution breaks out in China like *wasps rising in a swarm* (蜂擁而起). Evil men become *banded together for evil purposes like the wolf and the Pei* (狽狼爲奸)—the latter being a legendary animal with short forelegs and long hind ones, supposed to ride on the back of the wolf, which, conversely, has long forelegs and short hind ones, so that each profits by the advantages of the other. These kind of villains are sometimes in league with the police, which is indeed a case of *the cat and rat sleeping together* (猫鼠同眠). They lay themselves out to deceive, and will even go so far as *to palm off fishes' eyes as pearls* (魚目混珠), or *to call a deer a horse* (指鹿爲馬), if such curious proceedings could further their wicked and malignant designs; this last metaphor is derived from the story of *Chao Kao* (趙高), a notorious eunuch of the *Ch'in* dynasty, who presented the Emperor *Erh Shih Huang Ti* (二世皇帝)—of the 3rd century B.C. —with a stag, saying that it was a horse. Those among the surrounding courtiers who were bold enough to contradict the great man, and insist that it was a stag, were marked down by *Chao* for destruction as his enemies. If a man is too cunning, however, his friends desert him, for *no fish can be found in clear water* (水清無魚). Specious and crafty individuals *with the head of a snake and the eyes of a rat* (蛇頭鼠眼), speaking fair words with the benevolent *mouth of a Buddha, but having a serpentine nature* (佛口蛇心), full of trickery and deception, *with the head and brain of a monkey* (猴頭猴腦), should be *regarded with as much aversion as snakes and scorpions* (視若蛇蠍), while the unsettled and unreliable vagabond, *with an ape-like disposition and thoughts as restless as galloping steeds* (心猿意馬), or those happy-go-lucky rolling stones *floating about in an aimless manner like a duck on the water* (泛若水鳧) —a mixed metaphor, taking us rather out of our depth— should always be avoided under any circumstances, as they never come to any good. The only way to deal with all such persons is to make examples of them as rogues and vagabonds, and thereby *kill a chicken to warn an ape* (殺雞嚇猴); a general feeling of security will then ensue, and *the fowls and dogs will not be alarmed in the villages and hamlets* (雞犬不驚).

The ways of the world are as tortuous as the guts of a sheep (世路羊腸), and in making acquaintances due caution should be observed; *friends of foxy and canine natures* (狐朋狗友) should be given a wide berth, as they are merely *wine and flesh friends* (酒肉朋友), who only show cupboard

love, and are mere sycophants who cleave to one only as long as the money lasts, like *ants which settle on the mutton fat* (羣蟻附羶); entertaining them is equivalent to *letting a tiger into the house* (縱虎入室), and *rearing the brute to be a source of trouble* (養虎爲患), or, as we should say, "nourishing a viper in the bosom." It is easy to mistake a rogue for an honest man, or *to take a wolf for a dog* (認狼爲犬), yet many a harum-scarum fellow is but a *wild horse without a bridle* (野馬無繮), and repentance in time, or *holding in the horse at the brink of the precipice* (懸崖勒馬) may have good results, since from being a menace to society, like *the horse which is a danger to the herd* (害羣之馬) he may be brought to see the error of his ways; no longer behaving in a mischievous manner *like a devil or a water kelpie* (如鬼如蜮),[4] he will regulate his behaviour, and take thought for the morrow, like the *clever hare with three holes to its burrow* (狡兔三窟) and leave a good reputation after his death, so that instead of eliciting crocodile tears as when *the cat mourns for the rat* (猫哭耗子), general sorrow will be shown, in the same way as *the fox grieves when the hare dies* (兔死狐悲), out of fellow-feeling.

The pusilanimous person, who can never make up his mind about anything, like *the rat with his head looking first one way and then the other* (鼠首兩端), *with a gall as small as a rat's* (胆小如鼠), or *a rat's stomach and chicken's entrails* (鼠肚雞腸), going about in a hang-dog manner *with the appearance of a dove and the face of a heron* (鳩形鵠面), will always be at the mercy of the unscrupulous, like *a sheep in a pack of wolves* (羊入狼羣). He who lives an honest and sober life, neither careless in his work, never *making, as it were an incomplete sketch of a tiger* (畫虎不成), *drawing a tiger like a dog* (畫虎類犬) nor *adding feet to a snake* (畫蛇添足), but insisting on perfection and *demanding a horse in exact accordance with the picture* (按圖索驥), always aiming at accuracy, and *never missing the heron in the centre of the target* (不失正鵠), will be a success in life, whereas the devil-may-care person walking into any kind of danger, such as *treading on a tiger's tail* (若蹈虎尾), *or peering into its mouth* (如探虎口), venturing unabashed into such fearsome spots as *the dragon's pool and the tiger's den* (龍潭虎穴), should learn to restrict himself to his proper sphere, taking a lesson from *the dragon which never leaves its pool* (龍不離潭),

[4] The *Yü* (蜮), or water-kelpie, is a mythical creature, which is supposed to spirt sand from its mouth on a person's shadow, causing him either to sicken or to die. From the *Shih Shuo* (世說).

and *the tiger which remains in its den* (虎不離穴). By tempting providence *like rushing against a horse's head* (衝撞馬頭), in the long run there is no possible doubt whatever that he will find himself in serious difficulties, like *a sheep caught in a bamboo fence* (羊撞籬笆), or a person *seated between a bullock's horns* (坐在犄角), or, like the lady of Riga, in the unpleasant *position of riding a tiger* (騎虎之勢).

By keeping a clear conscience, one may be free of imaginary fears, such as were conjured up by *the snake in the cup and the tiger in the market* (杯蛇市虎)—a reference to a man, who, seeing the reflection of a bow in a cup of wine, imagined he was about to swallow a snake, and of another who was afraid there was a tiger in the market—or imagining that *every sound of the wind and screech of the passing cranes was an enemy* (風聲鶴唳), or being the victim of illusions like the *Kiangsu buffaloes which pant at the moon* (吳牛喘月)—in mistake for the hot sun—or resembling *the Szechuan dogs which bark in fear at the unexpected appearance of the sun* (蜀犬吠日).

There are many people of limited intelligence in this world, like *the frog in the well* (井裏蝦蟆), which *sits looking at the sky* (坐井觀天). Their ideas are as restricted as *the view of a weevil in a hollow bamboo* (管蠡之見), and so narrow-minded *that they would look at a leopard through a tube* (管中窺豹) and thus only perceive one spot at a time. They are certainly never likely to set the Yangtze on fire, nor to catch *the three-legged toad* (三脚蝦蟆), which only exists in the moon.

A very talkative person is compared to a roaring *lion with open jaws* (開口獅子), and while he holds the floor there will certainly be dead silence, and *no sound of sparrows or crows* (雀鴉無聲), yet he is better than the speechless dummy, who has not acquired the art of conversation, and merely *resembles a wooden chicken in appearance* (形同木雞). However if he makes indirect insinuations and *curses a dog while pointing at a chicken* (指雞罵狗), no doubt he will not find ready listeners on a second occasion, for they will be like *the bird which fears the bow* (驚弓之鳥), or "once bit twice shy"; they will choose their associates with better care in future as *good birds choose their branches to roost upon* (良禽擇木), and flee away from the scene as if *transformed into yellow cranes* (化爲黃鶴).

When *the heavenly dog eats up the sun* (天狗食日), resulting in a total eclipse of that luminary, one would hardly suppose that any amount of gong-beating would force him to disgorge this somewhat indigestible *piéce de resis-*

tance, even *in the year of the donkey and the month of the horse* (驢年馬月), or, as we should express it, "when pigs begin to fly." When the weather is rainy, *the flying dragons* are said to be *in the sky* (飛龍在天), and, under similar meteorological conditions, *the nine dragons are playing in the water* (九龍戲水). When *the earth-ox shifts his burden* (*the earth*) *to the other shoulder* (地牛轉肩), what could be a more natural result than an earthquake? This bovine Atlas was referred to in the Chinese press at the time of the Amoy earthquake.

It will now be evident that the Chinese are certainly adepts in the application of the law of association of ideas, and when they *see the saddle they think of the horse* (見鞍思馬); even a nondescript article is immediately classified as being *neither donkey nor horse* (非驢非馬), or, in our parlance, "neither flesh, fowl, nor good red herring."

The earliest fable on record in Chinese history is probably that of the oyster and the bird known as the oyster-catcher. The politician *Su Tai* (蘇代), of the 3rd century B.C., was once advising the ruler of the State of *Chao* (趙) to cease his hostilities with the State of *Yen* (燕). He said, "this morning I was crossing the River *I* (易) when I saw an oyster open its shell to sun itself. Immediately an oyster-catcher thrust in its bill to eat the oyster, but the latter closed its shell and held the bird fast. 'If it does not rain to-day or to-morrow,' said the oyster-catcher, 'there will be a dead oyster,' and 'if you don't get out of this by to-day or to-morrow,' retorted the oyster, 'there will be a dead oyster-catcher.' In the meantime up came a fisherman and carried off both of them. I fear lest the State of *Ch'in* (秦) should be our fisherman."[5] Hence references to *the quarrelling of the oyster and the oyster-catcher* (鷸蚌之爭) are frequently made in the newspapers, implying that while internal dissensions are rife in the country, it is possible that outsiders may take the opportunity to walk in and seize any available profits or advantages. The saying *do not slaughter the ploughing ox* (勿宰耕牛) and thereby destroy the livelihood of the people, might also be applied at the present time. The government of China may be compared to a whirlpool, since the more it changes, the more it is the same thing, but it is to be hoped that all administrative difficulties will eventually be solved, and *the phœnix will roost upon the wu-t'ung tree* (鳳棲梧桐), and happiness and concord will replace disorder and distress.

[5] From the *Chan Kuo Ts'ê* (戰國策).

THE EARLY MALAYS AND THEIR NEIGHBOURS*

A Brief Survey of Primitive Cultural Influences Affecting the Filipinos.

(With an Incidental Review of the Philippine Academy's Work).

CHARLES SUMNER LOBINGIER, D.C.L., PH.D.,

CHANCELLOR OF THE ACADEMY 1909-1914;
NOW CHANCELLOR EMERITUS.

The Philippine Academy was organized in 1909 and incorporated under the laws of the archipelago in 1910 for

> "the promotion of advanced research in subjects pertaining to Filipinology, to effect a union of scholars and investigators interested therein, to aid in the establishment of a complete and consolidated Library of 'Filipiniana,' to encourage the preparation and publication of scientific treatises thereon, to provide uniform standards and devise improved methods in conducting such investigations and to co-operate with scientific organizations elsewhere." [1]

From the first it was fortunate in attracting to its ranks the leading investigators along the lines mentioned and their work, now representing an accumulation of more than a decade (for as individuals many of them had been working before the Academy was formed), affords a valuable nucleus of material relating to the ethnology and history of the Philippines. This is especially true of the Pre-Spanish period, for there the Philippine Academicians were among the pioneers.

Beginning with the contributions of Dr. N. M. Saleeby[2] on the history and culture of the Moros of the south, a

*Read before the Society.

[1] Extract from the Articles of Incorporation.

[2] Studies in Moro History, Law and Religion (Manila, 1905); The History of Sulu (1905) Origin of the Malayan Filipinos, Philippine Academy Publications, Vol. I, No. 1 (1912).

collection of monographs has gradually appeared which constitutes almost the first scientific attempt to penetrate the mystery that shrouds the origin of the present inhabitants of the Philippines and their cultural sources.

Malay Origins.

Among the most recent of these publications, though relating to the earliest period, are those[3] compiled by the ingenious Professor of History in the University of the Philippines,—Austin Craig—who is also known for his painstaking and authoritative life of Rizal,[4] and other works. His pamphlet on "Malays" is largely extracted from a work[5] by General Forlong which deals with the origin of the Malay race and its primitive religious ideas. Like Dr. Saleeby,[6] General Forlong believes that the Malays originated on the Asiatic mainland (the latter holding that they entered India from the north) and long remained under the influence of Indian civilization. This general theory finds abundant philological evidence in its favor and in addition to that mentioned by General Forlong much more might be cited from the Philippine languages.

The pioneer in this interesting field appears to have been Dr. Kern, Professor of Sanscrit in the University of Leyden, who, in 1881, published the results of his observations on the presence of Sanscrit words in Bisaya and Tagalog. As regards the latter, Dr. T. H. Pardo de Tavera, a member of the Philippine Academy, took up the same line of investigation a few years later.[7] The presence of Sanscrit words in other Philippine languages was noticed by still another and charter member of the Academy and recently chosen as its Chancellor—Dr. David P. Barrows.[8] But it was reserved for Dr. Saleeby to carry this fascinating investigation to the farthest extent yet reached. Selecting as his particular subject the Magindanaw language of the south Philippines

[3] The Pre-Spanish Philippines, by Austin Craig, (Manila, 1914); Particulars of the Philippines' Pre-Spanish Past, by the same author, (Manila, 1916); Malays, by the same author, (Manila, 1916).

[4] Manila (Philippine Education Company), 1913.

[5] Short Studies in the Science of Comparative Religions.

[6] Origin of the Malayan Filipinos, Academy Publications I, 1, 37.

[7] See his monographs *El Sanscrito en la lengua tagalog.* (Paris, 1887, 55 pp.); *Consideraciones sobre el origen del nombre de los numeros en tagalog* (Manila, 1889, 26 pp.).

[8] History of the Philippines, 92, 93. Dr. Barrows also found "a few Sanskrit or Indian words" in the Ilongot language of North Luzon. See his "Ilongot or Ibilaw," Popular Science monthly, (December, 1910) LXXVII, 537.

he has not only collected an extensive vocabulary[9] of common words therein, which are cognate with Sanscrit, but he marshals other evidence in support of his conclusion that Malay speech in general "is an Indian tongue closely allied to, or originally derived from Sanscrit—the language of Vedic worship and Vedic days." [10] And he sums up the results of his researches in the following inquiry:

> "What conclusion can we then at present draw, other than that the ancient home of these peoples and the birth place of their forefathers was in the land where the Vedic gods were worshipped and an Indian language was spoken, which land can be no other country than that extensive continent of India—the cradle of the Malay race." [11]

Moreover, the term "Malay" itself, instead of being derived, as General Forlong seems to think, from the Indian *mala* (hill), is more probably connected with the Tagalog *malayo* (far) with its allusion to the long wanderings of the race which General Forlong emphasizes.

> "They have" he says[12] "thronged East Africa above 1,000 years, and have even a colony at the Cape of Good Hope. They traded everywhere throughout Madagascar—their Malagasa,[13]—and the Mala-dvipas or Maldives. They colonized 500 miles of the West Coast of India, still known as Mala-bar; the great islands of Sumatra and adjoining mainland known as the Malaka Peninsula, extending over some 700 miles; all the large island kingdoms of Java, Celebes and their dependencies and the eponymous extensive Molucca group."

Contact with the Negritos.

When the Malays entered the archipelago now known as the Philippines[14] they found there an aboriginal race, dark skinned, of short stature and curly hair, resembling, and probably akin to, the Papuans of New Guinea, the aboriginal Semang of the Malay peninsula,[15] the Mincopies of the Andaman Islands[16] and perhaps to the blacks of Australia.

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[9] Origin of the Malayan Filipinos, Academy Publications, I, 22-35.

[10] Id. 37.

[11] Id. See also the "comparison of the Korean language with that of Dravidian peoples of southern India" in Hulbert's Passing of Korea, Chapter II.

[12] Malays, 2.

[13] The similarity between Tagalog and Malagassy was the subject of a monograph by Renward Brandsteller, entitled "*Tagalen und Madagassen*" (Luzern, 1902).

[14] This name was not applied until long after Spanish occupation when it was given in honor of the reigning monarch Felipe II. Magellan, who discovered the group on San Lazaro's day, named it after that saint.

[15] Barrows, The Negrito and Allied Types in the Philippines, American Anthropologist, (N. S.) XII, 375, citing Skeat and Blagden's Pagan Races of the Malay Peninsula.

[16] Reed, Negritos of Zambales (Philippine Ethnological Survey Publications, Vol. II, pt. I) 13 *et seq.*

Long afterward this race received from the Spaniards the name of Negritos (little blacks).[17] Once numerous and distributed throughout the islands[18] they are now confined to a few provinces while their number is very small[19] and believed to be rapidly diminishing. Yet it is long since active warfare between them and the Malay intruder has decimated the former's ranks. Their present decline seems rather due to a prolonged process of amalgamation, largely at their expense, with the incoming race. Dr. Barrows long since expressed his conviction that

> "Much has been made of the 'Indonesian' theory and far too much of Pre-Spanish Chinese influence, but the result to the physical types found in the Philippines of the constant absorption of the Negrito race into the Malayan, and the wide prevalence of Negrito blood in all classes of islanders, has been generally overlooked. . . .
>
> "I shall not attempt here" he adds "to estimate the proportion of Negrito blood in the Christian peoples of the Philippines—Bisaya, Bikol, Tagalog, Ilokano, etc.,—further than to express my conviction that in certain regions it is very large and has greatly modified the primitive Malayan type." [20]

This mixture of blood has produced in certain parts of the Philippines, groups which, though not pure Negritos, resemble them to a degree more or less considerable according to the amount of Malay infusion. The Bataks[21] of Palawan are practically Negritos[22] while the Tagbanuas[23] of the same island are predominantly Malayan with a Negrito strain.[24]

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[17] They are known among the other natives by various names, as Baluga, Aeta, Dumagat. Id. 18.

[18] Meyer, Distribution of Negritos (1899), 4.

[19] Dr. H. Otley Beyer in his recent work on the "Population of the Philippine Islands in 1916" estimates (p. 22) the Negritos at about 36,000 or less than ½ of 1% of the total population.

[20] The Negrito and Allied Types in the Philippines, American Anthropologist (N. S.) XII, 358, 364.

[21] On this small but interesting group see Venturello, Manners and Customs of the Palawan Tribes, Smithsonian Miscellaneous Collections, Vol. 48, pt. 4; Miller, The Bataks of Palawan, Philippine Ethnological Survey Publications, Vol. II, pt. II.

[22] Reed, Negritos of Zambales, 22; Barrows, The Negrito in the Philippines, 363.

[23] See Venturello (M. H.) Manners and Customs of the Tagbanuas and other Palawan Tribes, Smithsonian Miscellaneous Collections, Vol. 48, pt. 4. Judge Norberto Romualdez, a member of the Philippine Academy, has written a monograph on the "Tagbanwa Alphabet" which, he says, "bears such similarity to the ancient Filipino writing, that no room for doubt exists of its community of origin with the latter." He adds in a note:

> "The Mangyans of Mindoro also still use their own alphabet, which is substantially the same as the Tagbanwa. The Mangyan characters, however, are more angular, probably due to the material in which they write, chiefly bamboo."

[24] Barrows, The Negrito in the Philippines, 363; Reed, Negritos of Zambales, 22.

Dr. Barrows has also made some valuable anthropological researches among that most interesting group the Igorot[25] mountaineers of North Luzon who, he believes, constitute

"an old, thoroughly fused mixture of the aboriginal Negritos, who still survive in a few spots of the cordillera, and an

[25] An extensive literature relative to this group has now appeared, including :

GENERAL.

Meyer (Hans) *Die Igorroten* (in Appendix to "Eine Weltreise," 2nd ed., Leipzig und Wien, 1890).

Perez (Angel) *Igorrotes : estudio geografico y etnografico sobre algunos distritos del norte de Luzon* (Manila, 1902).

Worcester (Dean C.) The Non-Christian Tribes of Northern Luzon; reprinted from Philippine Journal of Science, Vol. I, (Manila, 1906).

Beyer (H. Otley) Origin Myths among the Mountain Peoples of the Philippines; reprinted from the Philippine Journal of Science, VIII, sec. D. (Manila, 1913).

IFUGAO.

Villaverde (Juan Fernandez) The Ifugaos of Qiangan and Vicinity. (Written in Spanish many years ago but translated by Dean C. Worcester and published in 1909 and reprinted from Philippine Journal of Science, Vol. IV).

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Wilcox (Cornelis D.) The Headhunters of Northern Luzon from Ifugao to Kalinga (Kansas City, 1912).

intrusive, Malayan race, who, by preference or by press of foes behind them, scaled the high mountains and on their bleak and cold summits and canyon slopes laboriously built themselves rock-walled fields and homes, in which they have long been acclimated. The culture of the Igorot," he adds, "has been greatly modified and advanced by the rigors of his habitat, but it is Malayan at base, as are the languages which he speaks." [26]

The Negrito infusion seems to have advanced even farther in the case of another interesting tribe of the same general region—the Ilongots or Ibilaos. Dr. Barrows has pursued his investigations among these as well and has given us the benefit thereof in two suggestive monographs.[27]

"In these peoples we have, I am quite sure," he says, "a mixture of primitive Malayan and Negrito, with more Negrito than in the case of the Igorot. Stature, curly hair, short head, and broad, flat nose—these are all negritic characters, as is also the hairiness of the face and body. In fact there can be no doubt of the presence of Negrito blood in the Ilongot, for the process of assimilation can be seen going on. The Negrito of a comparatively pure type is a neighbor of the Ilongot on both the south and the north. Usually they are at enmity, but this does not, and certainly has not in the past, prevented commingling. The culture of the Ilongot is intermediate, or a composite of Malayan and Negrito elements. He uses the bow and arrow of the Negrito and the spear of the Malayan as well. There are few things in the ethnography of the Ilongot that seem unusual and for which the culture of neither Malay nor Negrito does not provide an explanation." [28]

Here then we have revealed before our eyes what is probably the closing chapter in the silent though pregnant process, now centuries old, of blending two distinct and even hostile races and eliminating the weaker through absorption by the stronger. Truly this is a rare opportunity for the

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[26] The Negrito and Allied Types, American Anthropologist (N. S.) XII, 372.

[27] The Ilongot or Ibilaw of Luzon, Popular Science Monthly, LXXVII, 36 (1910); The Negrito in the Philippines, American Anthropoligist (N. S.) XII, 358 *et seq.* (1910).

Besides these contributions of Dr. Barrows the following have been written on the Ilongots:

Blumentritt (Ferdinand) *Gaddanen, Ilongoten Ibilaos und Negritos* (Wien, 1884).

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Campa (Buenventura) *Una Visita a los Rancherias de Ilongotes, El Correo Sino-Annamita,* Vol. 25, pp. 561-646 (Manila, 1891).

Scheerer (Otto) On a Quinary Notation Among the Ilongots; reprinted from the Philippine Journal of Science (Manila, 1911).

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[28] American Anthropologist (N. S.) XII, 375.

anthropologist and the historian and one which throws a flood of light upon the entire life and development of the Filipino people.

Northward Migration.

The less familiar, but (in its results) more important, migration of the Malays northward is developed by Professor Craig in his two other pamphlets, especially the first.[29] The strong Malay influence in Formosa is noted and, what is more interesting, the extension of the Malayan wave to Japan. To quote from one of his authorities: [30]

> "The Japanese people are a mixture of several distinct stocks. Negrito, Mongolian, Palasiatic and Caucasian features more or less blended, sometimes nearly isolated, are met with everywhere. The Negrito is the least prevalent. Prof. Baelz, who has drawn attention to this type along with the Malayan physiognomy, found it comparatively more pronounced in Kyushu (island of which Nagasaki is the port), where a Malayan immigration is believed to have taken place."

Apparently this author confuses Negrito with Malay but any one familiar with certain racial types in southern Japan and their resemblance to Filipinos may well believe that a "Malayan immigration" reached there. An author[31] not referred to in the pamphlet says:

> "The first immigrants landed in Izumo (southwest coast of Hondo) having come by way of Korea from the central plateau of Siberia. The second, who arrived long after the first, came (to Hiuga on the east coast of Kiyushu) from a more southern part of the continent by way of Formosa, whence with the help of the Kuro Siwo (Japan current) they could easily reach Japan. Some authorities have endeavoured to show that these immigrants were of Malay origin, and have found marked similarities in both the physical and mental characteristics of the modern Malays and Japanese to support their theories. While, however, they undoubtedly acquired a strong Malay element in their southern wanderings the fact that, when the two colonies at last met, their languages and customs were so similar that no difficulty was experienced in the amalgamation of the two, shows(?) that the origin of the preponderating elements of the second must be found in the same race as that of the first."

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[29] The Pre-Spanish Philippines.

[30] Munro, Prehistoric Japan. The "Caucasian features" mentioned in this excerpt refer to the Ainu who once "occupied the greater part of the main island of Japan and probably overflowed into Shikoku and Kyushu" but later "retreated before this new invasion" from the south (much as did the Negritos before the Malay invasion of the Philippines) "until at the beginning of the nineteenth century they were practically confined to Yezo (where, 'years ago' it was 'estimated that only 17,000 of them remained') and the islands farther north." Starr, (Frederick), The Ainu of Japan, Asia, XIX, 381-387.

[31] Longford, The Story of Old Japan (1910) 5, 6.

But it does not seem to have occurred to this author that the "immigrants . . . from the central plateau of Siberia" might also have been Malays, at least in part, nor that "physical and mental characteristics" which are so apparent to the observer of Malays and southern Japanese could hardly have been acquired from mere wanderings among the former.

But the northward movement of the Malays appears not to have stopped even in Japan. To quote further:

> "Oppert was the first to note that in Korea are two types of faces, the one distinctly Monogolian, and the other lacking many of the Monogolian features and tending rather to the Malay type." [32]

Following the Malay migration the same author says:

> "From the Malay Peninsula we may imagine them spreading in various directions. Some went north along the coast, others into the Philippine Islands, then to Formosa, where Mr. Davidson, the best authority, declares that the Malay type prevails. The powerful Black Current, the Gulf Stream of the Pacific, naturally swept northward those who were shipwrecked. The Liu-Kiu Islands were occupied, and the last wave of this great dispersion broke on the southern shore of Japan and Korea, leaving there the nucleus of those peoples who resemble each other so that if dressed alike they cannot be distinguished as Japanese or Korean even by an expert. The small amount of work that has been so far done indicates a striking resemblance between these southern Koreans and the natives of Formosa, and the careful comparison of Korean language with that of Dravidian peoples of southern India reveals such a remarkable similarity, phonetic, stymologic and synthetic, that one is forced to recognize in it something more than mere coincidence."

Thus the diffusion of Malays appears to have skirted practically the entire inhabited coasts of Asia and to have left a trail stretching from South Africa to Korea.

Of the cultural influences affecting this widely scattered race the Indian, as has been mentioned, was the first and most powerful. But in spreading northward the Malays naturally encountered the civilization which was then dominant in eastern Asia—the Chinese.

Chinese Influence.

Professor Craig shows how, as early as the third century of our era, Chinese writers mention what we know as the Philippines, grouping them with Formosa, and his chronological leaflet,[33] issued separately from the other pamphlets, indicates that there has hardly been a century since in which reference to the Philippines fails to appear in some Chinese work.

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[32] Hulbert, The Passing of Korea, Chapter II.

[33] Pre-Spanish Philippine Chronology.

Meanwhile communication between the two countries appears to have continued, persistently even, if intermittently, until checked by unwise and ill-adapted immigration restrictions; and one begins to understand from the antiquity of this contact how it is that the Chinese people and their civilization have come to exert such an extensive and permanent, though withal unobtrusive, influence upon the Philippines. The motive of this contact seems to have been primarily commercial. The "New History of the T'ang Dynasty," dealing with the period from the seventh to the tenth centuries of our era, states that:

> "When Chinese merchants arrive there, they are entertained as guests in a public building and the eatables and drinkables are abundant and clean." [34]

This takes as a matter of course the presence of Chinese merchants in the Philippines and points to long established custom. Incidentally it affords an early instance of the proverbial Malay hospitality. A later work describes in greater detail the manner in which this trade was conducted, relating how the traders,

> "live on board ship before venturing to go on shore, their ship being moored in midstream, announcing their presence to the natives by beating drums. Upon this the savage traders race for the ship in small boats, carrying cotton, yellow wax, native cloth, cocoanut-heart mats, which they offer for barter. If the price (of goods they may wish to purchase) cannot be agreed upon, the chief of the (local) traders (買家) must go in person, in order to come to an understanding, which being reached the natives are offered presents of silk umbrellas, porcelain, and rattan baskets; but the foreigners still retain on board one or two (natives) as hostages. After that they go on shore to traffic, which being ended they return the hostages. A ship will not remain at anchor longer than three or four days, after which it proceeds to another place; for the savage settlements along the coast of San-su are not connected by a common jurisdiction." [35]

One need not wonder, after tracing this phase of the subject, that the retail trade of the Philippines remains to-day in the hands of Chinese merchants.

But these old writers whose work is here made accessible have something more to record than commerce. Social customs, religious beliefs and practices and even juridical

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[34] Particulars of the Philippines' Pre-Spanish Past, 10.

[35] The Pre-Spanish Philippines, 4, reproducing extracts from the work of Chao Ju-kua on the Chinese and Arab Trade (in the 12th and 13th centuries). See a translation of part of this work in Blair and Robertson's Philippine Islands, XXXIV, 183-191. The book was also translated and Annotated by Friedrich Hirth and W. W. Rockhill, (St. Petersburg, Printing Office of the Imperial Academy of Sciences, Vass. Ostr., Ninth Line, 12, 1911). Mr. Rockhill's last appearance before the Royal Asiatic Society was to deliver an address on the theme of that work.

conceptions find a place in their narratives. Thus the historian of the T'ang Dynasty above quoted informs us that these primitive inhabitants of the Philippines

> "have no corporal punishments, all transgressions being penalized with fines in gold which vary according to the nature of the offence. Only robbers and thieves are made to suffer death." [36]

It is the agreement of all this with what we know from other sources that stamps the descriptions as accurate and genuine and it is just here that the work of Dr. Robertson connects with that of Professor Craig. Formerly Chancellor of the Philippine Academy and Insular Librarian the former is too well known to need extended mention here. As co-editor of the most voluminous publication[37] yet issued relating to the archipelago, and as an explorer in other departments[38] of Far Eastern history his place in that field is amply secure. His latest work[39] appears to be a contribution to a comprehensive treatise[40] covering the Far East and much more. Dr. Robertson's portion is devoted to "the social structure of, and ideas of law among, early Philippine peoples" and embodies the text and translation of "a recently discovered Pre-Hispanic criminal code of the Philippine Islands" which, he says "is really the excuse for this paper" and "forms part of a manuscript written during the years 1837 and 1838 by a Spanish friar, José Maria Pavon, who was stationed for some years in the town of Himamaylan in the province of Occidental Negros." [41]

Like Professor Craig, Dr. Robertson recognizes the results of "contact with the Chinese, with whom they had carried on an intermittent trade for centuries",[42] and like Dr. Saleeby and General Forlong he sees also the possibilities of "contact with the peoples of Asia to the West of China".[43] Of Chinese influence the monograph contains not a few in-

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[36] Particulars of the Philippines' Pre-Spanish Past, 10.

[37] Blair and Robertson, The Philippine Islands, 1493-1898 (Cleveland, 1903-1909) 55 vols.

[38] Magellan's Journey around the World, (Cleveland, 1906); Bibliography of Early Spanish-Japanese Relations, Transactions, Asiatic Society of Japan, Vol. XLIII, Pt. I (1915).

[39] Early Philippine Law and Custom (1917).

[40] The Pacific Ocean in History, (The MacMillan Company, 1917) Edited by H. Morse Stevens and Herbert E. Bolton.

[41] P. 160. The author adds: "It was sent to the Philippine Library at Manila by Mr. José E. Marco, whose zeal and enthusiasm in the preservation of historical materials relating to the Philippine Islands is most commendable, and alas, only too rare."

[42] Id. 161. [43] Id.

stances. Thus, referring to the translator of the primitive code,

> "Pavon says that those of the early Bisaya who knew how to write and possessed documents were those who overtopped their fellows by their might and ability, and who were *generally of Chinese* ancestry; the priests; the rowers; and the chief men." [44]

As in China "the political structure (among these primitive Malays) rested on the family as a unit".[45] The very first "order" or article of the code in question thus provides for enforcing that peculiarly Chinese virtue—veneration for age:

> "Ye shall not kill; neither shall ye steal; neither shall ye do hurt to the aged: lest ye incur the danger of death. All those who infringe this (order shall be condemned) to death by being drowned with stones in the river, or in boiling water." [46]

Again more specifically in the seventh "order" death is prescribed for one "who shoots arrows at night at old men and women".[47] As in China, moreover, a peculiar sanctity attaches to burial places. Thus the fourth "order" enjoins:

> "Observe and obey ye: let no one disturb the quiet of graves. When passing by the caves and trees where they are, give respect to them." [48]

This code then is a most interesting document and leads up to various topics of archaic and comparative jurisprudence, like *tabu*, the ordeal and primitive marriage.

The last named has been treated elsewhere by the present writer[49] but it will hardly be irrelevant to point out here that while the early Malays had not passed out of the stage of marriage by purchase[50] and while as viewed by the Chinese writers the former lacked one familiar factor—the matchmaker[51]—in other respects their marital customs dis-

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[44] Id. 188. [45] Id. 164. [46] Id. 186. [47] Id. 187.

[48] Id. 186. Dr. Robertson adds in a note:

> "Burial in caves, at least for the chief men, was common among the early Bisaya, a fact that is well attested by the many burial caves that have been, and are being, discovered. In some of these caves well preserved coffins and bones have been found. Quite recently, Mr. Luther Parker, of the Bureau of Education of the Philippines, found a number of skulls and other bones in several of these caves, and he has written a very illuminating paper concerning them, which it is hoped will be published."

[49] See his "Primitive Malay Marriage Law" American Anthropologist, XII, 250-256

[50] Id. p. 250.

[51] "It is not the custom to use go-between, or match-makers, in contracting a marriage. Some gold is paid to the relations of the girl and then she is married." Particulars of the Philippines' Pre-Spanish Past, 10.

close a resemblance to those of China. Thus, as stated by Dr. Robertson: [52]

> "Among most Philippine peoples, the union was decided on between the parents of the contracting couple. It might even be arranged between the parents before the birth of the children, its consummation being dependent upon the right accident of birth, the payment of a dowry by the man or his parents, and, in many instances, on the fertility of the woman."

Dr. Saleeby likewise notices the work of Chao Ju-kua[53] and the early contact between Chinese and Malays[54] though like Dr. Barrows[55] he ascribes to it less importance than to other influences. But Dr. Robertson appears to be, though perhaps unconsciously, in substantial agreement with Professor Craig as to the extent of Chinese influence on the Malays.

The date assigned by Pavon to the manuscript which he discovered and translated is 1433 and while as our author says, he "gives no clue as to his method of fixing this date",[56] it would appear to be at least that early.[57]

Arab Influence.

The materials collected by these two—Professor Craig and Dr. Robertson—furnish us glimpses of the relations between Chinese and Malays down to the time when the latter first came under the influence of the Arab missionaries of Islam. At this point the notable and illuminating work[58] of Dr. Saleeby commences; for while this was the first to appear, it covers the latest period of Pre-Spanish Philippine history.

Dr. Saleeby is of the opinion that the Malays left the Asiatic mainland at least as early as 1000 B.C. As the first Mohammedans did not enter India much if any before A.D. 600 they could hardly have influenced the Malays there. The Moslem conquest of India began in 1024 and Moslem influence was extended to Malaysia about 1300. Leaving the mainland the emissaries of Islam seem to have proceeded first to Sumatra and thence to the other islands of the Malay archipelago whose inhabitants are now so largely of their faith. They entered the Philippines by two routes, the first

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[52] An Old Philippine Criminal Code, 170.
[53] Origin of the Malayan Filipinos, Philippine Academy Publications, I, 5.
[54] Id. 9.
[55] American Anthropologist (N. S.) XII, 358.
[56] An Old Philippine Criminal Code, 191, note.
[57] Id. 161.
[58] See note 2, *supra*.

via Balabac and Palawan to Manila Bay and the second by way of Tawi-Tawi and Sulu to Magindanaw (now Cottabato). They appear to have reached Sulu before 1380 and when the Spaniards arrived at the Pasig river, less than two centuries later, they found a Mohammedan prince—Rajah Soliman—reigning in Tondo, now a part of Manila, and Islam quite extensively established there. To the Spaniards who had just succeeded in expelling the Moors from their home peninsula it seemed a religious duty to repeat the process as regards these coreligionists in the Philippines to whom they applied the same term—"*Moros.*" The process was completed in the northern and central Philippines where, except in the mountain regions of Luzon, most of the inhabitants came under the influence of the Spanish Friar Missionaries. But the Malays of the southern Philippines have remained Mohammedan to this day. And the new influence which thus affected them came directly and not indirectly from Arabia. Abu Bekr who introduced Islam into Sulu was a real Arab and so late as 1911 when I visited the Lake Lanao region of central Mindanao the military commandant there (Colonel Beecham) told me that the leading Moro of that locality was a man from Mecca. On the other hand among the Moros of to-day are not a few "*hadjis*" who proudly wear the green turban in token of a pilgrimage to the Holy Land of Islam.

Among the most interesting monuments of this long domination of Islam in the southern Philippines are the series of legal compilations, often called codes, which Dr. Saleeby discovered and translated.[59] A detailed examination of them would lead us too far afield and besides would require a separate monograph for adequate treatment. Suffice it here to say that they constitute a curious blending of Moslem law with Malay custom and that, while crude and unsystematic in arrangement, they contain some rather advanced provisions. They were mainly intended for the Moro *panditas* (judges) who were unfamiliar with Arabic and therefore unable to read the real Mohammedan law books. But they have introduced not a little of the law of Islam which the American government in the Philippines has recognized by authorizing the Moro Provincial Council "to modify the substantive civil and criminal law . . . to suit local conditions among the Moros," etc., "to conform . . . to the local customs and usages."[60]

[59] Studies in Moro History, Law and Religion, Philippine Ethnological Survey Publications, IV, pt. I (1905).

[60] Compilation, Acts of the Philippine Commission p. 251.

Here then we have a concrete and striking example of an external influence which has profoundly affected Malayan culture in two vital features—religion and law—just as it had been previously affected by Indian influence as regards language and Chinese influence respecting commerce and social customs. Thus we discover that the external influences which affected successively the Malayan Filipino were the three most potential civilizations of Asia—the Indian, the Chinese and the Arabic. And operating concomitantly with these was an internal influence which, if less obtrusive, was even more effective and real—the local contact and amalgamation with the Negrito.

These profoundly interesting generalizations we owe largely to the members of the Philippine Academy, an organization whose achievements deserve a wider recognition than has yet been accorded them. And surely a society like this which bears the name of "Asiatic" should be interested in a group of colaborers which has contributed so much to scientific knowledge of a nearby, yet hitherto little known, corner of Asia. I plead for a closer acquaintance between these two bodies—a more intimate knowledge of each other's work—a plan of co-operation as to future undertakings. For if there is one outstanding lesson to be drawn from a study of the Malay race it is the unity and continuity of history in the Far East and the solidarity of its culture. For it shows that the native races of this region are not isolated units, having no relation to each other, but sharers in a common civilization whose influence has been age long and far reaching. Surely, therefore, none of the laborers in such a common, though extensive, field can afford to be ignorant of, or isolated from, their fellows.

NOTES ON THE AGRICULTURE, BOTANY AND THE ZOOLOGY OF CHINA.

B. W. SKVORTZOW.

I.—Dye-plants and Dye-stuffs of Manchuria.[1]

Manchuria is a country extremely rich in agricultural products. It is not only famous for its cereals, but also in technical plants, especially the soja beans, flax and dye plants. At the present time the production of beans increases with each year, as also does the sowing and export from the country of materials for weaving. With regard to dye plants each year sees a decrease in the production of this economic product. Its decline arises from the appearance in the market of the cheaper and more abundant foreign aniline dyes. It is disappearing in spite of the fact that formerly Manchuria was celebrated for its production of a blue dye, closely resembling the true indigo (*Indigofera tinctoria* L.). This cultivation of dye plants in Manchuria has followed the fate of all similar productions when the cheap chemically manufactured article appeared on the market. The same took place in the West of Europe, where the cultivation of madder (*Rubia tinctoria* L.), a former very important commercial industry has also died out. The decline in the industry of organic dye is to be observed now in China, where in ancient times one madder was cultivated for red dye and another—*Isatis tinctoria* L. for its blue, a third for saffron (*Carthamus tinctoria* L.) red, and finally, in South China the true indigo, from which is got the best blue dye.

One cannot depict too vividly the unfortunate effect which the war in Europe, which has already been raging for several years, has had on the dye industry in North China, where, before the war, the culture of dye plants fell off largely in some places and in others owing to the great import of cheap aniline dyes completely disappeared. Now when

[1] See "*The dye plants in Manchuria*," by B. W. Skvortzow (in the Mag. "*Rural Economy in North Manchuria*," No. 7-8, 1918, Harbin).

the chemical dyes have increased in price and have ceased to come from foreign countries a change has been observed. Besides, during the last three years the sowing of dye plants has been revived in Manchuria and in China but it is uncertain how long this will last. In like manner the disappearing in the Far East of the Chinese dye stuffs industry again becomes of interest to the local trade. In Manchuria in the present time only the dye knot-weed is of industrial use, the other kinds are not much known on the markets. Certainly amongst the dye-plants we found some not worthy of attention, but others are of much interest and must be specially studied. The following is the list of these plants:—

1.—*Dye knot-weed.* (*Polygonum tinctorium Lour.*)—蓼藍 (Liao-lan). It is an annual plant with a straight branchy stalk, two feet in height. The leaves are dark green, cordiform and of a whole piece. Flowers, being small and of red colour, are collected in wrists on the end of the stalks. The plant is cut down to make dye when the flowers present a violet shade. It is cultivated in great quantities by Chinese to make the blue dye. They detain this dye after the fermenting of the leaves. The dye of the dye knot-weed resembles true indigo very much, which grows only in tropical regions and in South China. It has ovalshaped leaves, with reddish flowers.

2.—*Rose-mallow or holly-hock* (*Althaea rosea Cav.*)—蜀葵 (Shu-k'uei), 戎葵 (Jung-k'uei). It is a biennial or perennial plant with branchy root, and a straight stalk from 1 to 2 meters in height. Leaves are alternant, stalkly, roundish cordiform and wrinkled. Flowers are 5 to 7½ cm. in diameter and of rose colour. It is cultivated in Kirin and Fengtien provinces, where the Chinese make rose dye of the flower leaves.

3.—*Saffron* (*Carthamus tinctorius L.*)—紅藍花 (Hung-lan-hua), 紅花 (Hung-hua), 黃藍 (Huang-lan), 藥花 (Yao-hua). It is an annual plant with prickly, ovalshaped leaves and large yellow flowers. This plant is rarely cultivated in South Manchuria to make a red dye.

4.—*Commelina* (*Commelina communis L.*) An annual plant with a straight, juicy, green stalk and small sharp leaves. Flowers somewhat small, clear-blue. *Commelina* is not often cultivated by Chinese, Coreans, in the Far East for the sky-blue-dye.

5.—*Spiked-millet* (*Setaria italica Beauv.*)—粱 (Liang), 穀子 (Ku-tzu), 小米 (Hsiao-mi). It is the common annual graminaceous plant cultivated in China. Spiked-millet is used also by Chinese to prepare a dye. The dried, yellowish straw of *Setaria* must be burnt, the ashes are boiled in water

and in such a solution the linen is dyed to a grey colour. Such dye is not lasting and is employed mostly in villages for its cheapness.

6.—*Dahurian larch-tree.* (*Larix dahurica Turcz*). This is a compact high tree originally growing in the mountainous districts of the Far East generally. From the rose-red bark of this tree the natives of the Amur river basin prepare a dirty rose dye.

7. *Acer or maple-tree.* (*Acer Ginnala Maxim*). It is grown in all parts of the country mostly in the vicinity of little mountain rivers. It is a shrub which grows to the height of 5 or 6 meters, with a light-brown bark full of wrinkles, trilobate dark green leaves. It is employed by the Chinese to make a black dye.

8.—*Buck-thorn* (*Rhamnus globosus Bunge and R. dahurica Pall*).—鼠李 (Shu-li), 牛李 (Niu-li), 山李 (Shan-li). These two shrubs or trees are found on all mountainous districts in the Far East. The leaves of these plants, when dried become a bluish or rather dark blue tint and from them the Chinese get a special green dye, resembling true indigo.

9.—*Alder-tree* (*Alnus fruticosa Rupr*). This is a large shrub or tree with ovalshaped leaves. From the dark bark of this alder the natives of the Amur river prepare a brown dye.

10.—*Sunflower* (*Helianthus annuus L.*)—向日葵 (Hsiang-jih-k'uei), 朝日葵. It is extensively cultivated through out the Far East and a variety of the plant with black seeds is used by Chinese to dye the cloth a black-grey colour. By boiling the seeds in water a black liquid is got and the cloth is dyed.

11.—*Berberry* (*Berberis amurensis Rupr. and B. sinensis Desp.*) The Chinese and the Amur berberry are very common in Manchuria and Russian Far East. The bark of these shrubs contains an alkaloid-berberin which is employed by the local Chinese to make a yellow dye.

12.—*Velvet or velvet-tree* (*Phellodendron Amurense Rupr.*)—檗木 (Po-mu), 黃檗 (Huang-po). It is a common tree in all parts of the Far East with a velvety soft bark and a yellow-liber. The Russian the Chinese and the natives employ this liber to dye linen and silk in a yellowish brown colour by boiling the liber and the cloth together.

13.—*Bud marigold.* (*Bidens tripartita L.*)—狼把草, An annual plant with trilobate leaves and big yellowish flowers. It grows in all parts of the district in marshy places. The local Chinese get a black dye from this plant.

14.—*White birch.* (*Betula platyphylla Suc.*)— 樺木 樺木. A very common tree in mountains of the Far East.

Many years ago the bark of this birch was used by Chinese to dye the mustache and hair, but now they have lost this art.

15.—*Manchurian nut-tree* (*Juglans mandshurica Maxim*). The nuts of this tree common in the country are used by Chinese to prepare a black dye, when they are not perfectly ripe.

16.—*Sumach* (*Rhus semialata Murr*)—鹽 麸 子 (Yen-fu-tzu), 腐 木 (Fu-mu), 麸 楊 (Fu-yang). It is found on the frontiers of Manchuria and Corea. On the shrub a certain insect produces the "nut galls" which are used to dye the cloth a black colour and to make many kinds of inks.

17.—*Balsam.* (*Impatiens Balsamina L.*)— 凤 仙 染 指 甲 草. This is the common garden plant in China. The flowers of balsam in combination with alum are employed by the Chinese to prepare a finger-nail dye which is used by women in the villages.

18.—*Oak-tree.* (*Qercus sp.*)— 櫟 Li. The bark of several kinds of oaks with sulphate of iron is used by Chinese in South Manchuria to dye silk in yellow and black colours.

II.—On the Fossil Animals of North Manchuria.

The geological investigations made by E. Anert[2] in Manchuria are the most serious and scientific of all the works on this question. In Anert's book and other geological articles nothing is indicated about the paleontological findings.

Generally at the present time many persons have an impression, that in North Manchuria there are no fossils. True, they are very rare, but they exist. Here mostly are met the ammonites of the Jurassic period in the dolomitic aggregates. The North Manchuria ammonites are small and have been seen in a stone-pit near the railway station Inmienpo and on mountain-rocks round the Maoershan station. Here the Jurassical fossils are not so richly represented as in the case of extremely crystallized limestone. Not far from Harbin at the beginning of the Ch'eng-kuan-ts'ai-ling mountains, at the railway station, Erh-cheng-chiang-tze, there is a hill composed of devonian limestone, which is extremely rich in fossil shells (*Spirifer moskowensis*).

The paleontological findings of the tertiary time in Manchuria are little known. So, the unique vertebra of mammoth (*Elephas primigenius*) was found at Harbin in the sand of the Sungari valley, but it is probable, that the bone

[2] Anert, E. *The Travels in Manchuria.* S. Petersburg, 1907.

was brought to this place by the river from the North, the Nonni river and Hingan mountains. At the present time on the West of North Manchuria there are discovered some tertiary and post-tertiary remains. In the Chalanor coal-mines, which are of the post-tertiary period the horns and bones of the primitive oxen (*Bos primigenius*) and jaw-bone teeth and skulls of rhinoceros (*Rhinoceros tichorhinus*) are often found. It is very remarkable also to find at the source of the Nonni river a whole cemetery of rhinoceros, which calls for attention and careful study.

Some fossils collected in North Manchuria are now at Harbin in the "Mountain" department of the Chinese East Railway Administration, in the museum of the Commercial School, in the museum of the Petrograd Mountain Institute, and also in private hands.

It is probable that in the future the remains of rhinoceros and mammoth will also be found in other parts of the Manchuria districts, seeing that already there have been similar discoveries in Japan and in North China.

It is very difficult to get the fossil bones here and to register the findings is almost impossible, since the local Chinese grind the bones of primitive animals to a powder, which is used in native medicine. For this reason we can often see in some Chinese medicine shops in Manchuria the horns of the primitive boxes and these curious goods indicate that here they are not a great rarity.

III.—The Fresh-Water Algae from the Ponds of South China.

The present note represents the results of the investigation of a small collection, kindly gathered for me by Mrs. W. R. Myers in the environs of Foochow, and the material was examined in the Petrograd Academy of Science in 1917. The algae sent were collected in different ponds situated not far from the Chinese and foreign buildings. These were covered with the very small tropical water plants—*Wolffia arrhiza Wimm.* and *Spirodela polyrhiza Schleid, Salvinia natans L., Marsilia quadrifolia L.*

Other samples were gathered on the shore of larger and deeper ponds overgrown with lotus plants (*Nelumbium speciosum* Willd.) *Salvinia natans L.* and water-chestnuts (*Trapa natans L.*).

The basin wholly covered with *Wolffia* was very dirty. Here the most noticeable algae were—*Pandorina morum, Eudorina elegans, Nitzschia stagnorum, Hantzschia amphioxys, Scenedesmus obliquus* and *Crucigenia triangularis*, as well as a number of bacteria and infusoria.

Another picture represents the ponds overgrown with water-chestnuts and lotus. There were discovered a great quantity of the inferior vegetable organisms. Such species as—*Achnanthes lanceolata, A. hungarica, Navicula cuspidata, Amphora ovalis, Trachelomonas volvocina, Phacus pyrum, Polyedrium minimum, Dictyosphaerium Ehrenbergianum*, were more often observed, than—*Scenedesmus bijugatus S. quadricauda, Lepocinclis Bütschii, Phacus caudata, Ph. longicauda, Ph. Myersii*, etc.

The mud of this pond was of a greenish-yellow color for the reason that it contains clay. Here we meet many *Diatomaceae* the list of which is given below.

Several kinds of *Nitzschia*, and the variety of *Surirella ovalis, Navicula cuspidata, Oscillaria princeps, O. tenerrima, Spirulina gomontii* and *Arthrospira jenneri*, which were found in the mire, show the dirty state of the ground.

The systematical composition of algae discovered in the collection was interesting. Altogether there were defined 125 forms. The most remarkable were the various *Euglenaceae* among which has been discovered 6 new forms. The list of all the organisms is as follows:—

Melosira varians Agardh.
M. granulata Ehrenb.
M. islandica O. Müll. subsp. helvetica O. Müll.
Cyclotella comta (Ehrenb.) Kütz.
Flagilaria construens (Ehrenb.) Grunow var. pusilla Grunow.
F. Crotonensis Kitton.
Synedra Ulna var. splendens Kutz.
Eunotia pectinalis Kutz. var. curta V. Heurck.
E. diodon Ehrenb.
E. lunaris Ehrenb.
E. flexuosa Kutz.
Achnanthes lanceolata Breb.
A. hungarica Grunow.
Cocconeis placentula Ehrenb.
Diploneis ovalis Hilze.
Navicula cuspidata Kutz.
N. ambigua Ehrenb.
Pinnularia gentilis Donkin.
P. mesolepta Ehrenb.
Stauroneis anceps Ehrenb.
Gyrosigma acuminatum Kutz. var. curta Grunow.
G. scalproides Roebenh.
Gomphonema gracile (Ehrenb.) Grunow var. pusilla Grunow.
G. parvulum Kutz.
G. lanceolata Ehrenb.
G. augur Ehrenb.
G constrictum Ehrenb var. curta Ehrenb.
Cymbella cuspidata Kutz.
C. tumida Breb.
Amphora ovalis Kutz.
A. perpusilla Grunow.
Rhopalodia ventricosa (Grunow) O. Müll.
Rh. zibberula (Kutz) O. Müll var. producta Grunow.
Rh. giba (Ehrenb) O. Müll.
Nitzschia sigma W. Sm. var. sigmatella Grunow.
N. obtusa W. Sm. var. brevissima Grunow.
N. Palea Kutz.
N. acicularis Kutz f. t.
N. stagnorum Rabenh.
N. acicularis Kutz var. closteroides Grunow.
N. vermicularis (Kutz) hantzsed.
Hantzschia amphioxys (Kutz.) Grun. var. pusilla Dippel.
H. amphioxys (Kutz)Grunow f.t.
Cimotopleura solea Breb.
Surirella ovalis Breb. var. minuta Breb.
S. ovalis var. pinnata (W. S.) V. Heurck.
S. ovalis var. ovata Kutz.
S elegans Ehrenb.
S. linearis W. Sm.

Pandorina morum Bory.
Eudorina elegans Ehrenb.
Dictyosphaerium Ehrenbergianum Naeg.
Trochiscia sporoides (Reinsch) Hansg.
Polyedrium reticulatum Reinsch.
P. trigonum Naeg. f. crassum Reinsch.
P. minimum A. Br.
Rhaphidium fasciculatum kg. var. spirale Turn.
Schroederia setigera (Schroed) Lemm.
Scenedesmus quadricauda(Turp.) Breb.
S. hystrix Lagerh. var. acutiformis (Schroed.) Chod.
S. bigugatus (Turp.) Kg.
S. obliguus (Turp.) Kg.
Crucigenia rectangularis (A. Br.) Schmidle.
C. Tetrapedia (Kirch) W. et G. S. West.
Actinastrum Hantzschii Largerh.
Pediastrum Boryanum (Turp.) Menegh.
P. tricornutum Borge.
P. duplex Meyen.
Ophiocytium capitatum Wollc. var. longispinum(Moeb.)Lemm.
Ulothrix tenuis Kg.
Oedogonium eardiacum (Hass.) Wittr β carbonicum Wittr.
Roya obtusa (Breb.) W. and G. West.
Closterium Venus Kutz.
C. moniliferum (Bory) Ehrenb.
C. gracile Breb.
C. exiguum W. and G. West.
Pleurotaenium Ehrenbergii. (Breb) De Bary.
Cosmarium Hammeri Reinsch.
C. granatum Breb.
C. granatum var. subgranatum Nordst.
C. angulosum Breb. var. concinuum (Rabench) W. and G. West.
C. humile (Gay) Nordst. var. glabrum Gr.
C. punctulatum Breb. var. subpunctulatum (Nordst.) Borg.
C. reniforme (Ralfs) Arch.
Staurastrum muticum Breb.
S. subcruciatum Cooke et Wills.
S. punctulatum Breb.
Oscillaria princeps Nauch.
O. tenerrima Kg.
O. Mougeotii Kg.
Arthrospira jenneri (Hass.) Stit.
Spirulina gomontii Gutw.
Lyngbya contorta Lemm.
Petalonema velutinum (Rabenh.) Migula.
Euglena viridis Ehrenb.
E. sanguinea Ehrenb.
E. acus Ehrenb.
E. acus var. minor Hansg.
Lepocinclis Butschlii Lemm.
Phachs longicauda (Ehrenb.)Duj.
Ph. longicauda var. torta Lemm.
Ph. acuminata Stokes.
Ph. caudata Hubner.
Ph. orbicularis var. undulata Skvortzow.
Ph. pyrum (Ehrenb.) Stein.
Ph. Myersii nov. sp.

Diagnosis — Cellula ovalis 32-34 microns longa, 30 microns lata. Membrana striata et undulata granulis paramilaceus 3, anuliformibus Chlorophoris viridibus, numerosis.

Trachelomonas volvocinaEhrenb.
T. volvocina var. subglobosa Lemm.
T. verrucosa Stokes var. minor Skvortzow.
T. granulata Swir. var. elegans Skvortzow.
T. rotunda Swir.
T. similis Stokes.
T. crebra Kell var. dentata Lemm.
T. fluviatilis Lemm. var. curvata Lemm.
T. fluviatilis var. granulata nov. var.

Diagnosis — Testa hyalina, ovata 57 microns longa, 22 microns lata, parte pasteriore cauda apicalis praedita. Polo flagelli 5, 7 microns lato. Membrana Omni granulis robustis ornata. Chlorophoris viridi bus, numerosis discoideis. Stigmo rubro. (micron = 1/1000 mm.) granulis paramylaceis parvis.

T. Swirenko Skvortzow.
T. volgensis Lemm. var. javanica (Woloszynska) Lemm.
T. volgensis Lemm. var. chinensis nov. var.

Diagnosis—"Testa brunnea, fere globosa, 38-70 microns longa, 21-23 microns lata. Poro flagelli 27.3 microns lato, parte poste-

rior cauda praedita. Cauda 10 microns longa. Membrana granulata. Chlorophoris discoideis, 5-5.5 microns latis, pyrenoidibus nullis. Stigmate rubro. Granulis paramylaceis numerosis, discoideis."
T. Schanislandii Lemm.

T. piscatoris (Fischer) Stokes var. granulata nov. var.

Diagnosis — "Testa abrupta ovali aut subglobosa, 29.7-30 microns longa, 16.2-18 microns lata. Membrana brunnea, regulariter, granulata. Collare recto, 5.7 microns lato. Chlorophoris numerosis, discoideis."
T. ovalis Daday.

T. ovalis Daday var. chinensis nov. var.

Diagnosis — "Testa ovalis, brunnea, 28 microns longa, 16 microns lata. Poro flagelli recto, 5.6 microns latus, valls circumdato. Parte posteriore granula praedita."
T. Silvatica Swir.

T. hispida (Perty) Stein var. rugosus nov. var.

Diagnosis — "Testa ovali, brunnea, 20 microns longa, 16 microns lata. Porus flagelli collare nullus. Membrana aspera. Chlorophoris discoideis."
T. chinensis Skvortzow.

IV.—On the Study of the Manchurian Wheat.

Who does not know that Manchuria is the richest wheat country in China? At the present time in the Northern part of it the culture of this cereal takes more than two millions of acres and the total yield every year comes to 20 millions of piculs. The sowing of wheat yearly increases as well as the export to the Russian Far East. Manchuria grows in commercial importance from year to year.

The local wheat is composed not only of one botanical form, but contains a combination of different kinds and varieties. The botanical composition of the Manchurian wheat is very irregular and the following list will show this:—

Smooth wheat. (*Triticum vulgare Vill*).

1.—*White bearded wheat.* (*T. vulgare var. erythrospermum Keke.*) There are bearded white spikes, with reddish grain, the weight of which is more than the grains of white unbearded wheat.

2.—*White unbearded wheat.* (*T. vulgare var. lutescens Al.*). The form without beards with white spikes and red grains. These grains are better than the grains of the white bearded wheat.

3.—*Red bearded wheat.* (*T. vulgare var. ferrugineum. Al.*). The spikes are bearded, with reddish grains. The second and the third forms are not very different from each other and their grains are of the same quality as the white bearded wheat.

4.—*T. vulgare var. coesium Al.* This variety has gray-blue bearded spikes.

5.—*Red unbearded wheat.* The spikes are red without beards and have reddish grains.

HARD WHEAT. (*Triticum durum Dest*).

6.—*T. durum var. affinae Keke.* It is a bearded form, with white spikes and red grains.

7.—*T. durum var. Herdeiforme Host.* The variety with bearded reddish spikes and white grains.

DWARF WHEAT. (*Triticum compactum Host.*)

8.—*T. compactum var. icterinum Al.* This is the most extensive form among the dwarf varieties of wheats. It has bearded white spikes, red grains, short thick, quadratic stalk, and a very good quality of seed.

9.—*T. compactum var. Wernerianum Keke.* The form with unbearded white spikes and reddish grains.

10.—*T. compactum var. creticum Mazzucato.* The wheat with red unbearded spikes and reddish grains.

11.—*T. compactum var. crinaceum Keke.* The form with red, bearded spikes and reddish grains.

12.—*T. compactum var. atriceps Keke.* The wheat with the black bearded spikes.

The most common forms of all the twelve wheats, indicated just now will be—the white bearded, white unbearded, red bearded, red unbearded and one variety of the dwarf wheat (var. icterinum.) Manchurian wheat preeminently consists of smooth wheat and among the latter the white bearded predominates, which at times amounts to as much as 50% of the grains. In North Manchuria the Chinese distinguish two sorts of wheat, not from a botanical point of view, but rather by weight or proportion of the grains and by the locality of production.

The first is with the oblong, big and heavy grains and this kind is considered to be the best one. The second sort is smaller and has light grains and belongs to the inferior kind. The lightest wheat is from the environs of the Bodune, from the Sungari valley; but as regards the grains growing on the west and north of Harbin it is a still worse quality.

The origin of the Manchurian wheat is very complex. It is formed by means of a mixture of different kinds coming from Middle and North China, European Russia, West Siberia and America. Here these wheats were affected by the local climate and thus formed the Manchurian wheat—remarkable for its rapid maturity.

V.—ON THE BEETLES AND BUTTERFLIES OF THE FAR EAST.

For a long time the insects of Manchuria and Russian Far East have presented a great interest to zoologists, but they have not been fully studied, though much has been

written about them. Several hundred kinds of beetles are known, but most of them are described as being in the Ussuri and Amur provinces. Collections of beetles from these places can be seen in many European museums. It is interesting to note that while on the beetles of the Far East there are more than twenty scientifice articles, on the beetles of Manchuria only three brief remarks exist giving a description of not more than 100 kinds. The beetles of the Far East belong to the paleonarctic districts (Japan, Corea, Manchuria, Ussuri province and North China) and they are composed of elements common to Central America, (as *Callipogon*, *Phellopsis*, *Plectrura*, *Cupes*, *Lavguria*, *Cephalcon*), India (*Ithone*, *Dorysthenes*, *Colasposoma*, *Nodastoma*, *Typerodes*), endemical elements (*Captolabrus*, *Eucyalestes*, *Pseudopidonia*, *Sieversia*) and specially of *paleonartical errasical* species.[3] The fauna of the beetles of the Manchuria district is richly represented, here we meet the beautiful tiger-beetles (*Cicindela*); among the different *Carabus* the Amurian kind—*Captolabrus smargdinus* is remarkable for its brightly metallic green wing-shells and gold front-back. In the mountainous part of Manchuria no less beautiful is a separate variety of this beetle, also of a green colour, but with black spots more strongly marked. To these forms belong the Stark Carabus (*Acaptolabrus Starkii*) and it is interesting to note also the *Carabus elegans* with brightly metallic-green wing-shells with a red rim on the border. Here we meet also various casside—insects pre-eminently living in subtropical parts of the world. They are very pretty insects with transparent wing-shells and in size remind one of lady-birds. Beside the arctic representatives in all parts of the country reside the tropical species and some of them may have the forms of the ancient tetrial nature. From the capricorn-beetles it is not impossible to mention a beautiful kind—*Aromia Sieversi*, with brightly-green wing-shells and red front back. The largest beetle in this district is an enormous capricorn—*Callipogon relictus* from the family of *Cerambycidae* (see fig. 1). Outwardly it resembles the European capricorn or goatchafer-beetles, but he surpasses them by 2-2½ times in size and reaches 8½ cm. in length. His head is well adapted to get food and is decorated by antennae, and the wing-shells are of a dark-brown colour. Besides his size *Callipogon* is also remarkable for his relatives numbering

[3] See the article of Semenow-Tienshansky in the works of the Russian Entomol. Soc. Vol. XXXII, 1899, p. 562-580 (Supplementary information see Russian Entomol. Review II, 1902, p. 321-324 and IV, 1907, p. 220-227.

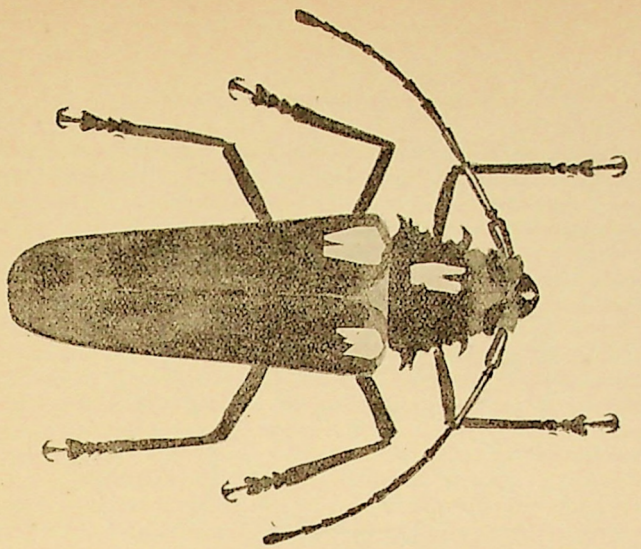

Fig. 1. *Callipogon relictus*

[see page 58]

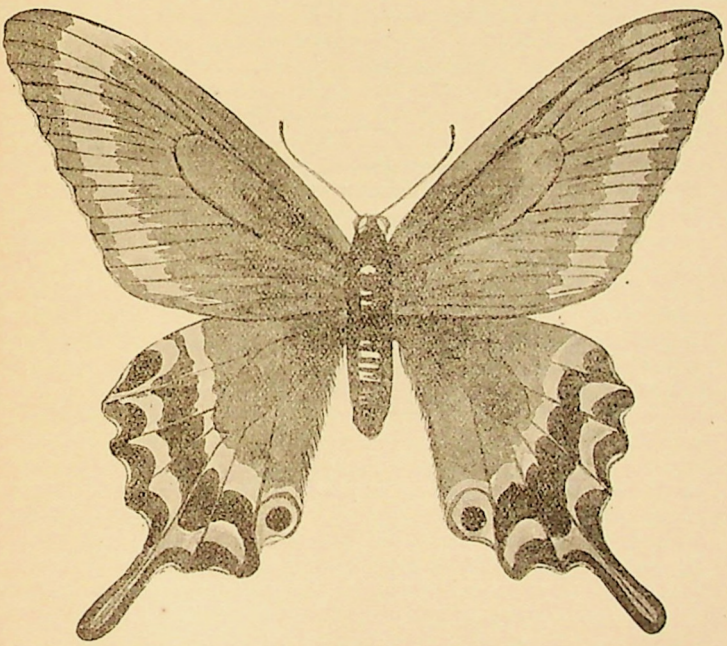

Fig. 2. *Papilio bianor var. Maakii.*

[see page 59]

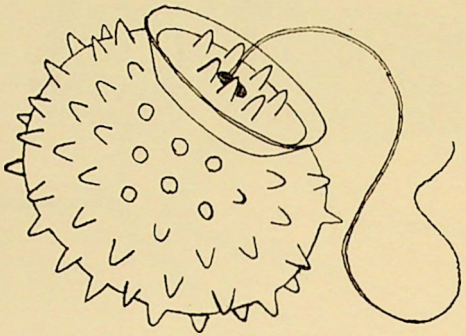

Fig. 1. *Trachelomonas Wislouchii Skvortz.*

[*see page 62*]

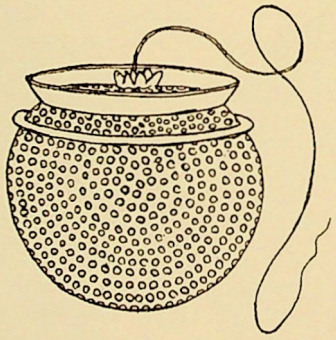

Fig. 2. *Trachelomonas peridiniformis Skvortz.*

[*see page 62*]

3 species and found in Central America. This giant was found first in the Ussuri province near the villages of Petropalovka and Anuchin, then near the station Viazemskaia, and finally in North Manchuria and the railway station Inmienpo. In Manchurian districts this beetle is rare and in Europe only 8-10 specimens are known. It has a great commercial value. Then not less curious are the stag-beetles, ground and water beetles; the least known of them are the small ones.

The butterflies of the Far East have been explored by a number of naturalists and are well known. The collection of these beautiful insects can be seen in Paris, in London, in Petrograd Academy of Science, in the museum in Harbin, Vladivostock, Habarovsk and in many other places. Beside the arctic forms of butterflies, we find in Manchuria some big representatives related to or identical with the kinds of Southern Asia. For the most part these are Japanese, Corean and Chinese forms. One of the biggest but common kind of swallow-tails in that district is the *Papilio bianor var. Maakii* (see fig. 2).

With the open wings it is 12 cm. in width. The wings are blue-black colour with a bluish-greenish reflex, single red eyes and long tails on lower wings. Ordinarily this variety occurs in Corea, Japan, Manchuria, North China and in the maritime provinces. Here are also other and different swallow-tails; the member of the genus *Thecla*, *Lycæna*, is very interesting—*Colias aurora*, for its two forms—white and orange coloured. More than 200 kinds of butterflies are found in Manchuria not counting the moths, which are little known, but which are very numerous. One of the most beautiful kinds of this last tribe is the *Astias mandschurica* of the family *Saturnidae*, with light greenish large wings, and extremely long lower-tails. This remarkable beauty flies at night and is very common in mountain forests. The Manchurian form has some near relatives in Japan, in Spain, and in North America; other kinds of this species occur in Japan, China, India and in the Himalaya mountains. Besides the *Astias* some other kinds have a wonderful distribution. First we must mention—*Erastria distinguenda* of the *Noctuidae* family. It inhabits the Manchurian districts, Japan, Corea and after an enormous interval in space, again appears in North-West Caucasus. *Zethes musculus* has the same distribution. Here we find one form, namely *Brachmaea certhia* of subtropical family *Brahmalidae*. The proximate kinds to this are living in Asia Minor, others in Caucasus and the remaining forms are known in Japan, India and Africa.

It is possible to show many such facts, but it is necessary to be careful since the butterflies of Siberia and border

countries have been little studied but it is probable that the indicated forms would be found there. Certainly a further exploration will show a clearer picture of the origin and composition of these insects.

VI.—Observations on the River Soft Tortoise in North Manchuria.

In the Far East in the Amur basin and other rivers in this district is often seen a particular tortoise—*Amyda Maackii Brandt*. It belongs to the family of soft river tortoises (*Trionychidae*), which is now confined only to the warmer regions of South and East Asia, North America and Africa. During the middle portion of the Tertiary period they were extremely abundant in all parts of Asia and Europe, but at the present time are extinct in Europe and in North Asia. It is specially interesting to find that of the 25 existing kinds of soft tortoises, 15 are in the South and East of Asia, 7 in North America and 6 in Africa. The *Amyda Maackii* resembles the American form—*T. ferox*—and also at times reaches the same size. This tortoise is characterised by having its shells covered with a thin greenish-olive skin and by a long snake-like neck, which together with the head can be completely withdrawn. The young specimens have a back of a light colour and are covered with longitudinal lines of small knobs which disappear when they are full grown. Sometimes this tortoise grows to the weight of 60 pounds in North Manchuria, and once in 1917 such a tortoise was caught at Harbin. The *Amyda* appears at the end of March and in April, lays its eggs on the sandy shore of islands and sand banks, buries its eggs in the sand to a depth of ten inches; when the small tortoises are hatched, they strive to swim from the river into the water courses and ancient beds of rivers covered with stagnent water, where they feel themselves safe, and stay a long time. The tortoises are about 10 to 20 cm. in size and are usualy found in rivers, they are very timid. During the day they are rarely seen on the shore but commonly on the surface of the water especially towards evening and in calm weather: when they hear a noise they put their heads and long necks out of the water. In some places in North Manchuria the Chinese soft tortoise is so abundant that their eggs are eaten and serve as an article in the local Chinese trade. The Chinese adroitly seek their nests by following the tracks of the tortoise. The Chinese do not much use it as food on account of popular superstition. The larger specimens are dangerous; their bite is very severe and the local Chinese are not infrequently

bitten by them whilst bathing in rivers. The *Amyda Maackii* can be seen not only in the Amur and Sungari rivers, but also in the Nonni, Choal and the northern affluents of the Amur. This tortoise is extremely abundant in Northern parts of China and represents a characteristic reptile of East Asia.

VII.—On the Fresh Water Shrimps in Manchuria and China.

China and Manchuria, remarkable for their native fishes, can pride themselves on their fresh water shrimps, which occur in many places of this vast region. At the present time for some reason or another no attention has been paid to these crustaceans, though they are very commonly observed in fresh water: they are known in tropical Africa, Italy, Greenland and in some other places. It appears that in Manchuria there are 5 kinds of these shrimps. One form inhabits the water of the Amur river, while the other two—the one in the Sungari and the other in the Choal (affluents of the Nonni river near the Hingan mountains). The size of the Manchurian shrimp varies from 2 to 6 cm. in length; in the Sungari river one form is very abundant and every Spring the Chinese are engaged in catching them with the aid of a particular large single-sided bag-nets and round hand-nets. The shrimps are used as food and in favourable years the catch amounts to hundreds of pounds, which dried or otherwise provide food for the winter. In the Sungari the shrimps are numerous from Spring to the middle of Summer, and they are always seen near the shore. We meet also shrimps in water courses and in lakes but in stagnant water they are not common. They develop in Spring and Summer and as the observations of D. P. Keller show the Manchurian shrimps can be reared in aquariums; one form is herbivorous, another carnivorous.

Besides Manchuria the fresh water shrimps are very common in North and South China. They are observed near Tientsin—at the junction of the Pai-ho river and the Grand Canal; at Chen-ting on the Pu-to river in Chili province; at Shanghai in ponds and canals; at Hankow and other places in the middle and lower Yangtze and in the Han river, at Foochow on the Min river and ponds; Hongkong and Canton in the Pearl River.

In some of the above districts these shrimps are very abundant: they are caught with special nets and baskets and are dried and sent to the markets. The origin of these crustaceans must be full of interest. Undoubtedly they come from the sea and gradually spread into fresh water.

VIII.—On the Exploration of the Fresh Water Algae in Manchuria.[4]

As is known the vegetation ot Manchuria and the Far East has been studied in detail, but up to the present botanists have paid special attention to the higher plants, which are to be found equally in other parts of Asia. The investigations made during four years by the author of the present notes show that the algae of this district have also a large scientific use and are as well worth attention as the higher group of plants. Altogether in Manchuria 800 different forms are found, among which 100 prove to be new to science. Of the main characteristics of the separate systematical groups of known algae it is necessary first to mention the sufficiently studied flagellatae of the family *Euglenaceae*, discovered here in 182 forms. It is a great number when compared with only the 130 forms to be found in all European Russia, up to the present. Among the 133 kinds of the genus *Trachelomonas*, observed in Manchuria, 18 are apportioned to new species and 62 new varieties. The diversity of *Trachelomonas* is astonishing and these seem to be peculiar to Manchuria.

The original aspect of some Manchurian types, merit a great deal of attention; and it is possible that this datum serves as a new fact to prove the common opinion as to their original character which supposition is supported by the existence of direct proof about the original character of the fresh water fauna and flora of the Amur basin. Certainly in comparison with European the Asiatic flagellatae have been little studied and this may be the reason for the discovery here of so many new types. The most interesting among the *Trachelomonas* were the forms with a rim on the upper part of the shells similar to—*T. Wislouchii* and *T. peridiniformis* (see fig. Nos. 1 and 2). At the first glance their original construction (for example *T. Wislouchii*), with a rim like a parachute, reminds one of the pelagic planktonic —*Peredineae* and has accordingly been named by me—*T. peridiniformis*. As regards blue-green algae about 48 forms have been observed and most of them were cosmopolitan. Among other interesting flagellatae in Manchuria are—*Cryptomonadaceae*, but the last up to the present have not been specially studied. Among the *Conjugatae*, of which 200 forms are found, the most interesting was the family

[4] See article—"*The algae from Manchuria and observations on the water vegetation of the Sungari river valley*," by B. W. Skvortzow (Journal of Microbiology, Vol. III, 1916, Petrograd) and "*The materials on the Flagellatae of Manchuria*," Part I. (*ibid*, Vol.), 1917.

Zygnemaceae with a very rare and new kind of genus *Spirogyra*. Among *Volvocineae* family only 12 forms were defined, but there must be more. Of various *Protococcales*, the majority of which it is necessary to consider as cosmopolitans, more than 100 forms were found. Finally it should be mentioned that among the remaining green-algae, there are about 60 kinds and out of this number the following—*Protosiphon botryoides, Sphaeroplea annulina* are worthy of attention. The *Characeae* here are represented only by one —*Chara fragilis* and *Diatomaceae* in 161 forms, among which are some interesting and rare kinds. One of these is—*Surirella Pantoschkii* found in the Amur near Habarovsk. This beautiful kind was first described in 1913 from a Japanese collection by Meister. The diatomes plankton of the Amur and Sungari rivers recall the plankton of the European rivers and chiefly consist of—*Melosira islandica and subsp. halvetica, M. italica, Asterionella gracillima, etc.*

The algae just described were studied from numerous collections gathered near the railway line in North and Middle Manchuria and mostly in the environs of Harbin: and also from collections of the Amur river made by W. K. Soldatow during his Ichthyological expeditions. The materials were examined in Petrograd and some at Harbin and the above collections are now studied by zoologistes in the zoologic museum of the Academy of Science in Petrograd.

IX.—On Some Chinese Medicinal Plants of the Far East.

Dr. G. A. Stuart's book[5] on Chinese medicinal plants which appeared eight years ago contains almost all known plants existing on this question in China. But, as is well known, in the Chinese special medical literature on which Stuart principally relied, there are some plants whose botanical properties are not always fully described. Beside the medical plants mentioned in the Stuart book from Manchuria and North China it is necessary to indicate some other not very well known plants not mentioned in these leading works, such as:—

1.—*Siberian acacia (Caragana chamlagu Lam.)* This caragana is very common in all the Far East on hillocks. It is a dwarf shrub covered with spines, with plumose leaves and large yellow flowers. It is used in Chinese medicine as a tonic.

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[5] "Chinese Materia Medica (vegetable kingdom"), Rev. G. A. Stuart, M.D., Shanghai, 1911.

2.—*Caragana microphylla Lam.* It grows on all Manchurian mountainous districts and also is a shrub with plumose leaves and yellow flowers. It is used in medicine like the first one.

3.—*Funkia ovata Spreng.* It is found wild in Kirin province and is cultivated in the Far East and in North China. *Funkia* is a perennial plant with broad oval shaped leaves and blue flowers. The medicinal use of it is identical with the *Funkia subcordata* (see Stuart page 180).

4.—*White misletoe* (*Viscum album L.*). It is a common parasitic plant found upon the poplar, willow, aspen, linden, birch, apple trees with white and red berries (*Suhsp. coralatmu Komarow.*) This plant is used in Chinese medicine and by natives of Ussuri provinces. The entire plant is used by them against rheumatism.

5.—*Astragalus membranaceus Fischer.* (see Stuart—Astragalus Hoangtchy, page 57). This plant grows in all parts of the country and represents a big perennial with a branchy stalk and numerous pale-yellow flowers. This common Chinese drug now is collected in great quantity and exported to China.

6.—*Velvet or velvet-tree*[6] (*Phellodendron amurense Rupr.* (see Stuart page 316). This tree, common in all districts, is not very often employed here and is not well known.

7.—*Amurian grape* (*Vitis amurensis Rupr.*) It is found in great quantities in mountainous districts of the Far East and its fruit is used in local Chinese and native medicines.

8.—*Lithrospermum erythrorhizon S. et Z.* It is a common perennial plant growing in all parts of Manchuria with a stalk 1 meter high, with sharp lancet leaves and white flowers collected in wrists. The thick, straight or branchy roots are used in Chinese medicine.

X.—Some Observations on the Growth of Weeds and Algae in Rice Fields at Foochow.

Rice fields are favourable places for observing the conditions of life of many plants. The biological analysis of the water in the rice fields undoubtedly can be of large practical utility in explaining many questions connected with the manure in the ground of the rice fields and condition of the water. As would be expected the life in rice fields resembles very much the life in the grass marshes of Western

[6] "The Amurian velvet-tree in Chinese medicine," by B. W. Skvortzow (in the Mag. "*Rural economy in the North Manchuria,*" No. 7-8, 1918, Harbin).

and Eastern Europe. Here also two periods are observed. The first—in the beginning of the summer, when the surface water of the rice fields are free, under the sun's rays and the water is not overshaded by rice stalks and manure ashes and other things, which contribute to the growth in such water of weeds and still more of algae. The second period comes with the shading of the surface of the water by the rice stalks, with chemical impoverishment of the water, and by a gradual change of weeds and algae from one kind to another. As observation shows, the life of the rice fields does not always have its origin in the some manner, depending on the quality and quantity of the manure, the age of the standing water, the nearness of the fields to very dirty water, and other causes. This can be seen when crossing the wide river valley near villages or at some distance away. In the cleanest water of rice fields more frequently were observed —*Salvinia natans L.*, *Myriophyllum spicata L.*, *Utricularia vulgaris L.*, *U. minor* (?), *Polygonum sp.*, *Monochoria vaginalis Presl.*, *Isoetes sp.*, while in dirty fields were seen—*Wollfia arrhiza Wimm. Spirodela polyrrhiza Schleid.*, *Lemna minor L.*, *Marsilia quadrifolia L.* and *Azolla sp.*, growing in infinite numbers. Not less worthy of attention is the growth of algae which play a great part in the life of these waters. After an inundation in 1918 and the destruction of the young rice plant the surface of the water became covered with an alga—named "water-net" (*Hydrodictyon utriculatum Roth.*) This delicate alga has a bag-like form and consists of many cells, forming a net with regular hexagonal cells. Firstly the above mentioned cells were very small, but they quickly increase in size and eventually all the algae get to the size of the palm of the hand. It multiplies very quickly by the moving zoospores in a sexless way. In the beginning the alga was seen only on the surface of the slime under the water, but in a short time it moves upward in a thick mass and by strong exposure to the sun turns a grey-brown and dies. During this time the water was very poor in organisms. Here were seen some *Flagellata*, small diatoms; but with the destruction in mass of the water-net" and its settling on the bottom of the fields there began to appear—*Salvinia natans L.*, *Lemna minor L.*, *Spirodela polyrrhiza Schleid.*, *Marsilia quadripolia*, *Nitella sp.*, and on the bottom, first dark-greenish filaments and shortly after whole accumulations of *Spirogyra neglecta var. ternata*. At that time the shoots of *Nitella* and other under water plants and algae were covered with thick layers of mucilaginous algae as *Ruvularia sp.*, diatoms—*Gomphonema*, *Melosira varians*, *Eunotia*. Here were examined—*Pandorina morum*, *Eudorina elegans*, various

Scenedesemus, *Trachelomonas volvocina*, and *T. hispida*. But with the gradual growth of the rice plants and with the shading of water and also by the frequently drying up of the water in rice fields many plants and algae began to disappear, others at first collect on the wet slime and after that on more firm ground.

The flora of algae in rice fields, lying in the running water is characterised by the presence of many attached diatoms, sometimes making a compact layer over the surface of the plants. Other rice fields are very rich in different conjugatae kinds of *Oedogonium*, and other forms—signs of more clean stagnant water.

XI.—The Phytoplankton of some Tibetan Lakes.

The present small note represents the result of the observation of a collection gathered by Mr. Ladigin during the expedition in Tibet in 1901 and all the samples were examined by me in the Petrograd Academy of Science.

The plankton taken from the freshwater lake Kurlyk-nor (i, vi, 1901) in the Tsaidam district contains a rich zooplankton, in which were seen *Ceratium hirundinella* (O. F. M). Schrank and also non-planktonic algae as *Pinnularia gentilio* Donkin, *Epithemia turgida* (Erenb.) Kutz. and *Lyngbya aestuarii* (Mert.) Lieb.

In the bottle from the salt lake Toso-nor (3, vii, 1901), which is not far from lake Kukunor, in a rich zooplankton, were seen only few specimens of *Oocystis lacustris* and *Synedra acus* Kutz.

The most interesting was the plankton from the lake Khara-nor in which were found the following species:

Melosira islandica O. Müll. subsp. helvetica O. Müll.
Fragilaria crotonensis Kutton.
Aphanothece stagnina (Spren.) A. Br.
Chroococcus limneticus Lemm.
Microcystis flos aquae (Wittr.) Kirch.
M. elabens (Menegh.) Kütz.
M. incerta. Lemm.
M. holsatika. Lemm.
Lyngbya limnetica. Lemm.
Pediastrum Boryanum (Turp.) Menegh. var. granulatum (Kütz) A. Br.
P. duplex Meyen. var. asperum A. Br.
Botryococcus Braunii Kütz.
Cosmarium Botrytis Menegh.
Gloetila Scopulina (Haz.) Heering.

XII.—On some Freshwater Algae Collected in Shanghai.

Being in Shanghai in June 1918 a small collection of Algae was gathered by me in a pond near the Public Gardens.

When examined in the laboratory of the Anglo-Chinese College at Foochow this collection was found to contain the following species:

Euglena viridis Ehrenb.
Trachelomonas volvocina. Ehrenb.
Phacus caudata. Hüber.
Pandorina morum. Bory.
Spirulina major. Kütz.
Oscillaria princeps. Vauch.
Nitschia Palea Kütz. f. t. and var. lanceolata.
N. acicularis. Kütz.
Gyrosigma acuminatus. Kütz.
Navicula ambigua. Ehrenb.
Surirella ovalis. Breb.
Cocconeis placentula. Ehrenb.
Amphora ovalis. Kütz.
Rhopalodia ventricosa. (Gr.) O. Müll.
Coelastrum microporum. Naeg.
Botryococcus Braunii Kütz.
Spirogyra varians (?).

XIII.—The Use of Nostoc as Food in N. China.

In many school books of botany it is stated, that in China the fresh water blue-green alga *Nostoc* is eaten by people. This fact is regarded as remarkable, but it is regretted that this is not sufficiently known. *Nostoc* is an alga living in fresh stagnant water, it forms blue-green elastic, semi-transparent globules or accumulations, attached to the under-water plants and stones, but sometimes it is on humid ground, forming original dark mucilaginous scums.

In China the forms living on the surface of the ground are used as food, and they are related to the *Nostoc communis* Kütz., *N. edule* (?) and probably to other kinds.

Nostoc in the Shantung province appears in summer rainy time on the clayey ground and on humid soil, but when the ground dries the alga contracts and begins to be imperceptible. The local population eat the *Nostoc* not for lack of food, but simply for the same reason as mushrooms, and wild vegetables are used.

Nostoc has no particular flavour. They eat it roasted with different seasonings, which give it taste. Indubitably *Nostoc* is used in other places in China, seeing that here on account of a damp climate, this alga is very common. In masses it is found in June and in July near Shanghai and in South China. Besides China *Nostoc* is used as food in Northern Europe, particularly the variety which is found near the shore of big and cold mountain lakes. It is the plum shaped *Nostoc* (*Nostoc pruniformis*) with smooth, elastic globules the size of a hen's egg of a dark blue-green colour.

XIV.—The Bibliography of the Algae of China and Neighbouring Countries.

The following is a list of all existing publications of the scientific investigations mostly on freshwater algae of China.

It must be noted that the study of the inferior vegetable organisms in China, and generally in Eastern Asia, has not yet been specially made and on this question there exists only meagre information. The scattering of such information among many foreign scientific magazines will present difficulties to the botanists in their study of this question.

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XV.—On the Study of the Wild Vegetables of Manchuria.[7]

The vegetable food of the Chinese, Coreans and other natives of the Far East is characterised by its diversity.

[7] See "*On some wild Manchurian plants, used by Chinese and natives, as vegetables*," by B. W. Skvortzow (*Mag.* "*Rural Economy in N. Manchuria*," N. 7-8, 1918; "*On wild vegetables of the Far East.*" (*ibid*, N. 9-10, 1918).

Besides the cereal plants and kitchen-garden vegetables they use as food many wild plants, which replace the cultivated vegetables. In this custom is recognised the adaptedness of the population to the local conditions, where often unexpected floods inundate the fields and vegetable gardens or where the aborigines,—local hunters,—have not sufficient time to cultivate vegetables, and not every spring in villages we can find fresh greens preserved from the autumn. Here early in spring and summer the people replace the cultivated vegetables by young fern leaves, stalks of *Caltha palustris*, stems of the white flowered peony, *Chenopodium album*, wild sorrel, young stalks of worm-wood, spring leaves of dandelion, leaves of the sow-thistle and many other kinds of plants, are used as food.

The population in the river valleys, living among marshes, eat the young shoots of the reed-mace, the true-reed, the rhizome of *Sagittaria* and the leaves of *Limnanthemum*. Among all the known wild Manchurian vegetables the most nourishing are the bulbs of the different kinds of lilies, the wild garlic, the "Charemsha," the roots and the flowers of a yellow lily (*Hemerocallis*), the bulbs of *Fritillaria*. Of the above the dried flowers of the yellow lily, the bulbs of several kinds of lilies and of "Charemsha" have a local trade importance. The use by natives of wild vegetables is very common and important in this district, not less than in China, and some of them are valuable and can be recommended for cultivation. Particularly worthy of attention, on account of their edible quality are different forms of umbellar and bulbous plants. The number of the wild vegetables employed in Manchuria is very large and this list is not complete. They are as follows:

1.—*Fern.* (*Aspidium Felix mas L.*) *Rich.* It is grown in all the districts. The Chinese and the natives use the young spring leaves of this fern as food. They are very soft and delicate in taste.

2.—*Charemsha* (*Allium Victorialis L.*) It is found in woods, and is eaten by the Russians and natives in Manchuria and the Russian Maritime provinces.

3.—*Wild garlic* (*Allium Schoenoprasum L.*) A kind of garlic, which is eaten by natives and by the Chinese.

4.—*Yellow-lily* (*Hemerocallis Middendorfii Jr. et Mey.*) It is a very common plant in all parts of the district on meadows and mountain sides. The flowers of these plants are used by Chinese as food. They have an original, pleasant savour and are nourishing for they contain starch. The flowers are mostly dried and sent to the local market. The rhizome is also eaten.

5.—*Yellow-lily* (*H. minor Mill.*) It grows mostly in the river valleys and is not very different from the first lily.

6.—*Fritillaria Kamtschatensis Gawl.* The bulbs of this plant are eaten by natives.

7.—*Daurian lily* (*Lilium daurium Gawl*). A very common plant in meadows. The bulbs of it are eaten by the Chinese.

8.—*One coloured lily* (*L. concolor Salisb.*) It is very extensively grown in the country. The flowers and the bulbs are used by Chinese as food. The bulbs are of a sweetish taste.

9.—*Tiger lily* (*L. trigrinum Gawl.*) It grows in almost all districts and the bulbs are eaten by Chinese.

10.—*Caltha palustris L.* It is found in marsh meadows in all the Far East. The spring stalks of this plant are eaten as a vegetable.

11.—*Limnanthemum nymphoides Hoff.* It grows on the surface of the stagnant waters. The leaves of Limnanthemum are seldom eaten by Chinese.

12.—*Elder* (*Sambucus racemosa L.*) It is found in all districts. The leaves of this shrub are used as food by the local Chinese and the Coreans.

13.—*White flowered peony* (*Paeonia albiflora Pall*). It grows in every district and the spring stems are eaten by the Chinese and Coreans.

14.—*Sorrel.* (*Rumex acetosella L.* and *R. acetosa L.*) It is found in all the Far East, and is eaten by the Russian, Chinese, Coreans.

15.—*Phlomis tuberosa L.* It grows in West Manchuria and the shoots of this plant are eaten by the Chinese.

16.—*Ribwort riffle-grass* (*Plantago major L.*) It grows everywhere near buildings. The leaves and the seeds are used as food by the Chinese.

17.—*Amurian berberry* (*Berberis amurensis Rupr.*) A very common shrub in mountains in the Far East. The spring leaves of this plant are eaten by the Chinese in the forests of Northern Manchuria.

18.—*Elm-tree* (*Ulmus pumila L.*) The young green seeds of this tree are used by the Chinese as a vegetable, not only in Manchuria, but also in North China. They are eaten fresh, boiled and fried. In the time of hunger the bark of the young branches of the elm-tree also is employed as food and for this purpose the bark is dried, bruised and is boiled as a kind of gruel.

19.—*Chenopodium album L.* It grows in all districts and the leaves of the young stalks are eaten by the Chinese and the Russians.

20.—*Aralia cordata Thunb.* It is a common plant in the Middle and South Manchuria. The thick, aromatical roots and the young stalks of this plant are eaten by the Chinese and the Coreans.

21.—*Lespedeza bicolor Turz.* A common shrub, the flowers of which are eaten by Chinese after they are boiled.

22.—*Pleurospermum austriacum Hoff.* It is grown in all Manchuria in the shade under the trees. This plant is valued by the Chinese and the Corean as a vegetable.

23.—*Cacalia hastata L.* It grows wild in all the district and is used as food by the Chinese and the Coreans.

24.—*Lucern.* (*Medicago sativa L.*) It is cultivated in Fengtien province and is used by the Chinese as a vegetable.

25.—*Garden borage* (*Borrago officinalis L.*) This weed grows in all the Far East and is used by the Chinese as a vegetable.

26.—*Shepherd purse.* (*Capsella Bursa pastoris Mnch.*) The young leaves of this plant are used by the Chinese as a vegetable.

27.—*Cynanchum sp.* (*several kinds*). The young fruits of these climbing plants are eaten by the Chinese.

28.—*Cotyledon spinosa L.* It grows throughout the district, specially in the northern part on the rocks. The boiled leaves of this plant are eaten by the local natives.

29.—*Kochia scoparia Schrad.* The young leaves of this weed are employed as food by the Chinese.

30.—*Xanthium strumarium L.* The leaves of these weeds are eaten by the Chinese when hungry.

31.—*Reed.* (*Phragmites communis. Trim.*) It is a very common plant in river valleys. The young shoots are used by the Chinese as a vegetable.

32.—*Reed-mace* (*Typha orientalis Presl.*) The shoots are also employed as a vegetable.

33.—*Amarantus blitum L.* It is either cultivated or grows wild. The leaves are eaten as a vegetable.

34.—*Polygonum Hydropiper L.* It is found in all districts and the leaves of this plant are used as a vegetable.

35.—*Dandelion.* (*Taraxacum sp.*, several species). It is found everywhere and the young spring leaves are eaten by the Chinese.

36.—*Sow-thistle* (*Sonchus arvensis L.*) This grass is also eaten as a vegetable.

37.—*Amurian grape* (*Vitis amurensis Rupr.*) It grows in all mountainous districts and the leaf stalks are eaten by the Chinese.

38.—*Wild purslain* (*Portulaca oleracea L.*) This common weed is eaten by Chinese.

39.—*Wormwood* (*Antemisia vulgaris L.*) It grows everywhere and the young stalks are eaten by the Chinese.

XVI.—Dimensions of Trees in the Manchurian Forests.

Those who have been in the Eastern part of mountainous Manchuria are transported with delight at seeing the enormous Manchurian forests and the diversity of the trees. At present the woods are going through a period of exploitation and are rapidly disappearing thanks to the old methods of cutting, taxation and frequent fires.

These forests contain about fifty kinds of trees the greater part of which are not known to the local population. Those having a wide trade importance are—the Manchurian cedar, ajanien fir, dahurian larch, poplar, birch, elm, lime, ash, velvet, manchurian nut, maple. These are mostly used as firewood, necessary to the Chinese on the Eastern railway and for personal needs. At the present time in these forests the yew-tree has disappeared; the cedar is disappearing gradually as well as other valuable trees such as the Manchurian apricot, Siberian apple-tree, Chinese pear-tree, Amurian acacia, velvet, different maples are almost exclusive used as fuel.

As will be seen in the list given below, the Manchurian trees are of very solid dimension. Some little known kinds are not too small to prevent their being used on valuable works.

	Height.	*Diam.*	*Age.*
Manchurian cedar (Pinus manschurica Rupr.)	130.5 ft.	84 in.	400
Common pine (Pinus silvestris L.)	81.5 ft.	35 in.	
Sepulchral pine (Pinus funebris Kom.)	97.8 ft.	42 in.	
Dahurian larch (Larix dahurica Jurs.)	105.8 ft	49 in.	400
Ajanien fir (Picea ajanensis Fisch.)	83.8 ft.	38.5 in.	300
Siberian fir (Picea abovata Linde)	69.9 ft.		
Fir (Abies nephrolepis Maxim)	81.5 ft.	17.5 in.	200
Yew-tree (Taxus cuspidata S. et Z.)	83.8 ft.	43.7 in.	
Chinese poplar (Populus Simoni Carr.)	116.5 ft.	43.7 in.	
Fragrant poplar (Populus Suaveolens Fisch.)	116.5 ft.	43.7 in.	
Asper (Populus tremula L.)	69.9 ft.		
Willow (Salix triandra L.)	32.6 ft.		
Willow (Salix caprea L.)	23.3 ft.		
Willow (Salix acutifolia Willd.)	69.9 ft.	45.5 in.	
Birch of Ermani (Betula Ermanni Cham.) ...	76.8 ft.		
Black birch (Betula dahurica Pall.)	62.9 ft.	21 in.	
Yellow birch (Betula costata Trautv.)	81.5 ft.	19.2 in.	
White birch (Betula platyphylla Suc.)	83.8 ft.	28 in.	250
Alder (Alaus fruticosa Rupr.)	46.6 ft.	17 in.	
Carpinus cordata Blume	69.9 ft.	43.7 in.	
Mongolian oak (Quercus Mongolica Fisch) ...	79.2 ft.	28 in.	
Mountain elm (Ulmus montana Wither)	93.2 ft.	34.5 in.	
Elm (Ulmus pumila L.)	68.2 ft.	43.7 in.	
Elm (Ulmus campestris L.)	83.8 ft.	33.2 in.	250

	Height.	*Diam.*	*Age.*
Purple hawthorn (Cretaegus Sanguinea Pall.) ...	23.3 ft.	10.5 in.	
Common hawthorn(Crataegus pinnatifida Bunge)	33.3 ft.		
Manchurian apricot (Prunus manschurica Kochne)	46.6 ft.	17.5 in.	
Common bird cherry (Prunus Padus L.) ...	46.6 ft.	17.5 in.	
Bird cherry of Maackii (Prunus Maackii Rupr.)	41.9 ft.	17.5 in.	
Siberian Apple (Pirus baccata L.)	41.9 ft.		
Chinese pear (Pirus sinensis Lindl.)	48.9 ft.	17.5 in.	
Mountain ash or sorb-apple (Sorbus aucuparia L.)	34.9 ft.		
Amurian lilac (Syringa amurensis Rupr.) ...	51.2 ft.	14 in.	
Amurian acacia (Cladrastis amurensis Benth)	51.2 ft.	14 in.	
Manchurian lime(Tilia manschurica Rupr.etMex.)	65 ft.	28 in.	
Amurian lime (Tilia amurensis Kom.)	104.8 ft.	34.5 in.	
Ash (Fraxinus rhynchophylla Kance)	62.9 ft.	21 in.	
Manchurian ash (Fraxinus manshurica Rupr.)	93.2 ft.	34.5 in.	350
Maple (Acer barbinerve Maxim)	41.9 ft.		
White maple (Acer tegmentosum Maxim) ...	51.2 ft.		
Yellow maple (Acer Ukurendense J. M.) ...	48.9 ft.		
Manchurian maple (Acer manchuricum Maxim)	65.2 ft.	17.5 in.	
Maple mono (Acer Mono Maxim)	65.2 ft.	17.5 in.	
Velvet tree (Phellodendron amurensis Rupr.)	69.9 ft.	21 in.	250
Manchurian nut (Juglans manchurica Max.)...	79.8 ft.	42 in.	200
Zelkova (Zelkova Davidii B. et H.)	46.6 ft.		

XVII.—The Origin of the Manchurian Fishes.

The fishes of Manchuria are of great interest and represent the group most investigated of all the animals. Thanks to the works of Dybovskii, Hertzenstein, Proff. Berg, Soldatow, and Schmidt here in the Amur basin are known 90 different forms. This quantity is very large and surpasses in its diversity the fish fauna of any other river in Asia. For the fishes of the Amur river and Manchuria Prof. L. C. Berg arranges a particular Manchurian ichthyological district and relegates to it all the basin of the Amur river, Suifun and Tumen-ula draining into the Japanese sea. This district is remarkable for the mixture of the northern and southern forms. Here, similar to the species coming from the basins of Siberian rivers, flowing into the frozen ocean, are found southern fishes, as *Ophiocephalus* (see fig. 1), *Hypophthalmichthys*, *Elopichthys*, etc. Besides that to this district are peculiar some endemic genus and species as, *Pseudaspius leptocephalus; Mesocottus heity* (see fig. 2),—one form of bullock not commonly exceeding 20 cm. in length, with gray coloured sides and back which is covered with small thickly-laid prickles. The head is very wide and flattened, the pectoral fin is fully developed; dahurian hausen (*Husa dahurica*)—a fish growing to an enormous length, weighing about 280 pounds; the amurian sturgeon; *Leptobotia manschurica* discovered by Proff. Berg—a fish with one dorsal fin with a stretched and pointed snout. Its mouth is surrounded with fleshy lips and moustaches. It strikes ones eyes by the

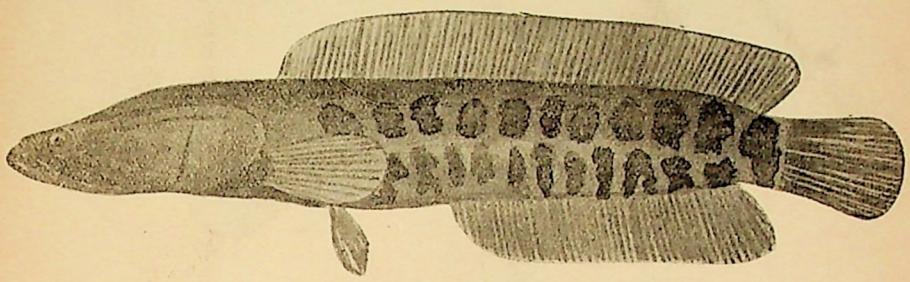

Fig. 1. *Ophiocephalus argus warpachowskii. Berg.*

[*see page 74*]

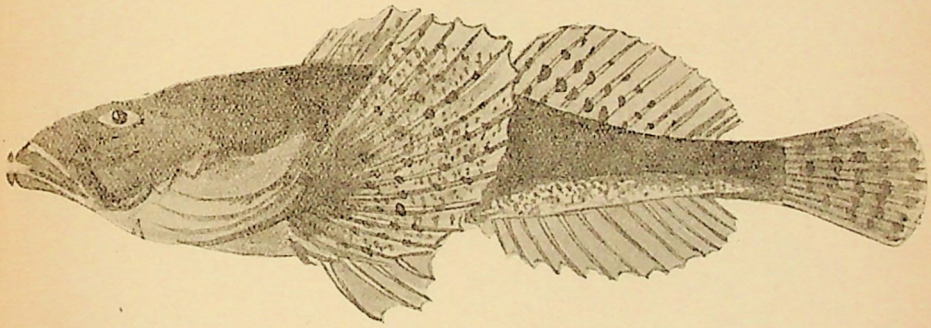

Fig. 2. *Mesocottus heity. Dyb.*

[*see page 74*]

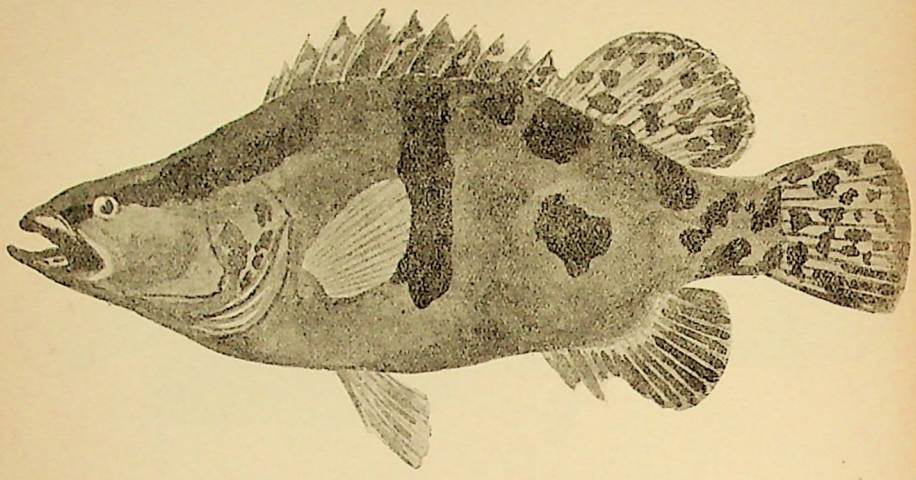

Fig. 3. *Siniperca chuatsi Basilewsky.*

[*see page 75*]

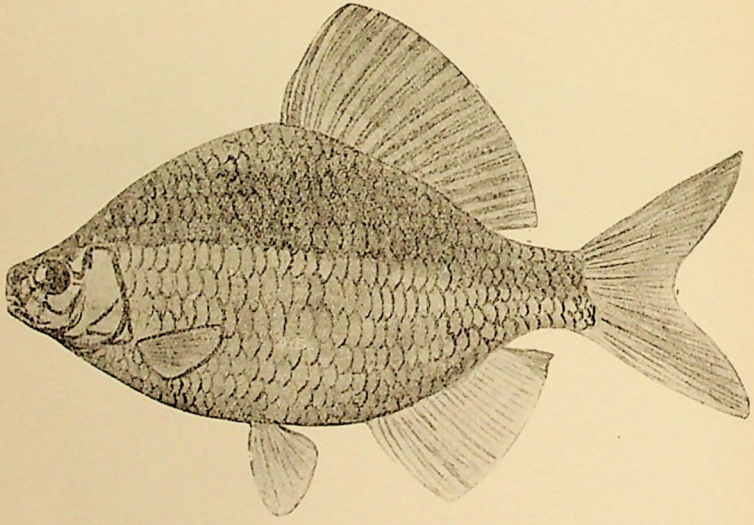

Fig. 4. *Acanthorhodeus asmussi Dyb.*

[*see page 76*]

darkish spots disposed in form of transversed streaks. Another kind of *Leptobotia* inhabits the Yang-tse-kiang.

Finally here lives an Amurian pike (*Esox reicherti*) which is but little distinguished from the European kind. It is consequently more to be remarked, that in the Manchuria district certain species, which widely extend in Siberia, do not exist here, such as—the sterlet, Siberian sturgeon, nelma, dace or bull-head, gremille; but on the contrary there are many Siberian fishes. The most remarkable in Manchuria are fishes of the South and Middle of China and Japan—the forms of subtropical fauna. One of this will be aucha or Chinese perch (*Siniperca Chuatsi*) 花鮭魚 (see fig. N. 3). This genus has only two representatives—one in Manchuria, the other in China. This fish certainly has no connection with the true perch. It has a body with pressed-in sides, unique dorsal fin, little scales, a small head and mouth. The sides are of a greenish colour with irregular black spots. Also remarkable is the fish—*Ophiocephalus argus warpachowski* 黑魚 (see fig. 1), found at Vladivostock, the typhical specimen of which is known in the Amur basin and through all China.

The genus is peculiar to central Africa, South Persia, Indo-Chine, Sunde islands where there are about 25 different kinds. *Ophiocephalus* is a fish with a very stretched body, long, and high dorsal fin the anal fin being a little shorter. On its body above and below the side line are some irregular brownish spots, bordered by black lines, on the back and above the head also a double range of coarse spots. This fish reaches in size to 68 cm. in length. As an interesting fish here is a silvery kind *Hypophthalmichthys molitrix* 胖頭魚 which attains a length of one meter and is 20 pounds in weight.

It is characterized by the oblique mouth looking up, by small scales and a keel shaped belly. It inhabits the Amur basin in China as far South as Foochow. The remaining kinds of this species are in China and Tonkin. The Amurian sheat fish (*Parasilurus asotus*) must also be indicated with the flat head and four moustaches. Besides the Amur basin they inhabit China, Corea, Japan and Formosa. The other 5 kinds of this genus are in Himalaya, Indo-China, China, Japan, Corea and Formosa. We meet here, *Hemibarbus labeo* a fish with a stretched body, pressed-in sides and with scales of middle size. Its head has a concave forehead, the mouth is lower with fat lips and with single moustaches on the edge. The dorsal fin is not big but sharp and has a gray colour. The back is dark, the lower part light. Its habitat is the Ussuri river, Hanka lake and all the Amur basin. The

genus *Hemibarbus* in the East is represented by 2 kinds—one from the Amur basin, Japan, Corea, China and Formosa; the other is known in China. The Amurian bream (*Parabramis pekinensis*) living in all the Amur basin and in China down to Shanghai, is also worthy of attention. This bream reaches 52 cm. in length, has a very high body, pressed-in sides and is covered by sufficiently big scales. Its head is small, the upper jaw is a little longer than the lower, the mouth is not large, the dorsal fin is also small and has sharp black ends. Here must be indicated also the hump-backed bream (*Parabramus terminalis*) with a higher hump on the back than the amurian kind and with a large, sharp dorsal fin. His jaw juts only a little from the lower one. Here was also found a small fish of the genus *Pseudorasbora* with one kind *P. parva* peculiar to the Amur basin, Japan, Corea, and China. It is a remarkably small fish—*Pseudogobio rivularis* with a stretched body pressed-in sides, covered with small scales, with fleshy lips and with small moustaches. It inhabits the Amur basin and China; the remaining two kinds of this species occur in Japan, Formosa, and in China. The species *Culter* is worthy of attention with 10 representatives in the Amur basin, in China, and in Tonkin. Also the distribution of the bitter fish is interesting. It lives in Europe, but is absent from all basins of rivers of the frozen ocean in Northern Europe and Asia. It is not seen in Turkestan and in Siberia, but again appears in the Amur basin. The general distribution of all 5 kinds of bitter fishes extends through Europe, Asia Minor, Caucasus, Amur basin, China and Japan. The fish *Acanthorhodeus asmussi* (see fig. 4) with a high body, as the crucian, pressed in sides, with a stretched dorsal fin, small mouth and large scales of a light gold or yellowish color. It reaches 15 cm. in length. Besides this form, known in the Amur basin, 7 other kinds of the same genus are found in China and in Tonking.

There is found in Hanka lake a small fish *Acheilognathus chankensis*—the remaining 8 kinds of this genus are peculiar to Corea, Japan, Formosa. It is necessary to mention the genus *Lepua*. One kind of them (*L. costata*) inhabits the Amur basin and North China, the remaining 2 Japan. This is a small fish with a stretched body, flat head, armored with 2 pairs of moustaches. All along his body in the middle of the sides passes a black-brown streak and on the caudal fin are also black spots. The Amurian groundling must be indicated as representing a special variety of the European form.

In addition to the Amur it is found in Corea, Japan, China down to Canton and in Formosa. The fishes of genus

Leiocassis are remarkable. Among the existing 30 kinds of this genus 3 are found in the Amur basin, the remaining 27 in the Malay archipelago, Indo-China, and in China. We can merely mention the brand fish. This genus is represented by only one kind from the Amur basin and South Manchuria and its nearest relative—the genus *Philypnus* inhabits the fresh waters of Central America. All the remaining kinds of the same genus are peculiar to Japan and North America. Finally the tropical pimple caught at Vladivostock is remarkable. It lives in the fresh waters of India, Indo-China, China, Indo-Malay archipelago, Formosa, Japan and Corea.

The fishes indicated here do not exhaust all the examples which make the waters of the Amur basin so remarkable. The predominance of Southern types is very characteristic of the ichthyological fauna of this district. These fishes have not come here from the South, but they are the remainders of the Tetrain fauna, formerly extensive in all Asia and Europe. Besides the indicated facts, the proof of the conclusion is served by many cases of the separate existence of identical or proximate kinds, noticed by Prof. Berg from the fish geography of Asia. So, the Manchurian district has a wonderful relation to the Ponto-Caspian-Aral ichthyological provinces, which embrace the basins of the Black, Caspian, and Aral seas. In both districts are found many forms which bear a great resemblance to each other, but which is absent from Siberia, Mongolia and Middle Asia. In regard to the paleontological information which serves powerfully as an argument for the remaining character of the fish fauna of Manchuria, we must note the finding in Siberia of the genus *Abramus*, which is not known now in this district but which inhabits Europe, the Aral basin and North America. The remaining types of this genus, the fishes *Parabramis*, are found now in the Amur basin and for this reason, in the opinion of Prof. Berg, it is possible to suppose that up to the end of the Tetrian period of fishes of Siberia resembled the present Amurian fish fauna.

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XVIII.—The Little Known and New Oil Plants in Manchuria.

Manchuria, being rich in the production of soya beans, linseed, hempseed, (*Perilla ocymoides* L.), sesame (*Sesamun indicum* L.), is very well known as a district which produces a great deal of vegetable oil. In addition to the oil-plants indicated here, mention should be made of some little known and new plants, found in a wild state throughout Manchuria. The first in order is the Manchurian Cedar (*Pinus manschurica Rupr.*) This tree is very common in the mountainous parts of the country and produces fir cones 6 inches long with about 100-150 nuts inside. These are of a dark-brown colour, with a thick seed-coat of triangular shape. The nuts are 2-3 times bigger than those of the Siberian cedar (*Pinus Cembra*). In Siberia the nuts of the cedar are made up of 50% of a fine, delicate, golden yellowish oil, which is largely used by the local population as food. The nuts of the Manchurian tree also have a fine oil, which, however, is now only employed by natives and Chinese in the forest districts. The gathering of Cedar nuts in Manchuria is extensive and has a trade importance, but they are mostly exported to China as much prized sweetmeats.

Vegetable oil can be produced from the Manchurian nut tree (*Juglans manschurica Maxim*) which is also common all over the country (see fig. 1). The nuts of the tree are big and hard and the chemical analysis made in Harbin by Mr. P. M. Karwowskii in the spring of 1918 shows that the kernels of this Manchurian walnut contains 52% of a drying, fine oil of yellowish colour. This product resembles the oil of the cultivated walnut (*Juglans regia* L.—in Europe, and *J. regia var. sinensis D. C.*—in China). Up to the present, walnut oil in Manchuria is unknown and is produced only by Russians in the Southern part of the Ussuri provinces. It is interesting to note that the nuts of the Manchurian tree are of a different shape. They are mostly very thick-skinned, with an elongated sharp end and have small seeds, although frequently they may be seen smaller, rounder, with a fine

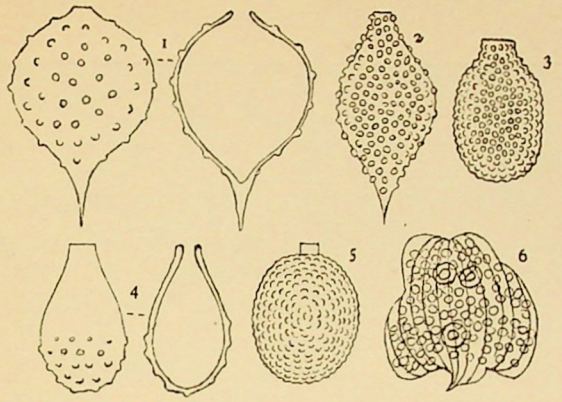
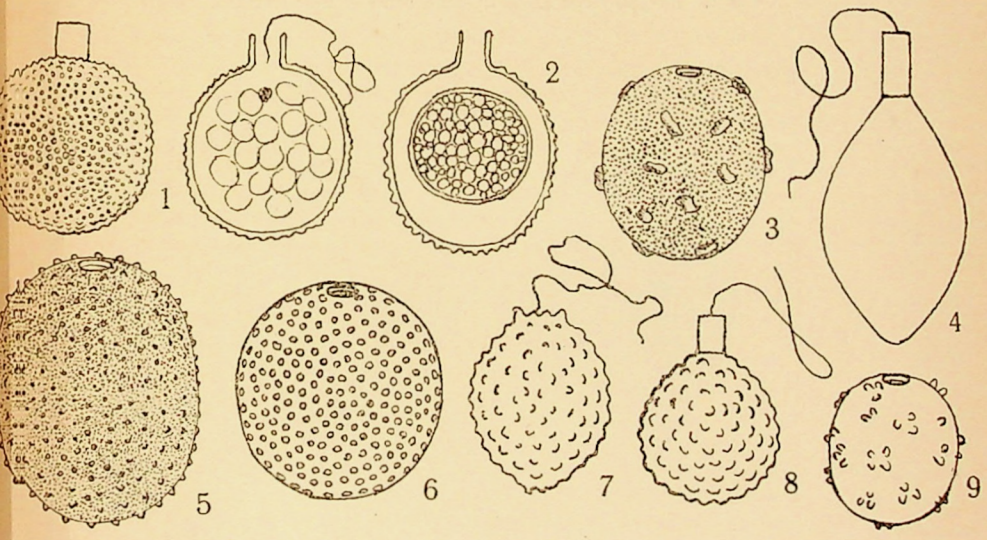


Fig. 1.—*Trachelomonas valgensis* Lem. var. *chinensis* nov. var. ; Fig. 2.—*Tr. fluviatilis* Lem. var. *granulata* nov. var. ; Fig. 3—*Tr. piscatoris* (Fisher) Stokes var. *granulata* nov. var. ; Fig. 4.—*Tr. ovalis* Daday var. *chinensis* nov. var. ; Fig. 5—*Tr. hispida* (Perty) Stein var. *rugosus* nov. var. ; Fig. 6—Phacus Myersii nov. Sp.

[*see pages 55, 56*]



s. II and 2.—*Trachelomonas planktonica* var. *asiatica* nov. var. ; Fig. 3.—*Tr. fexis* nov. sp. ; Fig. 4.—*Trachelo-as: rhombica* var. *planktonica* nov. var. ; Fig. 5.—*Tr. Raciborskii* var. *Swirenkiana* nov. var. ; Fig. 6.—*Tr. ogygii* var. *Limosa* nov. var. ; Fig. 7.—*Tr. chinensis* var. ovata nov. var. ; Fig. 8.—*Tr. Arnoldiana* var. *nudata* nov. var. ; Fig. 9.—*Tr. intermedra* var. *decorata* nov. var.

[*See XXI On new Flagellata from Manchuria pp. 96-102*]

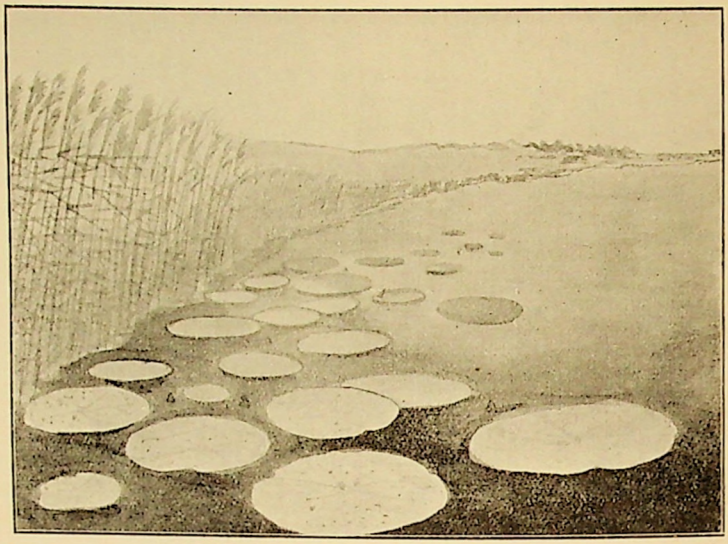


Fig. 1. *Euryale ferox Salisb* in stagnant water near Harbin.

[*see page 81*]

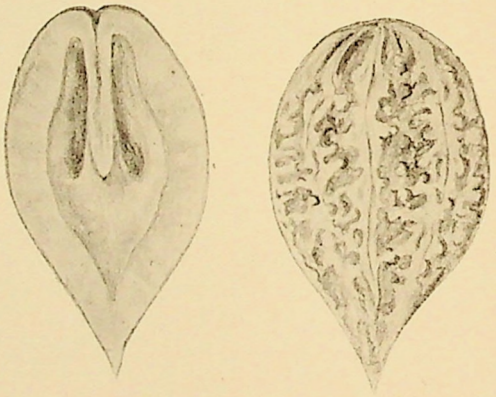


Fig. 1. *Nut of Juglans manschurica Max.*

[*see page 78*]

skin, and with seeds more developed; possessing this property this species could be improved by experience and by cultivation. Besides the walnut the hazel-nut (*Corylus manschurica Maxim* and *C. heterophylla Fischer*) is very common in Manchuria. Two kinds of hazel-nuts are much valued by the Chinese and a great quantity is exported to China. From these nuts is extracted a kind of oil, used in drawing on glass. In Europe the nuts of *Corylus avellena* contain 50-60% of valuable oil, which is used in soap-boiling and in perfumery. The apricot tree (*Prunus Armeniaca* L.) also must be mentioned: it is cultivated only in South Manchuria and in North China in Mukden in the factory of the Japanese Chemical Company. From the kernels apricot oil is extracted, and used for many purposes. This oil is much valued in Europe. It is also interesting to remark, that in the berries of the velvet tree (*Phellodendron amurensis Rupr.*) was found by P. M. Karwowskii, 12½% of drying oil with a specific smell and bitter taste.

In conclusion there are the fir trees (*Abies nephrolepis Maxim* and *A. holophilla Maxim*) from which in Europe an ether fir-oil is produced. These trees are as plentiful as the Manchurian Cedar.

XIX.—The Principal Tanning Plants of Manchuria.

Manchuria by its large number of tanning plants holds an eminent place among the neighbouring districts, but no profit is derived from these riches by the reason of the import of tanning materials from America. Until lately the tanning plants and their utilization were unknown to the local Chinese and natives, but now, thanks to foreign influence in Manchuria, we can see Chinese tanneries working on willow bark, but no other tanning products from this district are applied.

In Manchuria more than 30 plants valuable in their tanning properties are found, but not all can be used commercially.

The principal ones are the following:—

1.—*Velvet-tree* (*Phellodendron amurensis Rupr.*)—It is a common Manchurian tree, the fiber of which is used for dyeing purposes, and in Chinese medicines. The chemical analysis made in Harbin by Mr. Gordeiew and Mr. Karwowskii in 1917-1918, shows that the fiber of an old velvet tree contains 18% of tannin, and the fiber of the young branches 17%.

2.—*Oak.* (*Quercus mongolica Fischer, Q. serrata Thunb., Q. grosseserrata Blume, Q. aliena Blume, Q. Fabri Hance and Q. dentata Thunb*). These oaks are very exten-

sively grown in the country; the most common of them is the Mongolian oak (*Quercus mongolica*). The bark contains about 6-11% of tannin.

3.—*Willow.* (*Salix Caprea L., S. viminalis L., S. vagans Anderss., S. triandra L., S. Thunbergiana Blume, S. purpurea L., S. pentandra L.* and *S. acutifolia Willd.*) of *Salix Caprea L.* and *S. acutifolia Willd.* are the most useful for tanning. The bark of the willow contains about 11% of tannin.

4.—*Amurian acacia* (*Cladrastis amurensis Benth.*) It is a small tree or shrub very common in all districts. The chemical analysis made in Harbin by Mr. Karwowskii in 1918 shows that the bark of this acacia contains 11% of tannin. For this reason this plant is worthy of attention.

5.—*Ajanien fir* (*Picea ajanensis Fisch.*). It grows in mountainous districts and its bark can be used in tanning. Picea bark has 8-11% of tannin.

With regard to the other tanning plants, growing wild in Manchuria, not one is of sufficient importance to occasion remark.

XX.—On the Cultivation of Water Plants in China.

Indubitably, on the surface of small ponds and in dirty stagnant basins many persons have seen a mass of very small, mostly round green leaves with roots under the water. These plants are used to feed fowls in China. In Manchuria and in North China they are represented by the small duckweed *Lemna minor L., L. trisulca L., Spirodela polyrrhiza Schleid;* in middle and south part, except the indicated forms, by *Wollfia arrhiza Wimm., Salvinia natans L., Azolla* sp., *Marsilia guardrifolia L.* and other kinds. All these plants show the dirtiness of the waters and are very often seen near Chinese buildings, villages and towns in summer and in winter time. In Manchuria a great quantity of *Lemna minor L.* and *L. trisulca L.* is met with in marshes and ravines lying near the houses and are mostly used in towns by poor Chinese as food for ducks and geese. In Middle and South China these plants are not only gathered in rice fields and in ravines near the roads to feed fowls, but are also cultivated in ponds. For this reason the surface of the ponds is divided in parts by thick and long floating bamboo poles, that contribute to the growth of these small water plants. Without these, owing to the movement of the surface of the water, these small water plants would not grow. Mostly as food for ducks the duckweed *Lemna minor* and the *Spirodela polyrrhiza* is used and cultivated. The latter in South China has the leaves twice bigger than that in Manchuria. At Foochow

ducks, geese and sometimes hens and chickens usually feed on these plants and the birds eat these greens with pleasure, finding among them many small water snails, beetles and larvae of different insects.

The various kinds of duckweeds are also cultivated in ponds as a nourishing food to fish.

XXI.—On the Growth of Panic Grass in China.

Everywhere in China among weeds is found the panic grass (*Panicum crus galli L.*). It grows plentifully in wheat, rice and millet fields in the Northern part, in Manchuria and in the Southern rice districts. This plant has stalks of .60-1 meter in height; the brush contains thick one-sided spikes with dark-yellow, hard, brilliant seeds, cuspidated from two sides, of 3-3.5 mm. in length. This grass much resembles the Shan-tzu (穄子)—*Panicum frumentaceum Tran. et Savant*, cultivated in Manchuria and in North China for its edible grains and its straw for cattle. The grass is found in two forms—bearded and unbearded. As it was examined near Foochow the bearded *Panicum crus galli L.* is very often seen in rice fields, growing with rice stalks. The Chinese never cut the ripe rice with this weed, which is separately harvested and the grains of it are employed to make a kind of glue, used to stick paper and card-board. Firstly the hulled seeds are crushed and put in water in which all the hulls rise to the surface and the heavy grains sink down. After this the seeds are boiled and the glutinous mass is ready for use. It is interesting to note, that the panic grass in Chinese medicines is mentioned and the grains of it are sometimes used in times of scarcety as a substitute for other cereals. They have a taste something like the seeds of *Panicum frumentaceum*.

XXII.—The Water Plant—Euryale Ferox in North Manchuria.

Euryale ferox Salisb (see fig. N. 1) is one of the known water plants of China, which has been cultivated from remote antiquity for its seeds used as food and medicine. This subtropical plant is found in Japan, Formosa, near Peking, Tientsin, Chefoo and in other places in China, but in Manchuria *Euryale* was first seen at Harbin only fifteen years ago. Now, as observations show, this plant is found in Manchuria in all the Sungari basin and is seen in the Ussuri provinces in the Russian Far East. *Euryale* in Manchuria is counted as a plant surviving from the Tetrian period and the fact of finding in European Russian in the Kaluski

provinces in the post-tetrian limnetical sediments the seeds of *Euryale ferox* goes to prove this.

As this plant at Harbin was examined, *Euryale* grows only in stagnant waters 2-5 feet deep; the seeds begin to shoot only at the end of May; the first leaves are seen in June. In July, August up to September the plant rapidly increases in size and gives about 10-15 leaves and 5-10 flowers, which are always under the water. The bright leaf is 1 meter and 10 cm. in diameter. The ripe fruits are of different sizes —the first are the biggest and sometimes are of 15 cm. in length and 11-12 cm. in breadth; the smallest mostly are not quite ripe. The big fruits contain about 30-60 white, round seeds of 1-1.4 cm. in diameter, the small fruits only 5-10 big seeds, the remaining are very small of 0.3-0.5 cm. in diameter.

At the end of September the leaves disappear; the fruits are immersed at the bottom of the basins; not before Spring do they come asunder and the seeds are scattered on the ground. During the winter the white autumn colour of the seeds changes to dark black. The chemical analysis made by Mr. P. M. Karwowski in Harbin, shows that the kernels of Euryale contain more than 50% of starch and only 5 % of oil.

The growth of Euryale in North Manchuria—in a country with such great winter cold is worthy of attention. It shows that this subtropical plant is a native of Manchuria.

XXIII.—On the Study of the Flowers of the Manchurian Wild Apricot.

The Manchurian apricot tree (*Prunus manshurica* Kockne) represents one of the characteristic plants of the Manchurian flora and is seen only in the mountains of the south and middle parts, especially on the southern shores and in places protected from the north winds. In botany nothing much was known of this plant up to the present and only specimens with the fruits have been described without flowers. For this reason some observations were made by me at Harbin in the spring of 1918. They are as follows:—

Buds.—The leaf buds of the apricot tree are collected on the branches in threes of which only one is developed, the remaining two die and fall.

Flowering.—The buds' swelling begins in the middle of April and already in the beginning of May the trees are in flower and at this time they have no leaves. The flowers are in bud altogether one week, depending on weather conditions.

Disposition of flowers.—The flowers mostly are distributed in twos or in threes, but trees were observed with the flowers collected in fascicles, in quantities of 6-12.

Flowers.—The flowers are regular, hermaphrodite, are resting or are on thin peduncles of 1 cm. in length. The receptacular tube is campaniform a little distended at the base covered with indistinct furrows on the foundation green, from above red-brown, with 5-6 sepals. The sepals are oblong-oval, pointed, from the outside red-brown, from inside whitish-red-brown and during the flowering period they are turned back.

The corolla contains 5 petals, more rarely 6 (only about 1-2%), attached to the border of the receptacular tube; the petals of a backward-oval shape are three times longer than the sepals; at the budding stage they are of dark pink colour, but at the flowering pale pink, often of a whitish colour. On some trees with the sitting flowers the corolla frequently is not well developed and is sometimes smaller, than the sepals. Normally the stamens are smaller than the petals or of the same size and when the corolla is not unformed the stamens only are seen. Every flower has 25-42 stamens, which are placed in two rows on the inside border of the receptacular tube. The interior stamens are smaller than the exterior ones and are bent to the pistil. The pistil is unique, sitting on the receptacle; the ovary is upper, oblongly-oval, hairy on the exterior. The style is high, always oblique, smooth with an emarginate stigma. The length is a little smaller than the length of the stamens. Among the flowering apricot trees, *i.e.*, the forms with normal developed flowers sitting on long peduncles, are also met trees on which the normal developed flowers are without peduncles, but among the latter, flowers which have not a normal unformed pistil and ovary, undeveloped corolla and with good formed stamens have been observed. Often whole trees with abnormal developed flowers are seen though frequently on these plants the flowers with normal corolla are met, but the ovary and pistil on it is not well developed. Insufficient development of the flowers is a mark that the manchurian apricot is not constant in its appearance, though specimens are seen with the tendency to form it.

XXIV.—Observations on Banana Trees at Foochow.

The banana trees at Foochow and its environs are very common and are grown almost entirely for decorative purposes, but the plants bearing the fruits are not often seen. Here some different forms of *Musa sapientum L.* and *M. paradisiaca L.* are observed; besides these indubitably the

plants brought from Formosa, where several kinds of Musa are widely found in mountains. The cultivated local forms come from Amoy and other Southern parts of China, where are banana plantations. Among all local forms the common fruitful banana tree, which was observed in Chinese economies, was not of a large size. The grown up tree with the fruits are of 12-16 feet in height and have the leaves of 2.3-3.2 feet in breadth and the leaves with petioles of 8-10 feet in length. The first year the young sprouts grow to a man's height with the stalks in the lower part, 3-4 inches in breadth. At the end of the second year the plants are nearly of the size of a full grown tree with a trunk of 5-6 mm. in diameter already surrounded with young plants. The banana tree blooms in March and April in the third year, but sometimes later; during the flowering, excessive flowers are cut out and only about one hundred fruits are left, which begin to ripen in October and November, after which the dead tree is thrown down. Most fruits of this banana tree are smaller than those imported into Foochow from South China and Formosa. The taste of local fruits is not so delicate, more viscid and here they have no commercial properties. This tree bears fruit yearly and it requires planting in lower places near the water and the cutting of the excessive young plants, which are sometimes profuse.

Another kind of banana tree, which is rarely observed in Chinese villages is smaller and its fruits are bigger and better in taste, but this plant has not been examined by me. It comes also from the South.

Among the non bearing fruit plantains, must be indicated the forms of 15-18 feet in height but also there are colossi of 7 inches in diameter and 27 feet in height.

The local climatic conditions for the banana trees are not the most favourable, but nevertheless the warm and long summer of this place is completely sufficient to the maturation of the fruits.

These plants chiefly suffer in winter here, when often they lose the leaves, and generally in places not protected from the sea winds.

XXV.—A Study of the Rice Cultivated at Foochow.

Foochow and its environs, being in south-east China, has a population which is extensively a cultivator of rice, which here represents the principal food. In the report of Mr. G. Philipps published in 1888 are given the conditions of agriculture near Foochow; as well as the question of the quantity of land holdings by the farmers:

the working-class, land-tax, and the rice crops were also touched upon, but up to the present we have not been sufficiently informed as to what kinds of rice are cultivated in this district.

This special question has a considerable interest, not only from the scientific point of view, but principally on account of rural economy and because only poor information on this question exists in China, though more than half a hundred kinds of rice are known to Chinese literature. The number of the kinds of rice cultivated near Foochow is considerable and the principal ones are—the common rice (the summer and the winter rice), the glutinous, red rice and the upland rice; and each one contains different forms, which are well known to the Chinese farmer.

In the environs of Foochow in the Min River valley two crops of rice are obtained annually; in the mountains only one, but it is not necessary to conclude that in the valleys the rice fields are ploughed twice a year, and after the first crop the next rice is planted. By two crops it is necessary to understand that two rice plants set in Spring in one place do not ripen at one time—the first is gathered about the end of June and the middle of July, the other one about the middle of October; and for that reason one is called the summer, the other the winter rice. The best and the most valuable of all local rice grains are the upland and the winter rice. The summer rice is counted inferior in quality to the winter rice, and the red rice is considered the poorest kind. The glutinous rice is much valued by Chinese and is planted near the town in small quantities.

The poorest people of Foochow and neighbouring villages feed chiefly on summer and winter rice, but on account of the insufficient quantity of it the rice is cooked with the dried sweet potatoes. The richer classes eat the winter and the upland rice, and besides these the rice imported from other parts of Fukien and Shanghai. The following 20 kinds are the principal and the common kinds of rice cultivated near Foochow.

Common Rice (Oryza sativa L.)

Summer rice 早米.—Under this name the Chinese understand several kinds of common rice, which are planted in early spring and harvested in July. For its ripening it takes 110 days,—30 days to raise seedlings, and 80 days in the rice fields, but one kind of summer rice needs only 90 days for ripening, inclusive of the time of seedling. All the existing sorts of summer rice are planted in April or in the beginning of May, but always with the winter rice. They are planted across the range in such a way, that one range

has summer rice, the other the winter rice. At first the summer rice is planted and when it has grown to 30 cm., the winter rice is set between the ranges. The summer rice ripens in July and after its harvest only the winter rice remains, which is ready in October. By its rapid growth the summer rice is much valued by the farmers, who sow it calculating to receive a new crop quickly.

Every kind of summer rice is very cheap and is eaten by the poorest class. This rice is characterised by not very transparent grains, frequently of a whitish colour particularly over the seed-bud. They are brittle, farinaceous and are boiled soft. The hull of the grains is of an oblong shape, varying in size, of a light yellow colour, hairy in the upper part and with rubes not sharply expressed.

Near Foochow the following kinds of summer rice were examined:—

1.—*Big Summer Rice.*—大粒早 (see Fig. I. 1). This kind has big, light yellow hulls very wide in the upper part. The length of the hulls is 7-8 mm., the breadth up to 4 mm. The grains are big, brittle, whitish, of 5-6 mm. in length and 2.5 mm. in breadth.

2.—*Pear Summer Rice.*—珠早 (see Fig. I. 2). The hulls and grains resemble the big summer rice, but the hulls of the pearl rice are not so wide in the upper part. Pearl rice is considered to be one of the best sorts of summer rice.

3.—"*White Eye Brow*" or *late summer rice.*— 白眉早 or 秋早 (see Figs. I. 3, 5). Among the summer rices the late summer kind is the longest. The hulls are of a light yellow colour, and sometimes have white beards of no more than one cm. in length. The hulls are of 7-9 mm. in length and 2.5-3 mm. in breadth. This rice is harvested in July.

4.—*Sixty Days Summer Rice.*—六十日黃 (see Fig. I. 8) The seedling of this rice before being transplanted to the rice fields grows for 3-4 weeks and it is called "60 days rice" for the reason that after only 60 days the transplanted rice is ripe. By its hulls this kind much resembles the hulled pearl summer rice. The unhulled seeds are 6-8 mm. in length, 2.5-3.5 mm. in breadth. The grains are brittle, farinaceous and are not much valued by Chinese.

Winter rice.—黃尖 The winter rice is also planted in spring with the summer rice, but after the ripening of the latter the winter rice stays in the fields 2-3 months longer, so for its ripening it takes 4½-6½ months. After the inundations in May and June, which often destroy the fields with summer and winter rice, the winter rice is planted for the second time and it is harvested in the middle or end of

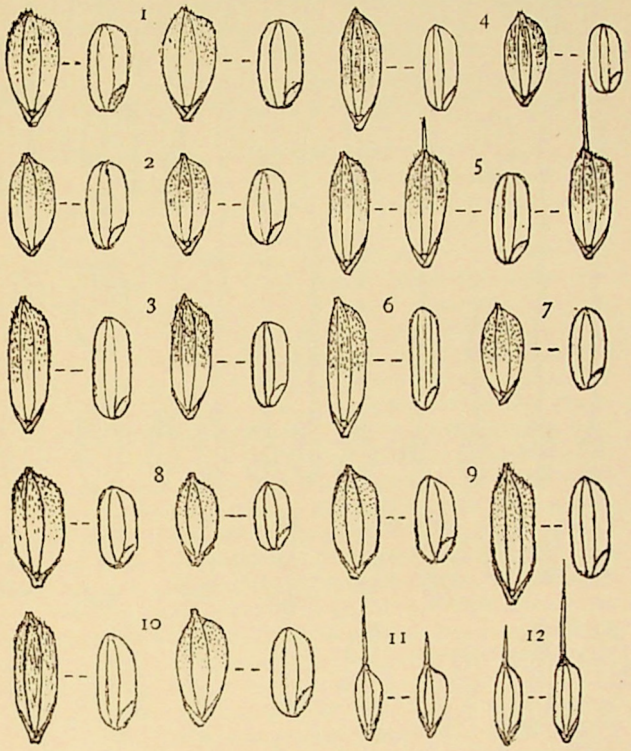


Fig. I. 1—Big summer rice ; 2—Pearl summer rice ; 3—White eye brow or late summer rice ; 4—High winter rice ; 5—Late summer rice ; 6, 7—Red rice ; 8—Sixty days summer rice ; 9—Big red rice ; 10, 11—Small red rice ; 12—Big red rice. (Except Figs. No. 11 and 12 all are twice enlarged).

[*see pages 86–89*]

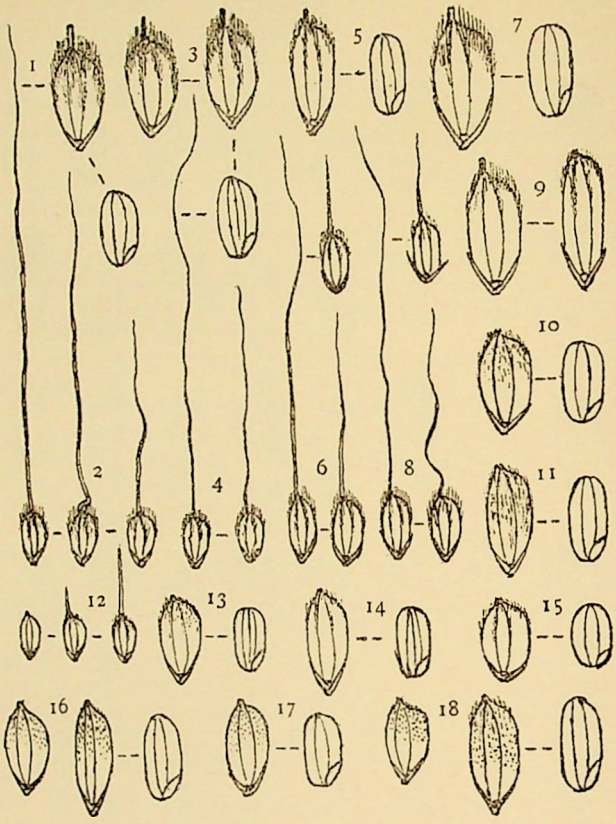


Fig. II. 1, 2—White bearded upland rice; 3, 4, 5—Red bearded upland rice; 6—Autumn white glutinous rice; 6, 7, 8, 9—Winter glutinous rice or big glutinous rice or white and red hair glutinous rice; 10, 11—Big winter glutinous rice; 12, 13, 14—Unbearded upland rice; 15—Big winter glutinous rice; 16—Winter (rice) like glutinous rice; 17—Lichee like glutinous rice; 18—Summer glutinous rice. (Fig. No. 2, 4, 5, 8, 12 are of natural size, all others twice enlarged).

[*see pages 89-90*]

October—after 4½ months. Among the rice fields covered with the winter rice were observed some places where the rice stalks were attacked by the worms of small butterflies,—*Schaenobius incertellus W. L. K.*[8] which sometimes destroys more than 5% of all the crop. Some local Chinese know this insect, but others explain the dried stalks by the strong summer winds. This rice pest was examined in many places of Fukien, Kiangsu, Kwangtung, Kwangsi, Hainan and is worthy of attention.

Now in the Foochow Anglo-Chinese College a selection of winter rice is produced by Mr. C. R. Kellogg and by Chinese students and as Mr. C. R. Kellogg kindly informed me—"The smallest number of kernels per head was 52 and highest number 172, showing the amount of variation in single heads, all of which were grown under the same conditions. These heads have been saved and next year the seeds be planted in an effort to improve the yield of rice."

The winter rice is well distinguished from the summer rice by the hulls being of a dark yellow colour, with dark brown-yellow or reddish-yellow streaks, between the faces, mostly in the upper part of the hulls. Some hulls are of a dark reddish-brown colour but were not often examined. The bearded winter rice was not seen, and only once some hulls with small beards of 1-1.5 mm. in length were noted. The grains of the winter rice resemble the grains of the summer rice but the first one is more transparent; the whiteness, though observed being almost absent. The seeds are hard, heavier than the grains of the summer rice. The winter rice is much valued by Chinese, thanks to its pleasant savour and nourishing properties. Only two kinds of winter rice are distinguished by the Chinese.

1.—*High Winter Rice.*—青秫 See Fig. I. 4. This is one of the common rice plants near Foochow. It is mostly 1 meter in height and prefers a rich ground. The unhulled winter rice is 6.5-8.5 mm. in length and 2.5-3 mm. in breadth. The grains are of 5-6.5 mm. in length and 2.2-2.5 mm. in breadth.

2.—*Sesame like winter rice.*—油麻占 This kind of rice is not common near Foochow and is distinguished from the above kind by its smaller height. The seeds have the same shape as the big and high winter rice.

Upland rice (ORYZA SATIVA VAR. MONTANA = 粳 米). The upland rice is only cultivated in mountains near Foochow at the height of 500-1,000 feet. As in many places in China,

[8] Un perforateur du riz. Schaenobius incertellus WLK. (Bul. Econom. de L'Indochine, N. 131, 1918. Hanoi-Kaiphong.)

the upland rice is grown here on terraces specially made near the water streams. The mountain rice is also grown in water and the conditions of the growth here are very different from the conditions of the valley rice life. The hulled upland rice is well differentiated from the hulled summer and winter rice. Their hulls are short, broad-sided and very wide in the upper part, covered with hair and mostly bearded. The grains of the upland rice are broad, hard, transparent without white spots inside and for this the upland rice is counted the best of all kinds. The following kinds were observed near Foochow.

1.—*Unbearded upland rice.*—粳 米 See Figs. II. 12, 13 and 14. This common kind is the smallest of all upland rice. The hulls are of a light yellow colour, without beards, but sometimes they are seen on some spikes. The unhulled seeds are of 6-7 mm. in length and 3 mm. in breadth. The grains of 4.5 mm. in length and 2.5 mm. in breadth. The hulled seeds of 7.5 mm. in length are rarely observed.

2.—*White bearded upland rice.*—白 猴 毛 甘 米 See Figs. II. 1, 2. This kind has beards sometimes of 7 cm. in length. The unhulled seeds of it are of a very light yellow colour, 6-7 mm. in length, 3 mm. in breadth. The grains are 5-5.5 mm. in length and 2.5-3 mm. in breadth.

3.—*Red bearded upland rice.*—紅 猴 毛 甘 米 See Figs. II, 3, 4, 5. It is characterised by the oblong unhulled seeds with beards of 2,3,7 cm. in length. The grains are of a long stretch, of 5-6 mm. in length and 2.5-2.8 mm. in breadth. The unhulled seeds are of 6-7 mm. in length and 3-3.5 mm. in breadth.

Red Rice (Oryza sativa var. praecox 紅 米). Red rice is not common near Foochow and is only cultivated in villages lying near the river. It is planted on the poorest ground and is looked on as the cheapest kind of all local rice. It is sowed and transplanted in the same manner as other kinds and is gathered only in autumn.

The following forms of red rice were examined at Foochow.

1.—*Big red rice.*—大 紅 米 See Figs. I. 9, 12. The big red rice has large, big, thick grains of a light red colour, but sometimes the seeds are light whitish-brown-red. The unhulled seeds are dark gray colour of 8-10 mm. in length, 3-3.5 mm. in breadth and not seldom they contain beards of 5-2 cm. in length. The grains are 6.8-7.5 mm. in length and 2.5-3 mm. in breadth. This kind is planted in spring and harvested in October.

2.—*Small red rice.*—小 紅 米 See Figs. I. 10, 11. This kind is distinguished by Chinese from the former one in having

smaller hulled seeds. The colour of the hulls is much like the colour of the winter hulled rice, but usually more dark and the seeds are bigger. The colour of the seeds is very varied, they are light red, sometimes of a white colour with a reddish shade. The unhulled seeds sometimes have beards of 5-1.5 mm. in length; the hulls are of 6.5-9 mm. in length and 2.5-3 mm. in breadth. The seeds of 5-7 mm. in length and 2.5 mm. in breadth.

3.—See Fig. I. 6. This kind has big, very long hulls of a light yellow colour, covered with small hair. The unhulled grains are of 7-9 mm. in length and 2.5-3 mm. in breadth. The grains are long, covered with a dark red skin and are of 6.5 mm. in length and 2 mm. in breadth.

4.—See Fig. I. 7. The second kind has hulls and seeds less oblong in shape. The unhulled seeds are 8 mm. in length and 2.5 mm. in breadth. The grains of 5-5.5 mm. in length and 2.2 mm. in breadth of a dark red colour.

Glutinous rice (Oryza Glutinosa Rumph.) 朮米—This distinct species of rice gets its name from its sticky properties after being cooked. Besides this it is distinguished from other forms of the common rice (oryza sativa) by its higher stalks and bigger, untransparent, white grains. It is used by Chinese to make many sorts of sweets and drinks and for that reason it is more valued than the common rice. Near Foochow the glutinous rice is not cultivated in great quantities, but it is seen in every Chinese establishment, grown for private needs. Mostly this rice is planted in places near the river, canals or on the low islands; is sown and transplanted in spring in the same way as other kinds of rice, and is harvested in September or in October, but also there exist two kinds harvested in July with the summer rice. It must be noted that the farmers during the harvest usually cut the straw of glutinous rice about 1.5 feet above the ground. This rice is cultivated in several forms, which are as follows:

1.—*Winter glutinous rice*, big glutinous rice, white hair glutinous rice or red hair glutinous rice 冬朮米, 大朮米, 白猴毛朮 紅猴毛朮. See Figs. II. 6, 7, 8, 9. This kind is cultivated on low places pre-eminently near the canals; and their stalks grow about 1½ meters in height. The spikes are mostly white or red bearded and their beards have different length or sometimes are unbearded. It ripens in autumn with the winter rice. The unhulled seeds are of 8-9 mm. in length and 3 mm. in breadth. The grains are 6 mm. in length and 3 mm. in breadth. This kind is one of the common glutinous rice grains.

2.—*Big winter glutinous rice*.—大冬朮米 See Figs. II. 10, 11, 15. This sort has seeds smaller than the seeds of

the winter kind as may be seen in the Figs. II. 10, 11, 15. Two different forms are found here.

A.—See Fig. II. 10, 11. The hulls are without beards and are 7-8 mm. in length and 3-3.5 mm. in breadth. The grains are 5.5 mm. in length and 3 mm. in breadth.

B.—See Fig. II. 15. The hulls and seeds are rounder and smaller. The unhulled seeds are of 6 mm. in length, 3.5 mm. in breadth. The grains are 4.5 mm. in length and 3 mm. in breadth.

3.—*Autumn white glutinous rice*.—秋白朮米 See Fig. II. 6. It is the biggest of all local rice; is planted only near the river and canals and reaches sometimes 2 meters in height. The spikes of it are big, long, heavy; the hulled seeds are usually with long white beards. The hulls are big and of a light yellow colour.

The unhulled seeds are of 9 mm. in length and 3.5 mm. in breadth. The grains are of 6 mm. in length and 3 mm. in breadth. The breads are of a different length, small, or of 5-10 cm. It ripens at the end of September and in the beginning of October.

4.—*Winter (rice) like glutinous rice*.—黃尖米 See Fig. II 16. This is the smallest kind of all glutinous rice. The hulled seeds are have the same colour and size as the hulled winter rice, but the grains of this kind are white and not transparent. The unhulled grains are of 6-8 mm. in length, 2.5-3 mm. in breadth. The grains of 4.5-6 mm. in length and 2-2.5 mm. in breadth. Winter like glutinous rice ripens only at the beginning of October with the other rice.

5.—*Lichee like glutinous rice*.—荔枝朮米 See Fig. II. 17. A kind of glutinous rice with sufficiently large seeds and with pretty hulls of a light yellow or of brick-red colour. The unhulled seeds are of 6-7 mm. in length, 2.5-3.5 mm. in breadth. The grains of 5-6 mm. in length and 2.5-3 mm. in breadth. If this kind is sowed with the summer rice it is harvested in July; if with the winter rice, at the end of September.

6.—*Summer glutinous rice*.—早朮米 See Fig. II. 18. This kind has hulled flat seeds of different shape, inside are small white grains. The unhulled seeds are of 6-8 mm. in length, 3-3.5 mm. in breadth. The grains are of 5 mm. in length and 2.2-2.5 mm. in breadth. The summer glutinous rice ripes in July and is one meter in height.

XXVI.—On the Kaoliang and Barley, Cultivated in Manchuria.

Among various gramineous plants cultivated in Manchuria the local kaoliang and barley are of considerable

interest. The former one is the staple grain of this district and is largely cultivated throughout Manchuria, the second is not so common, and is seen both in the South and North of the country. These plants are met with in several varieties and local forms, some of which are of a rural economic interest.

Great millet or kaoliang is found in the following forms:—

I.—*Andropogon Sorghum* Brot. var. vulgaris subvar. *japonica*. This is the principal kind which is grown in great quantity everywhere. It is an annual of 5-12 feet in height; with sufficiently wide linear leaves and thick, straight, standing, compact brush. The spikes on the sides of the branches of the brush are disposed in pairs, but on the ends by threes. The riped spikes are backward-oval, bright black or pale yellow.

The following forms of this subvariety are found.

1.—*Bearded red kaoliang*. This kind has small beards and reddish seeds. 2.—*Unbearded red kaoliang*. A form. without beards. 3.—*Unbearded white kaoliang*. A unbearded kind with eight white yellow grains. 4.—*Bearded white kaoliang*. A kind with small beards.

II.—*Glutinose kaoliang*. *Andropogon Sorghum* Brot. var. *halepensis*, subvar. *leiostachys Hackel*. This form is not frequently observed and is remarkable for its long, large very cernous branchy brushes, with bearded spikes. The seeds are smooth, black in the upper part covered with bristly hairs and glutinous when cooked. This plant is of 5-9 feet in height and has the appearance of a gigantic millet.

Barley in Manchuria is found in three forms among which the four rowed barley is the most common. In following forms are represented here.

1.—*Four-rowed barley*. (*Hordeum vulgare L.*) It has four rowed spikes and oblong grains. 2.—*Six-rowed barley*. (*Hordeum hexastichum L.*) This kind was brought to Manchuria from Europe. 3.—*Manchurian six-rowed barley*. (*Hordeum hexastichum* L. var. *mandshuricum* Regel). This local variety is distinguished from the former one by cylindric, cernous spikes. In the opinion of Prof. Regel this plant is very valuable for cultivation for its rich harvest and rapid ripening. The Chinese barley in Manchuria is far better than the barley cultivated in the Russian Far East, but this is because of the method of cultivation.

XXVII.—Kaoliang and Maize Growing at Foochow.

At first sight it appears strange that there should be an enormous difference in rural economic life between the North

and South of China. For instance in the North kaoliang serves as one of the principal food stuffs: while in the South at Foochow this cereal is but little used by the local farmers. Kaoliang is not found here in grain and medicines shops, but is sometimes observed in market-gardens as a plant forming high hedges and the seeds are used to feed poultry and also to prepare the kaoliang-groats. More frequently kaoliang is planted in small groups of 10-20 specimens, but big plantations of them are rarely seen. It is found here in the bearded form with white and red seeds, it is sown in the third month (lunar calendar) and ripens in the eighth.

Two harvests of kaoliang are obtained. The first crop consists of the big brushes, growing directly on the stalks, the second is obtained from the brushes, growing up from the the lateral shoots appearing in the middle of the stems.

The second brushes are three times smaller than the first one and have only 60-150 seeds. For this reason the local Chinese have a habit, with the ripening of large brushes, not to cut it near the roots, as is done in North China, but near the top of the stalk. This fact shows that the local Chinese are skilful in their economy of cultivated plants.

The second cereal is maize but not well known locally which is also only seen in vegetable gardens with yellow grains. Maize is planted here in the third month and then the seedling will reach 5-7 inches, they are transplanted on beds one foot from each other.

The local plants are low, feeble, with a very small cob. The maize grains and maize flour are not common as food stuffs here.

XXVIII.—List of Plants Growing in Foochow.

The following list of plants which is given in this note represents my first short botanic report on Foochow. It contains only a small portion of existing plants in this locality and the remaining ones after being defined will be given later on.

Aleurites cordata D. C.
Abutilon avicennae Gaertn.
Adiantum cuneatum Lgsd. and Fish.
Agave americana L.
Albizzia Julibrissin Dur.
Alisma Plantago L.
Aralia sinensis L.
Areca Catechu L.
Asparagus lucidus L.
Azalea indica L.
Azalea sinensis Lodd.
Azolla sp.
Bambusa arundinacea Weed.
Bambusa vulgaris, Schrad.
Bombax malabaricum.
Biota orientalis Endl.
Bignonia grandiflora L.
Boemeria nivea. Hook and Arn.
Capsella Bursa pastoris Moench.
Coix lacryma L.
Calendula officinalis L.
Canarium album Raensch.
Camellia japonica Thub.
Camellia sasangua Thunb.
Canna indica L.
Carica Papaya L.
Caryota sp.
Catalpa Kaempferi S. and Z.
Celosia cristata L.

Chamaerops excelsa Thub.
Chrysanthemum sinensis Sab.
Chloranthus inconspicuus Sw.
Chlorophytum Sternbergianum Staud.
Cinnamonum camphora.
Citrus auranticum L.
Citrus decumana Lour.
Citrus japonica Thunb.
Citrus media Riss.
Citrus triptera Desf. (?)
Commelina sp.
Cryptomeria sp.
Cunninghamia sinensis R. Br.
Cupressus funebris Endb.
Cycas revoluta Thunb.
Datura alba Nees.
Datura arborea.
Dianthus chinensis L.
Dioscorea quinquiloba Thunb.
Diospyros kaki L.
Eucalyptus globulus Lab.
Fatsia papyrifera Benth. and Hook.
Ficus repens weed.
Ficus retusa L.
Fragaria indica Andr.
Funkia subcordata sprgl.
Gardenia florida L.
Gleditschia sinensis L.
Ginkgo biloba L.
Gomphrena globosa L.
Hedera helix L.
Helianthus annus L.
Hemerocallis flava L.
Hibiscus syriacus L.
Hibiscus rosa sinensis L.
Hibiscus mutabilis L.
Humulus japonicus S. and Z.
Hex latifolia Thunb.
Jasminum sambac Ait.
Jasminum nudiflorum Tdl.
Janiperus chinensis L.
Kochia scoparia Schr.
Kerria japonica Dc.
Lemna minor L.
Lespedeza sp.
Liquidambar formosana Hance.
Livistonia chinensis Br.
Magnolia grandiflora L.
Magnolia yulan Desp.
Marsilia quadrifolia L.
Matricaria chamomilla L.
Melia Azedarach L.
Mentha arvensis L.
Mespilus japonica Thab.
Morus alba L.
Monocharia vaginalis Sprg.
Murraya exotica L.
Musa sapientum L.
Myriophyllum spicatum L.
Narcissus tazetta L.
Nelumbirem speciosum L.
Nephelium lichi L.
Nephelium longana comb.
Nerium oleander L.
Nymphaca sp.
Olea aquifolia S. and Z.
Ophiopogon spicatus gawl.
Oryza sativa L.
Oryza glutinosa Rumph.
Poinciana pulcherrima L.
Populus alba L.
Populus balsaminifera L.
Portulaca oleracea L.
Prunus mume S. and Z.
Prunus persica S. and Z.
Pteris aquilina L.
Pteris serrulata L.
Punica granatum L.
Pirus sinensis Ldl .
Pirus baccata L. (?)
Reineckia carnea Knth.
Rhapis humilis Bl.
Rhapis flagelliformis Ait.
Ricinus communis L.
Rhynchospermum jasminoides Ldl.
Rosa indica L.
Saccharum officinalis var. sinensis.
Saccharum officinalis var. rubricaule.
Rumex acetosa L.
Sagtittaria sagittaefolia L.
Salix babylonica L.
Salvinia natans L.
Sapindus mukorossi gaertn.
Scirpus tuberosus L.
Scolopendrium vulgare Swtz
Serissa foetida comm.
Sophora japonica L.
Spirodela polyrrhiza Schleid.
Stillingia sebifera Mich.
Taraxicum sp.
Taxodium heterophyllum.
Thea viridis L.
Thea Bohea L.
Trachycarpus excelsa Th.
Trapa natans L.
Tropaelum magus L.
Typha orientalis Presl.
Ulmus parvifolia (?)
Utricularia vulgaris L.
Wistaria chinensis Dc.
Wollfia arrhiza Wimm.
Woodwardia japonica Sw.
Yucca sp.
Zea may. L.

XXIX.—The Insect Trade in South China and Some Methods of Catching Insects.

In the South part of China, generally, as well as in subtropical and tropical regions the local insects attract attention for their diversity and quantities. They are used in native medicines, and as food. Lately they have been collected for commercial purposes. In most Chinese medicine shops in Foochow there are seen whole boxes full of different insects,[9] but principally the natives have been collecting for sale to the foreigners. Before the last war they were being exported specially to Germany; but owing to the interruption of the export trade to Europe, this trade here was reduced to a minimum, though some collections are now sent to Shanghai to the Museum of the Asiatic Society. The export of insects from Foochow to Germany was so large that big reserves had to be made by local Chinese for instance, still at the present time one can see pots of 15-20 pounds in weight full of bamboo beetles (*calandra longipes*) and besides this hundreds of valuable kinds, bright-coloured Chinese carnivorous beetles. The local climatic conditions do not permit of ordinary preservation so the Chinese preserve them in rolled capsules of thin cigarette paper. For instance, for a beetle of one inch long it takes a square piece of paper of 3 × 3 inches, the insect is rolled to or three times in it and the ends are twisted.

This method saves each insect from moulds and from the breakage of tender parts. The redressed insects are not long preserved on pins, since after a certain time they are not only covered with byssus (*Penicillium crustaceum*), but also with larger *Mucoraceae*, and after few years they begin to fall in pieces. To keep the butterflies here is difficult. Owing to the local dampness the redressed butterflies drop the wings, become spoiled and are quickly discoloured in the day light.

To collect winged and water insects the Chinese use bags, but the way of catching the cicada, dragonflies and other fly insects is most original and interesting. For catching the tender dragon-flies they employ long bamboos on the ends of which is tied a thin bamboo hoop of 30-50 cm. in length and 20-30 cm. in breadth. On this hoop is wound the spider web gathered on the walls, hedges and mostly everywhere. The web is collected until the interstices of the hoop are covered with a thin net of the web. To

[9] The insects used in Chinese medicines are now studied by C. R. Kellogg at Foochow.

catch an insect the net is brought near to it, which not noticing the transparent texture during its flight, falls on and sticks by the wings to the tenacious web. After this the collector, holding the bamboo between the legs, takes off the insect with his two hands, and thus the collector gets the insect in an excellent state. To collect cicada seated high on the trees the same hoop is also used; but more frequently a long bamboo coated on the end with the white gluish sap of the banyan tree or by a glue made from pine resin and of a wood oil—T'ung-yu (*Aleurites cordata*). By a cautious approach of the bamboo end to the insect the latter sticks to the bamboo by its large wings.

This method of catching insects has been known to the Chinese for a long time.

XXX.—The Use of the Horse-Tail. (*Equisetum hyemale L.*) in China.

Among the numerous interesting and useful Chinese plants attention is drawn to the so called winter horse-tail employed by Chinese in medicines, and polishing wood. This horse-tail is very common in North China in the provinces of Kiangsi and Shensi from whence a large quantity is exported, chiefly to the South, pre-eminently as a medicinal herb.

It is seen in other parts of North China and Manchuria, where the horse-tail has a trade importance. *Equisetum* is only found in marshes mostly among forests. It has a compact root system and stalks without branches of 3-6 m.m. in breadth and ½-1 meter in length placed very closely to each other. The fructification bearing spores are seen on the top of the green shoots. The stalks are round with 20-24 furrows, inside hollow, thanks to the aerial cavity. The exterior coat is silicious; the surface of the stalks are compact; the whole covered with silicious hard small knobs. On account of the silex in the covering the stalks of *Equisetum* (木賊草) with its 24 furrows represents a wonderful material for delicate polishing not only of wood, but of brass, silver and other metals; and these stalks are, therefore, used in large numbers by Chinese curio workshops in Foochow and in many other places in South China to polish all possible fine wood-work. As a general rule in Foochow the wooden figures are cut out of lichee, lungan and camphor woods (*Nephelium litchi* L., *N. longana Coml.* and *Cinnamomum camphora*). Firstly they are polished with shack skin (沙魚皮), but for the final polishing the stalks of *Equisetum* are employed. A Chinese, holding in his hands a piece of the horse-tail, 2-3 inches long, rubs the wood,

always across the furrows of the stalks. As a polishing material the stalks of the *Equisetum* are very solid and more durable and cheaper than sand-paper, giving the reason why the foreign sand-paper is not used much by the Chinese. The stalks of *Equisetum* are greatly valued by Foochow ivory-turners and have an extensive application in the local production of wooden articles.

XXXI.—On New Flagellata from Manchuria.

In my first notes on Flagellata of Manchuria,[10] 127 forms of inferior vegetable organisms have already been described, including 40 new species and varieties, and many of them were of scientific interest because of their peculiar construction. The investigation of water basins in the environs of Harbin, continued by me in the summer of 1917, has convinced me of the original character of the Flagellata observed.

At the second investigation 60 different forms were found, 42 of which are placed as new in science. It is specially interesting to indicate that of the 190 existing forms of this genus 80 are now known only in Manchuria. It must also be noted that the wealth of new forms. comes not as a result of the investigation of materials from all—possible and remote districts of Manchuria, similar to the investigations of Mr. D. O. Swirenko made in European Russia, but is the result of studying the samples of phytoplankton taken only at Harbin from several marshes and ponds in the Sungari river valley. Among the new species of *Trachelomonas* found here the most interesting were the forms with a rim on the upper part of the lorica, such as *Tr. Wislouchii, Tr. Komarowii, Tr. peridiniformis, Tr. marginellus* and it is interesting to remark that only in North America as described by Palmer, was there found a kind of *Trachelomonas* named *Tr. Spiculifera* with a very small rim around the flagella hole. In Manchuria also are found *Trachelomonas* approximating to an American kind *Tr. Americana*—this is *Tr. Manchurica*, but the latter is without the long collar. It is also characteristic that the new Manchurian forms have the lorica covered with double net points, as seeen on *Tr. Arnoldiana* (Pl. II, Fig. 10), *Tr. hispida* var. *bipunctata* (Pl. I, Fig. 11) and one very interesting variety *Tr. globularis* var. *punctata* (Pl. II, Fig. 32) with small thorns and small and large spots on the surface of the lorica. Other species as—*Tr. Komarowii* var. *punctata* (Pl. II, Fig. 21), *Tr. hispida* var. *macropunctata*

[10] The materials on Flagellata of Manchuria, Part I; 2 plates (Journal of Microbiology, Vol. IV, 1917, Petrograd).

(Pl. I, Fig. 24), *Tr. cylindrica* var. *punctata* (Pl. I, Fig. 29), *Tr. Kelloggii* var. *limosa* (Fig. 6 in the text), *Tr. Arnoldiana* var. *formosa* (Pl. II, fig. 15), *Tr. sp.* (Pl. I, Fig. 28)—have only large points under the form of round pits on the surface of the brown lorica.

From a study of much material on *Trachelomonas* from Manchuria and from other places of Asia, I have come to the conclusion that these organisms are very polymorphous and often there are signs of one kind uniting with another. A large variation was observed, especially in *Tr. volvocina*, var. *cervicula* (Pl. II, Fig. 9), *Tr. verrucosa* var. *ornata* (Pl. II, Fig. 2), *Tr. Kelloggii* (Pl. I, Figs. 7 and 8), *Tr. globulars*, *Tr. Wislouchii*, *Tr. oblonga*, *Tr. hispida*, *Tr. armata*, *Tr. paludosa*, *Tr. Raciborskii*.

In the present notes I give the list of 48 *Trachelomonas* among which 42 are described as new species and varieties, two kinds of *Trachelomonas* are not defined and other three forms with names are taken from my first work. At the same time I have made some alterations in the classification and all this new grouping comes from the study of all existing species. During the summer of 1907 in the environs of Harbin there were seen 13 kinds of *Flagellata* not observed in Manchuria previously, and they are *Euglena tripteris* (Duj.) Klebs, *Phacus striata* Fr., *Lepocinclis fusiformis* (corda) Lemm., *Lepocinclis sphagnophila* Lemm., *Lepocinclis texta* (Duj.) Lemm., *Trachelomonas pulchra* Swir., *Tr. incertra* Lemm., *Tr. reticulata* var. *punctata* (Lemm.) (= *Tr. incerta* var. *punctata* Lemm.), *Tr. reticulata* var. *amphora* (Swir.) (= *Tr. amphora Swir.*), *Tr. Schaninslandii* Lemm., *Tr. Rasiborskii* Wolosz, *Tr. piscatoris* var. *granulata* Skvortzow and *Eutosiphon ovatum* Stokes.

The list of new Trachelomonas is:—

Trachelomonas Manchurica nov. sp. (= *Tr. globularis* (Awer.) Lemm.) var. *longispina* Skvortzow.

Var. *Arnoldiana*[11] nov. var. Pl. II, Fig. 24. Lorica spherical, brown in colour, covered with dots and sharp-pointed long spines 10-12 in number of 7-8 microns in length and with 8 small rounded knobs around the flagella hole. Diameter of the lorica is 18 microns.

Tr. poltavica (Swir.) nov.[12] var. *atomaria* nov. var. Pl. II, Fig. 20. Lorica spherical, round, dotted, bright-yellow in colour. The upper part is contracted and passes directly to the neck. The diameter of the lorica is 14 to 16 microns.

[11] Named in honour of Mr. Boris R. Arnold who has collected this *Trachelomonas* at Harbin.

[12] The present species is apportioned by me from *Tr. granulata* Swir. var. *poltavice* Swir.

Tr. spiralis nov. sp. Pl. I, Fig. 1. Lorica oval, dark-brown, the surface longitudinally striated. The upper part is flattened, the lower is contracted and rounded. The lips surrounding the flagella hole are thick, of 3.1 microns in breadth. The length of lorica 27 microns, the breadth 23 microns.

Tr. Komarowii nov.[13] sp. (= *Tr. Wislouchu* Skvortzow var. *Manchurica* Skvortzow) var. *punctata* nov. var. Pl. II, Fig. 21. This lorica has the same shape as the typical form, but all the surface is covered with circular pits. Diameter of the lorica is 21 to 23 microns. The breadth of the flagella hole is 4 microns and of the rim 11 microns.

Tr. Wislouchii Skvortzow var. *punctulosus* nov. var. Pl. II, Fig. 8. Lorica has also the same shape as the typical form, but is covered, except the round knobs, with dots. The diameter of the lorica is 28 microns.

Tr. Planktonic Swir. var. *ornata* nov. var. Pl. I, Fig. 19. Lorica is nearly spherical, brown, thickly covered with dots and rounded knobs. The tube-like neck is serrated and of 4.3 microns in length. Lorica is of 23 microns in length and 17 microns in breadth.

Var. *Gracilis* nov. var. Pl. I, Fig. 21. Lorica nearly spherical, brown, smooth. The tube-like neck is cut obliquely. Lorica is 18 microns in length and 16 microns in breadth. The breadth of the neck is 2.5 microns. The chromatophores are numerous. Eye spot is distinct.

Var. *Asiatica* nov. var. Figs. 1 and 2 in the text. Lorica broadly-oval, transparent or brown, dentated. The neck is straight of 2.5 microns in length. Chrometophores are numerous, eyes spot is distinct. Lorica is 17 microns in length and 14 microns in breadth.

Tr. intermedia Dang. var. *decorata* nov. var. Fig. 9 in the text. Lorica is nearly sperical, brown, covered with few rounded knobs, disposed in small groups of 2 or 3. Lorica is of 15 to 18 microns in length and of 11 to 13 microns in breadth.

Var. *Castaneus* nov. var. Pl. II, Fig. 23. Lorica nearly spherical dark brown, covered with mass of lines. Lorica is of 15 microns in length and 12 microns in breadth.

Var. *Hispida* nov. var. Pl. I, Figs. 17 and 18. Lorica broadly-oval, brown. Surface covered with minute sharp-pointed spines. Lorica is of 16 microns in length and of 13.5 microns in breadth.

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[13] Named in honour of Mr. L. D. Komarow, a well known Russian Botanist, investigator of the Manchurian flora.

Tr. Kelloggii nov.[14] sp. Pl. I, Figs. 7 and 8. Lorica is broadly-oval, brown, dotted and with rounded knobs on the upper and lower part of the lorica. The knobs on the lower part are sometimes longer than the knobs of the upper part. The flagella hole is of 4 to 4.7 microns in breadth and is very thick. Lorica is of 35 microns in length and 31 microns in breadth.

Var. *Effigurata* nov. var. Pl. I, Fig. 6. Lorica is brown, dotted and covered with big round knobs. Lorica is of 35 microns in length and of 31.4 microns in breadth. The flagella hole is of 4.7 microns in breadth.

Var. *Limosa* nov. var. Fig. 7 in the text. Lorica dark-brown, covered with big circular pits. Lorica is of 30 microns in length and of 27 microns in breadth.

Tr. Hsipida (Perty) Stein var. *Bipunctata* nov. var. Pl. I, Fig. 11. Lorica brown, dotted and covered with circular pits. Lorica is of 26 microns in length and 21 microns in breadth. The flagella hole is of 3.5 microns in breadth.

Var. *Macropunctata* nov. var. Pl. I, Fig. 24. Lorica dark-brown, covered only with small circular pits. The neck is straight and serrated. Lorica is of 32 microns in length and 25 microns in breadth. The flagella hole is of 5.8 microns in length.

Tr. Horrida Palmer var. *moenacanthum* nov. var. Pl. I, Fig. 33. Lorica brown, dotted, covered with few small knobs. The neck is long, serrated of 4.7 microns in length and of 3.8 microns in breadth. Lorica is 28.3 microns in length and 18 microns in breadth.

Tr. Armata (Ehrenb.) Stein. var. *colorans* nov. var. Pl. I, Fig. 20. Lorica elongate-oval, brown, dotted, all covered with small knobs and on the lower part with large sharp-pointed spines. A short tube-like neck is serrated, of 5 microns in breadth. Lorica of 40 microns in length and 25 microns in breadth.

Tr. Raciborskii Wolosz. var. *Swirenkiana*[15] nov. var. Fig. 5 in the text. Lorica elongate-oval, brown, dotted and covered with knobs and in the middle part of the lorica they are smaller than on the upper and on lower part. Lorica is of 32 microns in length and 21 microns in breadth.

Var. *Punctata* nov. var. Pl. I, Fig. 15. Lorica brown, dotted. The tube-like neck is straight and serrated. Lorica has 35 microns in length and 27 microns in breadth.

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[14] Named in honour of Mr. C. R. Kellogg, a zoologist working in Foochow, China.

[15] Named in honour of Mr. D. O. Swirenko, the specialist on Flagellata in Harkow University, European Russia.

Tr. Teres Meskell var. *ornata* nov. var. Pl. I, Fig. 35. Lorica elongate, brown, dotted and covered with minute sharp-pointed spines. The tube-like neck is broad, short, serrated of 5.5 microns in breadth. Lorica is 26 microns in length and 16 microns in breadth.

Tr. Felix nov. sp. Fig. 3 in the text. Lorica oval, brown, dotted and covered with few elongate knobs. Lorica is of 20 m in length and 15 m. in breadth.

Tr. Mirabilis Swir. var. *orientalis* nov. var. (= *Trachelomonas* sp. in the "Materials on Flagellata of Manchuria" by B. W. Skvortzow, Pt. 1, Fig. E in the text). The diagnosis of this variety can be seen in the indicated note.

Var. *Affinis* nov. var. (= *Trachelomonas* sp. in "The Materials of Flagellata of Manchuria," by B. W. Skvortzow, Part I, Fig. D in the text). A variety covered with spines, the diagnosis also can be seen in the indicated note.

Tr. piscatoris (Fischer) Stokes var. *leavis* nov. var. Pl. I, Fig. 3. Lorica oval, brown, smooth. The upper part is contracted and passes directly into the neck. Lorica is of 25 microns in length and 14 microns in breadth. The neck if of 3.3 microns in breadth.

Var. *granulata* Skvortzow in the freshwater algae from the ponds of South China (Journal of N.C.B.R.A.S., 1919).

The Manchurian form had the neck serrated of 3 microns in breadth and the surface of the lorica covered with smaller granules. Lorica was 22 microns in length and 16 microns in breadth.

Tr. paludosa Skvortzow var. *elongata* nov. var. Pl. II, Fig. 1. Lorica a little longer than the typical form, of 36 microns in length and 16 microns in breadth. The surface is brown, dotted. The tube-like neck is of 4 microns in length and of 3.2 microns in breadth.

Tr. Arnoldiana[16] nov. sp. Pl. II, Fig. 10. Lorica oval, brown, contracted at the upper part and rounded at the lower part. The surface is dotted and covered with circular pits. The neck is straight, serrated of 5 microns in length and of 4 microns in breadth. Lorica of 25 microns in length and 20 microns in breadth.

Var. *Formosa* nov. var. Pl. II, Fig. 15. Lorica is oval, brown, covered with small circular pits. The upper part is contracted, the lower rounded. The neck is straight with the upper part cut obliquely, of 4.7 microns in length and of 4 microns in breadth. Lorica is of 28 microns in length and of 21 microns in breadth.

Var. *Granulata* nov. var. Fig. 8 in the text. Lorica oval, brown, covered with round knobs. The upper part is

[16] Named in honour of Mr. Borish Arnold who has collected this form.

very contracted, the lower round. The neck is long, straight. Lorica is of 23 microns in length and of 18 microns in breadth. Eye is distinct. Flagellum 2½ times bigger than the lorica.

Tr. Saccata Lemm. var. *paludosa* nov. var. Pl. II, Fig. 18. Lorica brown, covered with knobs of 35 microns in length and 23 microns in breadth. The neck is of 5.2 microns in breadth. The Chromatopheres are elongate.

Tr. Rarus nov. sp. Pl. I. Fig. 10. Lorica oval, brown, smooth. The upper part has a reclined neck and this is seen only in the optical section. The neck is of 6 microns in breadth. Lorica is of 18 microns in length and of 12 microns in breadth.

Var. *Punctata* nov. var. Pl. I, Fig. 14. Lorica brown, covered with circular pits and has 14 microns in length and 9.4 microns in breadth. The neck is of 4 microns in breadth.

Tr. Cylindrica Ehrenb. (= *Tr. euchlora* var. *cylindrica* (Ehrenb.) Lemm. Var. *punctata* nov. var. Pl. I, Fig. 29. Lorica is cylindrical, brown, covered with small circular pits. Lorica is of 26 microns in length, 14 microns in breadth. The neck is of 3.1 microns in breadth.

Tr. depressa Swir. var. *punctata* nov. var. Pl. I, Fig. 36. Lorica is brown, dotted, of 25 microns in length and 30 microns in breadth. The flagella hole is of 3.3 microns in breadth.

Tr. Borodiniana Swir. var. *minima* nov. var. Pl. II, Fig. 22. Lorica is brown, smooth, with a large neck of 6 microns in breadth. Lorica is of 15 microns in length and breadth.

Tr. incerta Lemm. var. *punctata* nov. var. Pl. I, Fig. 4. Lorica dotted of 18 microns in length and 12 microns in breadth. The neck of 2.2 microns in breadth.

Tr. rhombica nov. sp. (= *Tr. hispida* var. *rhombica* Skvortzow) var. *planktonica* nov. var. Fig. 4 in the text. Lorica oval, contracted at both ends, brown. The neck is long of 5.5 microns in length and 3.5 microns in breadth. Lorica is of 30 microns in length and of 20 microns in breadth.

Tr. tuberosus nov. sp. Pl. I, Fig. 12. Lorica elongate, varied, in shape, contracted at both ends, brown, dotted. Lorica is of 28 microns in length and 13 microns in breadth. The neck is of 4.5 microns in breadth.

Tr. Chinensis Skvortzow var. *ovata* nov. var. Fig. 7 in the text. Lorica brown, broadly-oval, covered with knobs. The neck is serrated of 4.5 microns in breadth. Lorica is of 22 microns in length and 16 microns in breadth.

Tr. Fluviatilis Lemm. var. *curta* nov. var. Pl. I, Fig. 31. Lorica light-brown, smooth with a very broad middle part. The neck is serrated of 2.5 microns in breadth. Lorica is of 22 microns in length and 16 microns in breadth.

Var. *glabra* nov. var. Pl. II, Fig. 11. Lorica light-brown and roughened. The neck is sloped, of 5 microns in breadth. Lorica of 26 microns in length and 14.1 microns in breadth.

Tr. Swirenko Skvortzow var. *pulchra* nov. var. Pl. II, Fig. 17. Lorica brown, covered with knobs and dots. The lower part is rounded with a spine on the end. Lorica of 40 microns in length and 23 microns in breadth. The neck is of 6 microns in breadth.

Tr. inplatus nov. sp. (= *Trachelomonas* sp. in "The Materials on Flagellata of Manchuria," by B. W. Skvortzow, Pl. I, Fig. 16. Lorica of the type of *Trachelomonas Swirenko* Skwertz, but is distinguished by a neck being distinct from the lorica. The surface is brown, covered with dots. Lorica is of 47 to 49 microns in length and 19 to 21 microns in breadth. The neck is of 5.5 to 6 microns in length and of 4 to 4.5 microns in breadth.

Tr. Zmiewika Swir. var. *hispida* nov. var. Pl. II, Fig. 14. Lorica is light brown, covered with very small spines. Lorica is of 48 microns in length, 27 microns in breadth. The neck is of 6 microns breadth.

Tr. tambowica Swir. var. *granulata* nov. var. Pl. I, Fig. 30. Lorica light covered with rounded knobs. Lorica is of 45 microns in length and of 20 microns in breadth. The neck is of 5.4 microns in breadth.

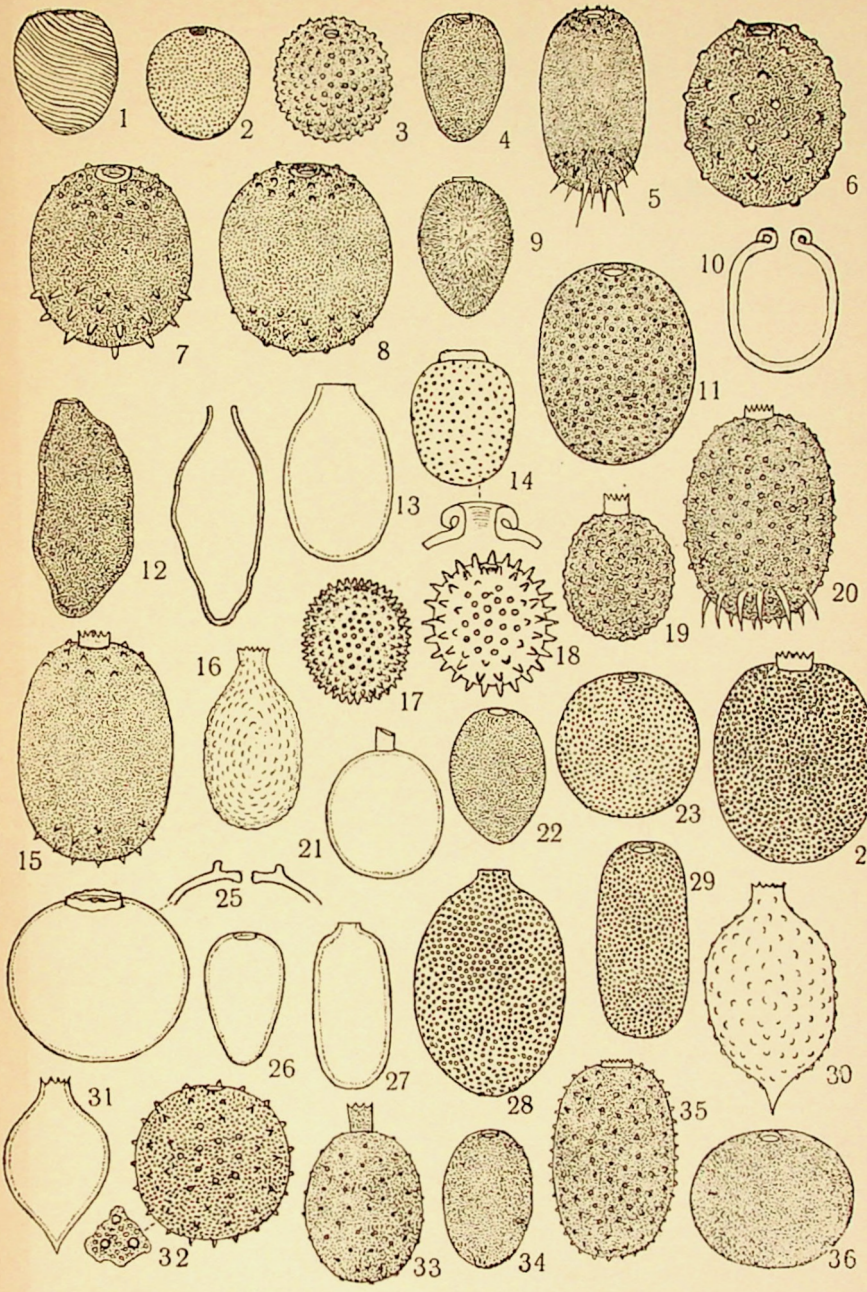
Tr. sp. Pl. I, Fig. 28. Lorica oval, brown, covered with small pits. The upper part passes directly to the neck. Lorica is of 26 microns in length and of 19 microns in breadth. The neck is of 3.9 to 41 microns in breadth.

Tr. sp. Pl. II, Fig. 12. Lorica is very elongate, brown, dotted and covered with sharp-pointed spines. Lorica is of 40 microns in length and of 27 microns in breadth. The neck is of 4 microns in breadth. This type is related to the *Tr. horrida* Palmer.

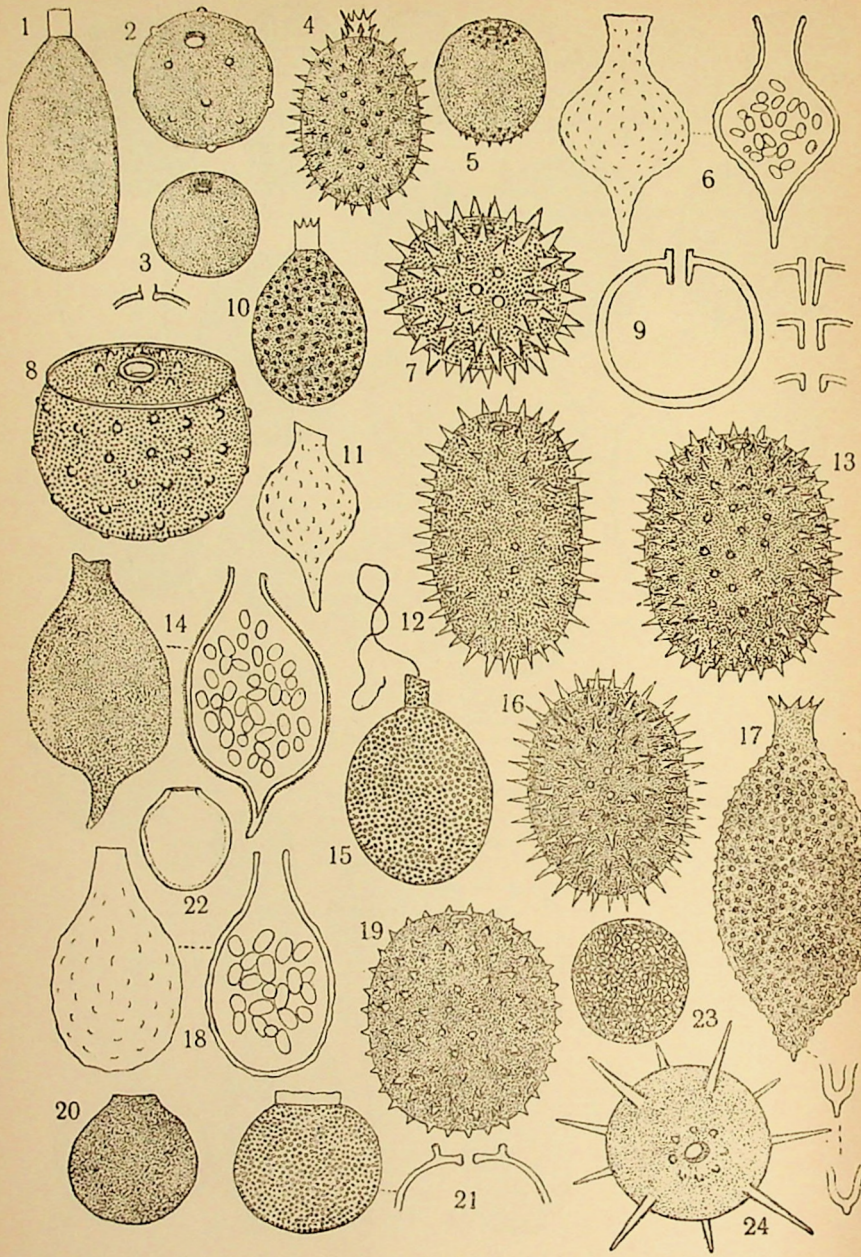
EXPLANATION OF THE PLATES.

Plate I.

Fig. 1. *Trachelomonas spiralis* Skvortzow.
,, 2. *Tr.* sp. a type related to *Tr. intermedia* and *Tr. Borodiana.*
,, 3. *Tr. verrucosa* var. *ornata* Skvortzow. A elongate form.
,, 4. *Tr. incerta* var. *punctata* Skvortzow.
,, 5. *Tr. armata* var. *punctata* Swir.
,, 6. *Tr. kelloggii* var. *effigurata* Skvortzow.
,, 7. *Tr. kelloggii* Skvortzow.
,, 8. ,, ,, ,,
,, 9. *Tr. reticulata* var. *amphora* (Swir.) Skvortzow.



[see pages 96–102]



[*see pages 96–102*]

Fig. 10. *Tr. rarus* Skvortzow.
,, 11. *Tr. hispida* var. *bipunctata* Skvortzow.
,, 12. *Tr. tuberosus* Skvortzow.
,, 13 *Tr. piscatoris* var. *levis* Skvortzow.
,, 14. *Tr. rarus* var. *punctata* Skvortzow.
,, 15. *Tr. rasiborskii* var. *punctata* Skvortzow.
,, 16. *Tr. piscatoris* var. *aspera* Skvortzow.
,, 17. *Tr. intermedia* var. *hispida* Skvortzow.
,, 18. ,, ,, ,, ,,
,, 19. *Tr. planctonica* var. *ornata* Skvortzow.
,, 20. *Tr. armata* var. *colorans* Skvortzow.
,, 21. *Tr. planktonica* var. *gracilis* Skvortzow.
,, 22. *Tr. reticulata* var. *punctata* (Lemm.) Skvortzow.
,, 23. *Tr. volvocina* var. *punctata* Skvortzow.
,, 24. *Tr. hispida* var. *macropunctata* Skvortzow.
,, 25. *Tr. komarowii* Skvortzow.
,, 26. *Tr. incerta* Lemm.
,, 27. *Tr. cylindrica* Ehrenb.
,, 28. *Tr. sp.*
,, 29. *Tr. cylindrica* var. *punctata* Skvortzow.
,, 30. *Tr. tambowika* var. *granulata* Skvortzow.
,, 31. *Tr. fluviatilis* var. *curta* Skvortzow.
,, 32. *Tr. globularis* var. *punctata* Skvortzow (?)
,, 33. *Tr. horrida* var. *moenacanthum* Skvortzow.
,, 34. *Tr. oblonga* var. *punctata* Lemm.
,, 35. *Tr. teres* var. *ornata* Skvortzow.
,, 36. *Tr. depressa* var. *punctata* Skvortzow.

PLATE II.

Fig. 1. *Trachelomonas paludosa* var. *elongata* Skvortzow.
,, 2. *Tr. verrucosa* var. *ornata* Skvortzow. A form with few knobs.
,, 3. *Tr. volvocina* var. *punctata* Skvortzow.
,, 4. *Tr. horrida* Palmer.
,, 5. *Tr. pulchra* Swir.
,, 6. *Tr. Schaninslandii* Lemm.
,, 7. *Tr. globularis* var. *puctata* Skvortzow.
,, 8. *Tr. wislouchii* var. *punctata* Skvortzow.
,, 9. *Tr. volvocina* var. *cervicula* (Stokes) Lemm.
,, 10. *Tr. arnoldiana* Skvortzow.
,, 11. *Tr. fluviatilis* var. *grabra* Skvortzow.
,, 12. *Tr. sp.*
,, 13. *Tr. horrida* Palmer.
,, 14. *Tr. zmiewika* var. *hispida* Skvortzow.
,, 15. *Tr. arnoldiana* var. *formosa* Skvortzow.
,, 16. *Tr. horrida* Palmer.
,, 17. *Tr. Swirenko* var. *pulchra* Skvortzow.
,, 18. *Tr. saccata* var. *paludosa* Skvortzow.
,, 19. *Tr. horrida* Palmer.
,, 20. *Tr. poltawica* var. *atomaria* Skvortzow.
,, 21. *Tr. komarowii* var. *punctata* Skvortzow.
,, 22. *Tr. Borodoniana* var. *minima* Skvortzow.
,, 23. *Tr. intermedia* var. *castaneus* Skvortzow.
,, 27. *Tr. manchurica* var. *arnoldiana* Skvortzow.

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THE LAND OF PEACH BLOOM*

CHARLES KLIENE, F.R.G.S.

Introduction.—The story itself is told in true Confucian style, and the "Land of Peach Bloom" is just such a land as the Confucian poets and scholars would make it. The scenes follow in easy succession and the contrasts are very striking. But the land as a place, like the fabulous island of Utopia described by Sir Thomas More, is only to be found in dreams. Taking the story as an allegory, pointing to a condition of society in which men can dwell in peace and concord by co-operating with each other for the common weal, and upholding the principles of liberty, equality and fraternity, it presents an ideal perfectly legitimate to aspire to; at the same time it teaches some important lessons. In the "Land of Peach Bloom," however, we are told there are no evil-doers, and unrighteousness has no place. That is a state of perfection which mortals can never hope to attain to. To exclude evil altogether from our midst is more than we can do; and since perfection is beyond the limit of the round of mortal things, the utmost we can strive for is to reach the stage of the least imperfect. A Chinese thinker with a metaphysical mind once said to me "we are here not so much to suppress that which is evil as to practice that which is good; let us not concern ourselves with the evil, for if all be good there can be no evil." That seems to me to be only suggesting another road to the "Land of Peach Bloom."

Chinese ontology is founded on the philosophy of the *Yin* and *Yang*, or the Dual Principles of Nature; the same inevitable dualism which Emerson says "bisects" nature, and which is very tersely illustrated by the Chinese proverb which asserts that every stick has two ends. Good and evil are like the opposite ends of the stick; with our limited vision it is impossible for us to see how the one shall be cut off while the other alone shall remain.

In the end the fisherman loses his abode of perfection, his paradise nevermore to be regained. This shows how vain

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and futile it is to seek for that which is not, and to aspire to that which is not attainable.

Those who have taken an interest in the study of comparative folklore have doubtless found among the ancient traditions of most nations legends and allegories bearing on this same question, told in more or less the same strain, and sounding the same keynote, the keynote in man's yearnings to reach a state of perfect bliss. It is the high unremitting pulse of the soul beating for perfection and immortality.

The story under review was written by T'ao Ch'ien (A.D. 365-427) known in early life as T'ao Yuan Ming. What is here given is from a popular dramatized version. The title, *T'ao Yuan* means a source or spring of water in the midst of a grove of Peach trees. The character *Yuan* for garden is sometimes misused for *Yuan*, spring. For a fuller account of T'ao see Giles's Biographical Dictionary, p. 717.

THE STORY.

"Hsün tê T'ao Yüan hao pi Ch'in,
T'ao hung yu chien i nien ch'un;
Hua fei mo ch'ien sui liu shui,
P'a yu yü lang lai wên ching.[1]

(TRANSLATION).

"Having found the home of Peach Blossoms, we are safe from the tyranny of Ch'in.
When Peach Blossoms appear, they mark the springtime of another year.
But let not the petals float down on the stream, lest some fisherman seeing them be guided here."

Just as the sun was setting one calm spring evening in the T'ai-ho year[2] of the Ch'in dynasty, a stalwart young fisherman was seen paddling his little skiff up a narrow stream near Wuling,[3] a thriving centre in the Prefecture of Ch'ang-tê, in the Province of Hunan.

It had been a long, sultry day, one of those dazzling harbingers of an early eastern summer; not a ripple stirred the water. A square net, used chiefly to catch small fish in shallow water, hung extended in front of the boat, gently bobbing and swaying as the slender bamboos, which held it out by the four corners, bent with each stroke of the paddles. For a hundred times at least, since dawn, the net had been dipped and lifted with small success, and now, the day's toil being ended, it was allowed to hang and dry.

[1] From the *Ch'ien Chia Shih*, by Hsieh Fang-tê, a poet of the Sung dynasty, and a native of Kiangsi. He died in Peking in A.D. 1289.

[2] A.D. 366.

[3] Wuling is also the ancient name of Hangchow, the famous old capital of the present province of Chekiang.

The scene, as usual at this season, was one of nature's very daintiest. Peach trees grew in profusion on either bank; they were in full bloom, and the ground was carpeted with a layer of the delicate pink and white petals fallen from the thick masses of blossom. Overhead, rainbow tints slowly stole across the evening sky and tinged every cloud, now crimson, now pink, now vaporous amethyst, down to the far horizon. The fisherman, tired after his hard but honest labour, which rarely brought him in more than just enough for the bare needs of the next day, stood in the stern of his boat languidly urging the lazy craft homeward; he had pushed back the heavy bamboo hat that sheltered his head from the sun on hot days and the rain in wet weather, to give the soft evening breezes that came and went, laden with the scent of peach flowers, full play upon his sunburnt face. In a little while the west began to glow with the radiance of sunset, and as the golden orb sank behind the hilltops a delightful charm fell upon the land. Gradually the shadows grew longer and longer till they melted away in the evening mist, and save for the regular and alternate creak and plash of the paddles, all was quiet and still.

All at once the fisherman, who seemed to be in a reverie, fixed his eyes intently on a curious patch of white light which appeared at the foot of a hill not far distant. He had never seen it before, and wondering what it might possibly be, he resolved to go as near as he could to the spot and find out.

The boat had been gliding along without a sound; but now, as though it had a purpose in view, it surged forward clumsily under the quick and vigorous strokes of the paddles, rocking the while like some animated thing, and throwing up a wash on either side of the stream as it plunged ahead.

Presently the fisherman came to a break in the line of the peach orchards, and after rounding a bend he found himself almost opposite the strange, weird light. It looked like an opening in the hillside through which daylight from another world had found an outlet. Never having heard of any openings, or caves, in his native hills, the fisherman became more puzzled than ever. With a few extra strong strokes of his paddles he finally ran the broad bow of the boat on to the bank; then quickly drawing in the paddles, jumped ashore; and, after hauling the boat well up the slope so that it should not drift away, he dashed across the strip of country before him and made straight for the mysterious luminous patch not more than a few hundred paces away. As he drew nearer he could distinctly see that there really was an opening in the hillside through which the light issued, and the light grew brighter as he approached it.

At last he stood before the opening; it was the mouth of a tunnel, lit up by sunshine that entered from the far end.

"This surely is very strange," thought the fisherman; "I'll go in and see where it leads to."

Accordingly, he entered the tunnel and walked boldly forward, wondering all the while where the light could come from, now that behind him the sun had set and night was creeping on.

The tunnel was not big, though sufficiently high to enable him to walk erect without touching the top; the sides were rough, and rugged rock protruded everywhere; under foot it was very uneven and strewn with loose sharp stones of all shapes and sizes which made progress extremely difficult. Had it not been for the daylight that lit up the whole length of the tunnel, the fisherman would indeed have found it no simple matter to make his way through; but, he deftly avoided every obstacle barring his way, and safely came to the far end.

Emerging from the tunnel he was astonished to behold a beautiful undulating country stretching far away for miles before him. Billowy, fleecy clouds flecked the sky above, and the sun, set in the purest azure, beamed upon a land such as he had never dreamed of. There were fields upon fields of golden corn, and fruit orchards with abundance of luscious fruit, such as he had never seen before; and peach trees bearing peaches of astounding size, all covered with that wondrous bloom that the art of man can never reproduce in paintings or on porcelain vases. Lofty palm trees in clumps stood here and there waving their feathery heads in the breeze, and there were weeping willows, majestic oaks, and shady trees he could not name. Flowers grew everywhere in all their resplendent colours, and filled the air with exquisite fragrance. Monster butterflies with irridescent wings flitted hither and thither; birds of gorgeous plumage sang on every bough, and a crystal brook rippled and gurgled in the distance. It was a new world, infinite, magical, supernatural; a veritable paradise, fairer by far than the fairest land in China. Wonder-stricken, and utterly bewildered, the fisherman stood rooted to the ground before the enchanting landscape, unable to explain how he had never heard of this wonderful place before, and baffled to tell where he was.

When he had sufficiently recovered from his amazement, he noticed in front of him a narrow path leading to the stream. Following this path he crossed the stream over a pretty willow pattern bridge and found quite an extensive village hidden behind a bamboo grove close by. To this village he

turned his steps. He soon came upon a group of people busily engaged in agricultural pursuits. To all appearances they were Chinese like himself; but they were clad in the quaint costume of a bygone age. Their language, though strange to his ear, was quite intelligible.

"A stranger, a stranger!" suddenly exclaimed a boy who first perceived him; "look, he is coming towards us!"

Instantly, all turned in the direction the lad indicated. "Run for the Elder," said an old man to the boy, "and tell him to come at once."

The boy took to his heels and disappeared among the houses. By this time the fisherman had come up to the group, and the old man courteously asked him to be seated on a bamboo stool.

"We have sent for the Elder," said the old man, "he will be here presently, and doubtless will be pleased to render you any service you may require. In the meantime we regret we cannot do more than receive you kindly, for we acknowledge that within the Four Seas all are brethren."

"Yes, indeed," added the rest of the group with nods of approval, "all are brethren."

"I thank you from my heart," replied the fisherman, "for your greeting. I am tired, and will gladly rest awhile. Your kindness to a stranger is only in keeping with the incomparable beauty of this wonderland; I am deeply touched by your cordial welcome and your benevolence."

"That is not worth mentioning," said the old man. "Benevolence is a duty that we owe to all our fellow-men. It is written that we must not do to others what we would not have others do to us."

"A sublime precept indeed," observed the fisherman, who, though his literary attainments were by no means of a high order, was nevertheless acquainted with some of the fundamental teachings of the Chinese Classics. "But," added he, "it is also written, I am told, that we should have no friends not equal to ourselves. How do you know that I am worthy of your goodwill?"

"True," answered the old man. "But here all are worthy; and the fact that you have come is sufficient assurance to us of your worthiness."

At this juncture the boy returned with the Elder of the village, a hardy patriarch of noble mien, with the kindliest of eyes and a flowing white beard. "Friend," said he, bowing low to the fisherman, "you are indeed welcome. It is laid down in our books that when a stranger comes to us from afar, we shall receive him kindly, and treat him in a befitting manner. We cannot, therefore, do less than offer

you our humble hospitality; we beg of you that you will deign to accept such entertainment as we can command during your sojourn in our midst. If you will follow us, it will be a privilege to conduct you to the Hall of Harmony where you may rest and refresh yourself in comfort." Then turning to the group, he added, "Is it not delightful to have friends coming from distant quarters?"

They all bowed respectfully, and acquiesced in this further quotation from the Analects of the great Sage Confucius.

The fisherman, only too pleased to have a place where he might rest and refresh himself, eagerly accepted the invitation so generously and spontaneously proffered, and they all repaired in a body to the Hall of Harmony.

On the way it became evident that the village was well populated and in the highest state of prosperity. In fact, it was more than a village, for it had wide and well-kept thoroughfares and public squares, and the houses were all in excellent condition. There were shops innumerable that dealt in all manner of things which the people bought and sold by barter. There were agricultural implements all made of bronze; clothing made of curious stuffs; mats, rugs, and carpets in antique designs; household furniture of choice woods, and household utensils of pottery, bronze and gold; but all were quaint in shape, quite different from anything the puzzled fisherman had ever seen in his life. The shop-signs and notices were written in Chinese characters; but characters of a very ancient type and not easy to decipher. The people, both old and young, seemed perfectly happy; not an angry word nor a harsh sound was to be heard; everybody pursued his vocation in the best of humour. The men were courtly, the children clean, and the women unobtrusive, refined, as well as comely.

It soon transpired, however, that a stranger from distant parts had arrived, and before long a crowd accompanied the fisherman to the Hall of Harmony. Everybody was intensively interested, and eager to catch a glimpse of the newcomer.

On arrival at the Hall of Harmony, a magnificent and stately structure in the temple style, the fisherman was led to the grand reception room which was paved with marble and decorated with elaborately carved wood panels and scrolls. Here the Elder performed a low obeisance in a reverential manner before a tablet of Confucius which stood in the centre of a long altar against the back wall. On the altar were also ranged, on either hand of the tablet, grotesque sacrificial vessels, tripods, urns, and libation cups, wrought

in pure gold and precious jadestone; right in front of all was a splendid bronze censer containing smouldering sandal-wood, from which a thin wreath of fragrant blue smoke ascended to the rafters of the vast apartment. The fisherman was then conducted to the seat of honour on a dais, and the Elder, having installed himself on his right, for the left is the place of honour, commanded that a feast be prepared, and that the notables of the place be invited to attend, so that the stranger might be entertained in a manner worthy of the traditions of the people. Never in all his life had the poor fisherman received so much attention. Remonstrances on his part were all of no avail; he simply had to submit to what was being done in his honour.

As soon as he was seated an attendant brought flowing robes for him to wear, lest he should feel embarrassed at being differently clad to his hosts; others presented refreshments, consisting of fruit, cakes, and wine. It was while partaking of these good things that the Elder imparted to him the following information.

"There is no need," began the Elder, "for you to tell us from whence you hail, or how you came; we are aware of that already. But since you do not know where you are, let me inform you at once that this is the land of Peach Bloom, the land of sunshine and perfection, where nothing ever goes wrong, where the voice of strife and discord is not heard, and where we are far from the noise and wrangling of the outer world to which you belong. Men have long sought this happy land; but they have sought in vain because they know not the approach. There is only one road to it, a road that is beset with hardships and difficulties, and only those who are worthy may tread it. He who finds the road, and comes to us, shares in all our joys; he who leaves us to return once more to the dusty world of confusion may carry back with him nothing beyond the memory of what he has seen and the experience he has gained, which he is free to use for the good of mankind at large, if he knows how. We detain no one against his will. We have no evil-doers in our midst, and so need no laws to safeguard our peace; we have no battles to fight, and so need no implements of war. No ailments or wasting disease afflict us; no remedies or cures are therefore needed. There are no crimes here because there are no evil-doers; for that reason we know no remorse, no anguish of heart, no sorrow. Envy, spite, hatred, selfishness, deceit, cunning, malice,—these, and all unrighteousness,—have no place here. Our wealth is unlimited, surpassing by a myriadfold the wealth of all your earthly kings. Gold and silver and precious stones abound,

but we seek them not. Happiness is our inheritance; happiness born of goodwill and contentment, which naught can mar, as naught can dim the brightness of the sun, the eye of the universe which seeth all things. You must not imagine, however, that we claim any credit for this perfect state of affairs. We came here as mere mortals from your benighted world, destitute and in dire distress, fugitives from the tyranny of one who would fain have taken our lives. It must be many years since we arrived; we cannot say how long it is, for we keep no account of time. In those days there ruled over the newly consolidated Empire of China one who assumed the proud title of Shih Huang Ti, or First Emperor. After subduing all the feudal states, this cruel and relentless monarch waged a ruthless war against us, the literati of the land. The writings of our ancient Sages he tore from us and cast into the flames; those of us who resisted, he destroyed, or sent north to build the Great Wall. Many perished ignominiously, and there was danger of our complete extermination as well as the irretrievable loss of our literature. In the the hour of our affliction we lifted our voices and cried to the spirit of the Great Master Confucius to deliver us from the evil days that had fallen upon us, and to rescue his teachings from the impious hands of our enemy. Our cry was heard. At a secret conference, an inspiration came to us; we resolved to fly. In the hush of night we fled from the diabolical sway of that accursed despot, bringing away with us our written tablets, our sacrificial vessels, our ceremonial robes, and such of our goods and chattels as we could carry. We knew not whither we should go; but we turned our steps towards the mountains, and trusted in the spirit of the Master to guide us to a safe retreat. Hampered as we were by the aged and the young of our band, our pace was necessarily slow, and we were in terror of being overtaken by the soldiers of the Emperor and led back as captives to certain death, if not slaughtered by them on the spot. When day dawned, we hid ourselves in the crevices of the mountains, and there anxiously awaited nightfall to resume our flight. It was a day of terrible suspense; we dared not issue from our hiding places for fear of being seen; the hours of waiting seemed interminable.

At last the sun sank in the west; twilight passed, and a dense darkness shrouded the land. We were all ready and eager to move on; we sallied forth and silently groped our way along the mountainside. We had not proceeded far when a strange light appeared ahead of us; a light not dazzling, yet of pure whiteness, and it came from the bowels of the mountain. The appearance of this inexplicable light caused

us no little apprehension for we knew not what evil it betokened. To retrace our steps was impossible; rather than return to the perils left behind, we determined to go forward and meet what new dangers Fate had in store for us. Thereupon, the younger men of our party bravely led the way, and by midnight we reached the mouth of a tunnel from which the light streamed. The tunnel was flooded with daylight which entered through the opening at the opposite end; we could see that beyond the opening there was a land brighter and fairer than the one we were in. We paused to deliberate as to whether we should pass on, or enter. It seemed that we had come to the threshold of a land of promise, and that its portals were thrown open to admit us. Behind us was darkness, danger and death; before us sunshine, hope and promise. We did not hesitate for long; we entered the tunnel, hastened onward, and soon found ourselves here, where we have lived in peace and plenty ever since. Verily, our deliverance was a miracle wrought by our Master. His spirit had heard our cry of anguish in the night, and had risen to guide us to this land of perpetual day. We have placed the token of our gratitude upon yonder altar.

There are no idlers among us; we all toil for the common weal; we sow and reap; we spin and weave; we cultivate the gentle arts, and study the Classics. In time we reared this village as you see it. We are all abundantly provided for, and there is ample to spare. What say you, friend, do you care to be one of our number? ''

The fisherman had listened to this recital with abated breath, and when the Elder came to the end of it, he exclaimed, ''Truly, you have told me a marvellous tale. I do not doubt a single word; but you must pardon me if I say there are things in what you relate that I fail to understand. You tell me that you came here when Shih Huang Ti ruled the Empire of China. He mounted the throne of Ch'in at the age of thirteen, over six hundred years ago, and there have been many rulers since then. Do you mean to say that you have lived through all those years? ''

''I do,'' replied the Elder. ''I also told you that we keep no account of time. Death does not enter here; we know neither death nor decay.''

''Then this must be the abode of Immortals,'' observed the fisherman in a tone of unbelief.

''I assure you this is one of the many spheres wherein the Immortals reside. The peach of immortality grows in our gardens.''

''In that case, can you tell me how I found my way here, and by what merit I am entitled to be among you?''

"Your merit is recorded in the Book of Fate; it was Fate that directed your footsteps. Perhaps you are the re-incarnation of one of the Master's disciples; we cannot say; that question can only be answered by the Divinity who shapes the destinies of men."

While they were thus coversing the guests began to assemble, and each in turn was formally introduced to the fisherman, who was greeted by all in the kindest possible way.

Meanwhile, in the adjoining banquet hall preparations were proceeding apace on a sumptuous scale. Already musicians, and singers, and pretty dancing girls had taken up their proper places on a raised platform to enliven the feast with their entertainment; the tuning of queer stringed-instruments, the sound of pipes, and the tinkling of bells and musical stones, could now be heard. Soon an attendant announced that the banquet was ready, and to the accompaniment of music appropriate to such festive occasions, the company repaired to the feast. As guest of honour the fisherman was again assigned his seat on the left-hand side of the Elder; the rest sat where they pleased. The repast was fit for the Gods; an interminable number of courses of fruits and choice viands were served, and great cheer prevailed.

When the feasting was over and all the guests had departed for their respective homes, the fisherman was conducted to an elegantly appointed suite of apartments specially prepared for his occupation.

The next day the fisherman informed the Elder that he was deeply sensible of the extremely kind treatment he had received, and had decided to stay; but it was necessary for for him to return to the world for a little while in order to settle some urgent affairs. For instance, he had a boat and various fishing tackle to dispose of, besides other matters to attend to. He was therefore not quite prepared to quit the world and all his belongings at such short notice; these and a hundred and one other similar reasons he urged in justification of his desire to leave them for a few days.

Alas! 'tis ever thus that mortals plead. How few are prepared to answer the call from a better land without hesitation or reluctance! The poor creatures of the earth cling with tenacity to their paltry mundane affairs; they all have excuses. They have accounts to settle, debts to collect, lands to dispose of, houses to sell, and a balance sheet to draw up. The rich man must see that he is not robbed of his gold; the miser must count his hoard once more. All must tarry yet a little longer, and all plead pitifully for a

little more time. But the stern Messenger who brings the summons is inexorable; he heeds no entreaties and brooks no delay. His call is imperative and must be obeyed at once. He does not appear before his time; but when that time is at hand, not an instant's grace is vouchsafed. If the balance sheet is not ready, and a proper statement of accounts is not rendered, so much the worse; the forfeit must be paid.

In answer to the fisherman the Elder replied, "I have told you that we do not detain anyone here against his wish; whoever is desirous of returning to the world is at liberty to do so. We will escort you to the road by which you came whenever you are ready to start."

"I will start at once," said the fisherman; for the sooner I depart, the sooner shall I return."

"We hope to see you again soon," said the Elder; "but be sure that on your return you do not miss the way," he added significantly.

"I shall not miss the way," rejoined the fisherman confidently; "there is only one road, and I am sure I shall I find it again without trouble."

The people who had received the fisherman so cordially on his arrival now accompanied him back to the mountain. They left the village, crossed the limpid stream over the same little willow pattern bridge and halted at the identical spot where the fisherman first stood as one entranced at sight of this beautiful land; but lo! there was no tunnel. The opening he had come through was hermetically closed with a huge stone. At a given word from the Elder, however, the immense stone slowly rolled aside of its own accord and disclosed the passage by which the fisherman had gained his entrance to the land of Peach Bloom on the previous day.

"This is the way to your world," said the Elder; "but before you leave us to return to it, we pray you to restore to us the garments of this country. I have told you that he who returns once more to the dusty world of confusion may carry back with him nothing beyond the memory of what he has seen, and the experience he has gained, which he is free to use for the good of mankind, if he knows how."

In response to this, the fisherman quickly divested himself of the flowing robes of curious fabrics that had been given him in the Hall of Harmony, remarking, as he did so, that he hoped they would be given back to him when he returned.

"Certainly, when you return we shall most assuredly give them back to you," said the Elder.

Now standing in the common garb of his class, the fisherman bade farewell to the Elder and the rest of the

party, and once more thanked them profusely for the great kindness they had shown him. "Our parting will only be for a little while," said he, "for I shall return as soon as my affairs are put in order."

With these words he stepped into the tunnel and walked forward as fast as the uneven ground permitted.

When he came out into the open air again at the other end, it happened to be a raw, cold day, with a dull leaden sky overhead. A bleak wind blew from the north and chilled him to the bone. The peach blossoms had gone, all the trees were bare, and not a trace of springtime was to be seen anywhere, for it was winter. In his scant clothing he stood shivering with cold in the biting blast, mystified and startled beyond measure at the complete change that had taken place in his brief absence. He did not realize that he had been to a land where time has no significance, where moments do not fly and years never roll by. To him his absence seemed but only a day and a night; in reality two seasons had passed. Little wonder then that he could not account for the desolate sight that met his eyes, nor the piercing cold that almost paralysed his limbs. Remembering that his home was not far off, he drew his thin jacket tightly about him, and with shoulders bent, ran with all his might to the edge of the stream where he had left his boat. The boat was there, though in a very dilapidated condition; every article in it had been removed, except a rotten remnant of the net which hung over the side and draggled in the icy water. It was useless to bother about the boat under the circumstances, so he quickly made his way home on foot.

On arrival at his hut he met with another unpleasant surprise; his neighbours had taken full possession of all his property. These good people never expected him to return after the unsuccessful search made at the time of his mysterious disappearance; they thought he was dead. When he suddenly burst in upon them in his out-of-season garments, shivering with cold, panting for breadth, his teeth chattering, his eyes starting from their sockets, and a wild expression of amazement in his face, they were alarmed, and took him for the incarnation of an evil spirit. But when he began to expostulate and insisted that he had only been absent one day, they all agreed that he had lost his senses, and that the proper thing to do was to march him off to the Magistrate's Yamên at Wuling before he committed any violence upon them; so closing round him in a ring, they seized him by the arms and led him off.

At the yamên the hapless fisherman was consigned to the not very tender mercies of the chief gaoler, a slouching,

arrogant fellow of savage countenance and devoid of compassion. This important personage, whose rapacity for gain never allowed a prisoner to pass without the closest scrutiny of his practised eyes, soon perceived that the fisherman was not a promising sort of subject for the extraction of pecuniary benefits, and accordingly loaded him with chains, and unceremoniously bundled him into a filthy, reeking cell, there to be kept under observation as a dangerous character, and held in durance vile until such time as it would suit the Magistrate to enquire into his case. Here the fisherman, left to himself and his thoughts, had ample leisure to meditate on the instability of human affairs, the vicissitudes of life, and the fickleness of fortune. In a strange land he had been received with open arms and generously treated by strangers; but when he returned to his own kin, to claim his own, he was abused, roughly handled, taken for an evil incarnation and cast into prison. All these reflections so embittered his soul that he resolved, should he ever escape alive from his miserable predicament, to abandon all and return at once to the land of sunshine beyond the hills. After spending several unenviable days, and worse nights, in confinement with vermin for company, one frosty grey morning he was roughly dragged out to appear before the Magistrate.

Now it happened that the Magistrate of the important City of Wuling was a man of vast experience, keen intellect, and sound judgment. When the fisherman knelt before him in open court and told his simple tale, the Magistrate decided at once that he was not a madman, and that the words he spoke bore the impress of truth. He therefore ordered the prisoner to be released forthwith, and he further gave judgment for the immediate restoration to him of all his belongings. The fisherman bowed his head to the ground as an expression of his gratitude, and was about to rise and depart when the Magistrate again addressed him.

"You have told us," said the Magistrate, "of a wonderful passage in the hills that leads to a wonderful land of never fading verdure. I have never before heard of any such passage, nor of any such land in this neighbourhood; but as I firmly believe there is something supernatural at the bottom of this very extraordinary adventure of yours, I desire you to conduct one of my officers to the spot and show him the tunnel so that we may gather some further particulars regarding a subject which is not only of paramount importance to this District, but which, I opine, must be of peculiar interest to the lettered classes throughout the realm. It is my duty, therefore, to investigate the matter as far as I can."

The fisherman said he would gladly show the way to the

tunnel, and left the Yamên with an officer and a train of Yamên-runners who followed out of mere curiosity.

When they came to the bank of the stream where the boat had been left, the fisherman said the opening was at the foot of the hill directly opposite to where they stood, though, strange to relate, no light could be seen. The party then advanced to the place indicated, but in spite of a most careful search, no opening of any sort could be found. They scoured the hillside for miles in both directions without discovering as much as a rabbit hole. The tunnel had disappeared completely and mysteriously, without leaving the least trace anywhere of its former existence. Then they climbed the hills to look over the other side; they saw nothing but a vast barren waste stretching its dreary expanse as far away as the eye could see. The land of Peach Bloom had vanished,—vanished forever like a vision in a golden dream to nobody knows where.

The fisherman now saw how foolish he had been not to remain with the Immortals when he had the chance to. He also now understood the full meaning of the Elder's caution about not missing the way when he was ready to return. It was his desire to return to his petty earthly affairs that lost him paradise.

. . .

Some years later, a distinguished scholar and Confucianist named Li Tzû-chi went to the hills of Ch'ang-tê Fu hoping to find the way to the wonderful land of Peach Bloom. He lived in their vicinity for many years till he died; but he never found the tunnel, and never once did he see the light on the hillside. Since his death the search has been abandoned. Wise men say to-day that the land of Peach Bloom lies in another sphere far beyond this world, and surely they are right.

RECENT BOOKS BY A CHINESE SCHOLAR

JOHN C. FERGUSON.

It is often said that scholarship in China is at a very low ebb at the present time. While this is true to a certain extent, there are many circumstances which explain the paucity of new books. The abolition of the civil service examinations—k'o chü—put an end to the steady publication of books giving examples of well-written essays and explaining earlier literary writings from the standpoint of their use in essay writing. This is also true of books relating to poetry and to historical references both of which subjects were of vital importance to the candidate for official preferment in the examination. To take the place of these books, with a public which had been accustomed to reading, there came from the presses a steady flow of translated and compiled books. These treated of all branches of modern knowledge: scientific, economic, governmental, and philosophic. Innumerable books of fiction have also been translated and, it must be said, these have formed by far the largest portion of the examples of foreign thought that have been presented to the Chinese public as representative of Western literature. Such translated books, however, form no part of the permanent literature of a nation; their influence is evanescent.

Another class of books such as the Encyclopaedia, Tz'ü Yuan published by the Commercial Press, shows the influence of Western methods of learning. It is an example of the systematized and condensing process so common in our Western book making. There is nothing new in this Encyclopaedia, but the arrangement of its contents makes all the knowledge it contains readily valuable to a student. In addition to this, it adds a large mass of information on scientific subjects: foreign geography and names of historical personages important in Western literature. As a whole, it is much more useful to the student of Chinese literature at the present time than the P'ei Wên Yün Fu. This Encyclopaedia was compiled by a body of scholars well versed in the ancient literature of their own country and

with training sufficient to enable them to tabulate their work according to modern methods. Along with this Encyclopaedia have been published a new dictionary, Hsin Tzu-tien,[1] and a new Chinese-English dictionary,[2] both of which are useful and valuable. The former contains in a small space the gist of Kang Hsi's large dictionary and the latter provides in a succinct form the latest usages of Chinese characters. Other publishing houses such as the Chung Hwa[3] have contributed their share to the enrichment of modern Chinese literature for which they deserve credit.

In one branch of scholarship a new impetus has been given by the impact of Western civilization. This is the investigation of antiquarian subjects. Stein's "Expedition into Central Asia," the "Archaeological Mission to China" of Chavannes, have not only brought to light many interesting facts which explain existing literary records, but also have helped to call attention to a method which has been too often overlooked by Chinese writers, viz., the confirmation of literary records by extant monuments. This method has been followed by a few students from the time of the Liang Dynasty downwards, but as a general rule, it was entirely superceded by the methods of higher and lower textual criticism, which fattened upon the original investigation of others but added nothing new to the stock of human knowledge.

Chinese scholarship had followed easily the line of least resistance through long generations by devoting itself to a class of studies which were purely linguistic. The great scholar of the Second Century, A.D., Hsü Shen,[4] prepared the Shuo Wen[5] on an etymological basis, attempting to show the development of the Chinese Chuan characters from their earliest use. He was followed by a long list of writers whose works were written from the same point of view. In the preparation of the Yü Pien,[6] Ku Yeh-wang[7] of the Liang Dynasty devoted his profound scholarship to the historical development of the Li characters and his researches were carried still further by such men as Sun Ch'iang[8] of the Tang Dynasty and Ch'en P'eng-nien[9] of the Sung Dynasty. With the writers of Buddhistic influence in the Wei and Sui Dynasties, and its cleverly devised Taoist imitation, there emerged the type of scholarship which concerned itself entirely with philosophic discussions. These works were devoted largely at first to religious philosophy, but soon branched off into the broader and more indefinite fields of politics

1新字典 2漢英新辭典 3Publishers of the 中華大字典
4許愼 5說文 6玉篇 7顧野王 8孫强 9陳彭年

and economics. Inseparably mixed with these philosophic discussions was a medley of linguistic corroboration in which attempts were made to bolster up philosophic opinions by clever etymological distinctions. Out of the weary mass of such inane literary production, there arose the poets of the Tang Dynasty such as Li Po and his successors. There were also brilliant essayists who did their part in creating an elegant style of writing. But as a whole, the body of literature of China down to the end of the 17th and the beginning of the 18th centuries is largely composed of unfruitful argumentations.

All the greater credit, therefore, should be given to the more solid type of scholarship which was introduced by the Emperor Wu Ti of the Liang Dynasty in his preparation of one-hundred twenty volumes recording for the first time the inscriptions on ancient stone monuments. This was unfortunately lost. In the Sung Dynasty, Ou-yang Hsiu compiled a treatise on early inscriptions called Tsih Ku Lu.[10] During the same dynasty, Nieh Ts'ung-yi[11] prepared the San Li T'u and Wang Fu[12] edited the Hsüan Ho po ku t'u. These two works were prepared from drawings and rubbings which were in the Imperial collection and must have been very valuable at the time of production, although later editions of these books have probably failed to retain the accuracy of the originals. Another important book of the Sung Dynasty was that of Hsieh Shan-kung[13] entitled "Li tai chung ting k'uan chih" in twenty volumes. Hsieh was a careful scholar and a keen antiquarian. His work has formed the basis of all later investigators. He described the shapes of early bronzes and reproduced their inscriptions concerning which he added valuable dissertations. In some of these there is an admixture of pure linguistic discussions, but these do not mar the great value of the other features of his work. No great scholars or writers on antiquarian subjects were produced during the Yuan and Ming Dynasties.

It remained for the scholars of the Kang Hsi—Chien Lung periods to give a new bent to scholastic attainments under the leadership of these two scholarly emperors. The great dictionary of Kang Hsi united all the scholarship of the preceding periods and gave it a new interpretation. Compilation of the P'ei Wen Encyclopaedia had also a new stimulating influence. The compilation of three volumes concerning the Imperial collection of bronzes tended to place scholarship upon the sound basis of recognizing existing monuments rather than literary records as authoritative

[10] 集古錄 [11] 聶崇岐著三禮圖 [12] 王黼撰博古圖 [13] 薛尚功歷代鐘鼎款識

sources of information. These three volumes were: Hsi Ch'ing ku chien,[14] Hsi Ch'ing hsü chien,[15] and the Ning Shou chien ku.[16] These were, indeed, mirrors of antiquity as their names imply. The Imperial example was followed by scholars such as Chang T'ing-chi and Chu Yi-tsun.[17] In 1804 Yuan Yuan published his "Inscriptions on Vessels"—Chi Ku Chai chung ting i ch'i k'uan chih[18] in which the rubbings of 560 inscriptions are criticized and explained. He was followed by the Fêng brothers, authors of the Chin Shih So,[19] "Researches in Metal and Stone" and by a long list of such men as Wu Ta-ch'êng, Wu Jung-kuan, Wêng Fang-kang, Wu Yün, Liu Tieh-yün, Wu Shih-fên,[20] and others. A generation ago there was a group of men in Peking, including such scholars as P'an Tsu-yin and Shen Po-hsi,[21] who not only collected ancient objects, but added to this careful scholarly research. To carry on the work of this earlier generation, Tuan Fang[22] made a noted collection and published his "Records" of stones and metals, but unfortunately his life was cut off before his great work as an antiquarian was completed. In many respects, it may be said that his mantle has fallen upon the shoulders of Lo Chên-yü.

Lo Chen-yü—Shu-yün,[23] is a native of Shang Yü near Shao Hsing in the province of Chehkiang. He attained the highest literary rank and under the Manchu Dynasty, he was appointed Literary Chancellor of the province of Shantung. After the abdication of the Manchus, he removed to Japan where he still professes himself to be a subject of the Manchu Dynasty. In several of his writings, he continues to use the title of the reign of the abdicated emperor, Hsüan T'ung. In no instance has he dated any of his books according to the years of the Republic. Whenever he has not used the Imperial title, he has used the name of the cyclical year. In one of the volumes described below is a photograph of Lo which shows him wearing the official garb of the Manchu regime including the queue. His political predilections are of little interest, but his work as an antiquarian is a distinct contribution to the permanent scholarship of his nation. His investigations have led him into many fields starting with his comments upon the literary finds of Stein at Tun-huang.[24] A separate article even would be insufficient to discuss each one of the separate books which Mr. Lo has written in recent years, and it is proposed in this brief review

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[14] 西清古鑑 [15] 西清續鑑 [16] 寧壽鑑古 [17] 張廷濟, 朱彝尊 [18] 積古齋鐘鼎彝器款識 [19] 金石索 [20] 吳大澂, 吳榮光, 翁方綱, 吳雲, 劉喜雲, 吳式芬 [21] 潘祖蔭, 盛伯羲 [22] 端方 [23] 羅振玉叔蘊 [24] 敦煌

to do no more than call attention to the names and leading ideas of each one of these valuable contributions.

"Characters Used in Divination in the Shang Dynasty." (殷商貞卜文字攷). Published in 1910.

Chapter I is devoted to an examination of history: (1) as to the location of the capital of the Shang Dynasty, (2) as to the names and posthumous titles of the emperors of this dynasty. Chapter II is devoted to the rectifying of the manner of writing names: (1) the author maintains that the characters used by Shih Chou are the correct ancient form, (2) that the ancient hieroglyphic characters suggested their meaning by their form without any regard to a fixed number of strokes composing them, (3) a discussion of the use of these characters in determining character reading of the inscriptions on ancient bronze vessels, (4) a correction of the errors of Hsü Shen in the Shao Wen. Chapter III is devoted to the methods of divination: as to (1) Chen[25] which was the laying straight of divining rods, (2) Ch'i[26] which was evidently intended to mean the hollowing out of the shell of the tortoise, (3) the application of fire[27] in burning the tortoise shell, (4) production by heating of the dark crackled lines,[28] (5) reading of these lines for the purposes of prognostication.[29] This chapter also contains a discussion of the books of the various dynasties on subjects connected with divination and of the terms used in these books. It is a book difficult to understand by any reader who has not a good knowledge of the Book of Changes—I King.

"Tallies and Badges of Various Dynasties." (歷代符牌圖錄)

In two volumes. The original volume is dated 1914; the Supplement is dated 1916.

The Introduction is a discussion of the various books which mention these objects, commencing with the Supplement of the K'ao Ku T'u, and their use for identification purposes or warrants of office. The earliest tally given is one of two halves in the form of a tiger with inscriptions on both parts. Later tallies are made in such a way that the inscriptions on the two halves fit together when the tally is closed. In all, fifty-two examples of tallies are given in the original volume and eight in the Supplement; eighteen examples of badges in the original and thirty-one in the Supplement are mentioned. There is a lithographic illus-

[25]貞 [26]契 [27]灼 [28]致墨 [29]兆圻

tration of each of these objects. The letter press of the second volume is a lithographic reproduction of Mr. Lo's handwriting which is not so clear for the general reader as the type used in the first volume.

"Tomb Relics" (蒿里遺珍). Published in 1914.

Reproductions of five curious documents are given in this volume with an appended explanation of them. The first four objects are deeds of sale, the first being recorded on jade, the second on pewter, and the third and fourth on earthenware. The fourth document is called *pich*[30] which is an agreement referring to the use of wells and marts. The fifth is a jade tablet belonging to the T'ien Pao period (A.D. 742-755). On the obverse side is a drawing of a goose. All of the objects are of great antiquarian interest. The first was previously mentioned in Tuan Fang's Record of Stones—Ts'ang Shih Ching,[31] the third is mentioned in Chün Ku Lu[32] by Wu Shih-fên, and the fourth is spoken of in Bronze and Stone Inscriptions—Chin Shih Ch'i,[33] but the other two are recorded for the first time. The inscription on earthenware is particularly important.

"Incised Inscriptions on Stones and Bronzes of the Ch'in Dynasty." (秦金石刻辭). Published in 1914.

The first section is entirely devoted to inscriptions on forty-three bronzes of which one is a tally, fourteen are counterpoising weights of steel-yards, nine are measures, eighteen are imperial mandate tablets, and one is a spear. These are from various collections, the most important of which are those of Tuan Fang and Ch'ên Hsioh-ch'ing[34] of Wei-hsien. Section Two treats of three inscriptions on stone, one of which is that of T'ai Shan, the second is that of Lang Ya (modern Yü Tai, Shantung) and the third is the Kuei Chi stone in eastern Chehkiang. The last section includes inscriptions in thirty-six fragments of earthenware measures and six tile tubes (for palace use). The last mentioned objects are not often referred to by other authors, but are of great interest.

"An Examination of the Writings Found in the Ruins of the Shang Dynasty." (殷虛書契考釋).

"An Inquiry into the Writings Found in the Ruins of the Shang Dynasty." (殷虛書契待問編).

Both published in 1914.

The first of these two volumes is a large book of one-hundred and twenty pages devoted to a critical examina-

[30] 匋 [31] 殘石經 [32] 據古錄 [33] 金石契 [34] 陳壽卿

tion of the characters found in inscriptions on bones, and the second volume is supplementary to the first. These bone inscriptions are compared with statements in the earliest historical writings, with inscriptions on bronzes, and with the method of writing these characters adopted by Hsü Shen in the Shuo Wen. The previous work on this subject of Liu T'ieh-yün is carefully examined and corrections made where necessary in the opinion of the author.

"Paper Money of Four Dynasties." (四朝鈔幣圖錄). Published in 1914.

The four dynasties referred to are the Yuan, Chin, Ming, and Ch'ing. The author, however, carries the subject to remote antiquity in his introduction by stating that the commencement of a token currency was earlier than the invention of paper and that cloth strips, *li pu*,[35] were used in the Chow Dynasty for money. There are seventeen lithographic illustrations and a full explanation at the end of the book of each of these. Several illustrations are those of the copper plates from which notes were printed and the earliest of these belongs to the second year of Chêng Yüan, A.D. 1154.

"Other Bone Relics of Liu T'ieh-yun." (鐵雲藏龜之餘). Published in 1915.

This contains lithographic reproductions of forty inscriptions on bones from the collection of Liu T'ieh-yün without notes or discussion.

"Ink Shadows (Silhouettes) of Stone Inscriptions of the Han and Ch'in Dynasties." (漢晉石刻墨影). Published in 1915.

This is a discussion of the inscriptions on several stones discovered in recent years. One was found on a stone in Shao-t'ung Fu, Yunnan province, another during mining operations in Szechuan, a third was on a stone lion in front of a Yamên (place not mentioned) in Shantung, and a fourth was on a horse-trough in Lo-yang, Honan province. All of the inscriptions mentioned were fragments and the author speculates from them as to the age and identity of the objects on which the writing is found.

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[35] 里布

"Collection of Reprints of Chi Shih An." (吉石盦叢書). Published in 1916.

This is in six volumes. The texts are lithographed. Volume One gives a reproduction of the explanatory text of the Shang Shu which was found at Tun-huang and also a fragmentary Taoist text from the same place. This is followed by the text of a book published first in 1029 on the meaning of musical notations. The second volume contains a reprint of a book published also during the reign of the Emperor Jên Tsung treating of important methods used during the Ch'i Dynasty. The methods referred to are those employed in arboriculture. The third volume is devoted to an album of paintings with descriptive text on the opposite pages. The paintings are of various seashore scenes in the lives of two brothers who were engaged in the manufacture of salt. The album is called *Ao P'o T'u*,[36] "The Raging Waves." The copy described is a reproduction from the Yung Lo Ta Tien of a painting made in 1334 during the last days of the Yuan Dynasty.

The fourth volume reproduces a manuscript of the K'ai Yüan period which is dated A.D. 718. It consists of comments on the Materia Medica—pên ts'ao, which, it will be remembered, was revised and enlarged during the T'ang Dynasty. The fifth volume reproduces two manuscripts: the first is on divination by stalks and by tortoise shell, the second is a compendium by the Buddhist teacher San Tsang.[37] The sixth and last volume contains two specimens of Sung Dynasty block printing. The first is a guide to the life of Mandjusri, and the second is a Buddhist fragmentary manuscript recording the way in which the teacher San Tsang obtained his copy of the law.

"Explanation of the Text of the Stone Drums." (石鼓文考釋). Published in 1916.

The author in his introduction refers to frequent discussions as to this text which he had with Wang Wên-shao, and Shên Po-hsi; and to his obtaining a copy of the Sung Dynasty rubbing made by Chia Hsiu T'ang (甲秀堂) and also of the work on the subject by Ku Yen-wu[38] who wrote at the close of the Ming Dynasty. The author compared these two with the later work of Yüan Yüan and came to the conclusion that the explanations of Yüan and his reproduction of the text were the most reliable. Even Yüan's text, however, needs correction in some places and the purpose of

[36] 熬波圖 [37] 三藏 [38] 顧炎武

this book is to discuss these. It is wholly a discussion of linguistics. It is fully illustrated with cuts of the drums and the text.

"A Fragment of the Yu P'ien." (原本玉篇残卷). Published in 1916.

This is a discussion of the fragment of the Yü P'ien in the light of the discovery of a fragmentary copy by Li Shu-ch'ang[39] in Japan when he was Chinese Minister in that country. The original book was written by Ku Yeh-wang (A.D. 579-581) of the Liang Dynasty in thirty volumes. It was a discussion of the origin of the Chinese characters as given by the Shuo Wen. The original book was lost but it was reproduced in amended editions by Hsiao K'ao of the Liang Dynasty, by Sun Ch'iang of the Tang and by Chên P'êng-nien of the Sung. The corrections in these editions were so numerous that the original text was rendered obscure. In this book the author reproduces the new discovery and adds a short discussion of its importance.

"Fragments of Metal, Earthenware, and Stone." (金泥石屑). Published in 1916.

This volume is in two parts: the first treats of fragments of gold, silver, bronze, pewter, and iron objects, while the second treats of earthenware, pottery, jade, porcelain, and stone fragments. It is fully illustrated and contains so many objects of antiquarian and artistic interest that it is hopeless to undertake a description of them. Only a careful examination of the book can give any adequate idea of the importance of its contribution to the knowledge of ancient Chinese Art.

"Illustrations of Ancient Objects Found in the Ruins of the Shang Dynasty." (殷虚古器物圖錄). Published in 1916.

In an introductory note the author tells of having sent his brother on an expedition to An-yang Hsien, Honan, which is the site of the ancient capital of the Shang Dynasty. This is the place where the inscribed bone relics were found and the author believed that an expedition to this place would result in the securing of other valuable historic remains. His belief was fully justified and the objects which were obtained by his brother formed the subject of this book. The objects are all presented in illustrations. These include an elephant's tusk, a rhinoceros bone, jade and gem orna-

[39] 黎庶昌

ments, the thigh bone and the shoulder blade of an animal, the tooth of a large animal, a fragment of the handle of a bronze vessel, and two carapaces. The author adds at the end of the book notes explanatory of these objects.

"Moulds of Ancient Objects." (古器物範圖錄).
Published in 1916.

In the Introduction the author refers to his interest in this subject having been aroused through the writings of Chang Ting-chi of Chia-hsing who had collected several specimens of molds for casting copper cash. This interest was increased on finding molds of other objects in the possession of Wang I-jung[40] of Fu-shan and of Shên Po-hsi in Peking. This led him to further investigation out of which grew this book. It is in three chapters. The first treats of moulds of various objects such as daggers, axes, mirrors, and cross-bows; the second of moulds of exchange coins (貨幣), such as knife money, etc.; and third of molds of round coins (泉幣). As there are only incidental references in other books to moulds, this work is the first of its kind in Chinese literature.

"Official Seals from the Time of the Sui and Tang Dynasties." (隋唐以來官印集存).
Published in 1916.

Two-hundred and twenty-five seals are reproduced in this book. Notwithstanding the title, the first seal mentioned belongs to the Ch'ên Dynasty and its earlier than Sui of which period there are two seals given. Twenty are from the T'ang and Five Dynasties; forty-eight from the Sung; one from the Liao; seven from the Hsi Hsia; seventy from the Chin (Nü Chên); thirty-five from the Yüan; and thirty-one from the Ming. Many of these have impressions both of the obverse and reverse sides which accounts for the variance of the total number from that given in detail under the various dynasties. Forty-three had already been mentioned by Chü and Wêng in their books on this subject.

"Illustrations of Ancient Mirrors." (古鏡圖錄).
Published in 1916.

This book contains illustrations of one-hundred fifty-seven mirrors, the oldest of which is one dated the first year of Yüan Hsing, A.D. 105. The author claims that the illustrations are of specimens which cannot be found in the

[40] 王懿榮

Chin Shih So or in the Hsi Ching ku chien. Many of them are from the original collections of Chow Hsing-i and Tuan Fang, but are now found in Japan. The illustrations are lithographed from rubbings and are not clear in many instances. However, it is the best existing collection of illustrations of mirrors.

The above works show the wide range of Mr. Lo's scholarship. It is evident that his interest in antiquarian subjects was first developed by his literary interest in the inscriptions on bone relics. From this primary interest, he extended his scholarship into the field of investigation of inscriptions on ancient bronzes, and thus his vision was widened to include all classes of ancient objects. His recent life in Japan has given him access to the rich collection of ancient Chinese objects which have been made in that country. Mr. Lo has availed himself of his opportunties and has been able to bring to the explanation of the new objects which he has found the benefit of long years of association with the leading literary men of his country and of his own profound study of Chinese literature.

CHEMICAL INDUSTRY IN KWANG-TUNG PROVINCE

YAN TSZ CHIU.

An eminent authority says that the measure of a country's appreciation of the value of chemistry in its material development, and the extent to which it utilizes this science in its industries, generally measures quite accurately the industrial progress and prosperity of that country.

Chemical industry is one of the most important industries. No civilized country can get along without it. The demand for it is so great that sooner or later it has to be built up.

In some countries, the chemical industry is so extensive that they not only manufacture their own chemical substances, but also make them for other countries.

In China, chemical industry has made little progress and she has to depend upon other nations for her supply of chemical products.

The province of Kwangtung sends more students, merchants and laborers to other countries than any other province in China. Seeing the excellent chemical products in foreign countries, they feel the need of importing these articles to Kwangtung. The following is a list of some of the common things which are the products of foreign chemical industry:

They are glass, pigments, paints and varnish, fertilizers, dyes, alcohol, camphor, rubber, chloroform, drugs, soap, perfumes, wines, paper, photographic supplies, leather, etc. These were first imported into Kwangtung when people knew their uses.

But before the introduction of foreign articles into this country, some of the people here discovered certain crude methods of making some chemical products. They found these out by simple experiment. Soon a small chemical industry was formed. It developed very slowly until recent years when foreign methods of making these articles came into use, and factories to manufacture the chemical products which are new to our people were established. So we can divide the chemical industry in Kwangtung into two classes.

(I). That which is typically Chinese, and uses old and crude methods of making articles.

(II). That which is copied from foreign countries, and uses foreign machinery and methods.

Owing to the difficulty of getting capital the foreign chemical industry in Kwangtung is not very progressive. So in Kwangtung we can only find factories which make cement, glass, soap, matches, leather, paper, and perfumes.

In this paper I want to take up only the Chemical Industry in this province which is typically Chinese. This native industry includes the pottery industry of Shek Wan 石灣, the manufacture of peanut oil, wine, vinegar, vermilion, red lead, bricks, lime, Chinese wood oil, fire-crackers and China ware.

The methods used are rather simple and crude which have been handed down from one generation to another and are used again and again with little improvement.

Manufacture of Rice Wine.—It is said that wine was first used in China 2000 B.C. Rice wine is commonly used, as it is the cheapest kind sold in the market. The chief constituent of rice is starch, the fermentation of this gives alcohol.

The process of making rice wine is rather simple. The starch in rice is to be fermented, and the alcohol obtained by fermentation is evaporated, and the vapors are passed to a condenser in which they are cooled and condensed.

The rice has to be cooked in a large iron pan so that the enzymes in the yeast can act more readily on it. After the rice is cooked it is put on a large wooden table to cool to room temperature, for the bacteria in yeast would be killed at high temperature. Then the boiled rice is mixed with powdered yeast and placed in large jars with water to cover the rice. The jars are set aside in a dark cool place for 25 or 30 days, during this time the enzymes in the yeast slowly change the starch to alcohol and carbon dioxide.

They use the cheapest kind of coarse rice and it is found that for every 100 catties of rice they have to use 24 catties of yeast, yielding about 4 jars of rice wine.

The maximum time allowed for fermentation is usually four weeks or one month, and the wine makers find that the longer they allow the fermentation to go on, the better will the taste be. But if they allow the fermentation to go on beyond 30 days they have to pay a tax to the government. The time allowed for the fermentation of rice is too long, for in America, only three days are allowed. When the fermentation is complete, the alcohol in the fermented rice is then distilled. Three jars of fermented rice are put in a large

pan, water is added, and the condenser is put over the pan. The diameter of the pan is about 4 feet, and the depth is 1-1½ feet. Here the condenser also acts as a cover of the pan.

Between the pan and the condenser are three rings, the purpose of which is to keep the still air tight, but as a matter of fact, alcohol and steam can escape and are wasted. Beneath the pan is the furnace in which fuel is used. The fermented rice is heated to a temperature of about 70 deg. C. which is near the boiling point of alcohol, and then the condenser which is usually made of metal is placed over the pan.

Inside of this condenser is a dome-shape wall which divides the condenser into two parts. Cold water is poured into the condenser so as to cool it, and beneath the dome the vapors of alcohol are condensed, and run out through the outlet into the jar. The water above the dome soon gets hot, is then let out, and more cold water put in. Thus the condenser is not in a cool state all the time, so that the alcohol does not distil over very rapidly. Thus much of the heat is wasted.

Some of the wine manufacturers use a clay condenser instead of metal, and find that the wine is of a better grade, but as a clay condenser is easily broken and clay is not so good a conductor of heat, it is not so advantageous.

It takes one hour to complete the distillation and in a small store, like the one in Ng Chuen 伍村, only four jars of wine are made in a day, each jar contains 25 catties and costs $2.50 per jar. The wine-maker has to pay 40 cents to the government as a tax per each jar of 25 catties, and for better wines they have to pay more.

The first distillate contains more alcohol, so that the last portions which distill over contain almost pure water. The residue is used for feeding pigs. The first distillate is Liu Poon 料水 which has a specific gravity of .955, so that it contains 25% of alcohol. When the Liu Poon is redistilled with more fermented rice put in, the Seung Jing 雙蒸 is obtained which is a stronger wine and contains 30% alcohol. When the Seung Jing is distalled again with more fermented rice for the third time, the Sam Jing 三蒸 is obtained, which contains 45% alcohol.

As Sherry and Port wines contain 15-20% of alcohol and the strongest whisky contains 50% of alcohol, Chinese rice wine contains more alcohol on the average than foreign wines, but as the Chinese people do not drink rice wine in large quantities at one time, they seldom get intoxicated.

Vinegar.—As rice wine is the product of alcoholic fermentation so vinegar is the acetic fermentation of wine,

which is caused by a group of bacteria. These micro-organisms cause the oxidation of the alcohol into acetic acid. The wines to be used must not be too strong.

Three kinds of vinegar are made in Kwangtung:—the white, black, red.

White vinegar is made by using the by-product of wine distillation, that is 12 catties of this by-product are added to 440 catties of water and the mixture is boiled to 80 deg. C., and is placed in large containers, then 65 catties of rice wine are added and the whole mixture is allowed to stand for 30 days during which time the bacteria change the wine into vinegar.

Black vinegar is made from the white vinegar by adding to the latter roasted red rice.

Red vinegar is made by using a special kind of rice the fermentation of which gives (1) alcohol and (2) vinegar.

Peanut Oil.—Peanut oil is used for food by nearly all the people in South China. In the North, bean oil is used. As peanut oil is cheaper than lard, it is used in place of it.

Peanut oil is a light greenish yellow oil when it is pure. It has a peculiar odor and taste, but when refined, the best quality of oil is colorless and has a very faint nutty taste. Its specific gravity is .916 to .922.

Peanut oil is made in Canton, but the largest peanut oil factory is in Sin Toen 仙敦. Here the peanuts are first crushed by a machine which crushes 10,000 catties of peanut a day. After the peanuts are crushed, they are steamed for about 20 minutes, and then placed in rings and packed in the form of round cakes. These rings are then placed in a press, made of hard wood, the shape of which is like a Chinese coffin. They are hammered with mallets weighing 25-50 catties until no oil runs out.

As pressure is applied, the oil runs out into a vessel. Then the peanuts which have been crushed and pressed are taken out from the rings, are powdered and steamed again, and then replaced in the presses to be hammered again, until practically all the oil runs out. The residue which contains no oil is dried and sold as fertilizer. This is a tedious and slow process, for the crushed peanuts have to be hammered for a long time before the oil begins to run out.

The yield is 33%, that is out of 120 catties of peanuts hammered in the presses, 40 catties of oil are obtained, and as there are 24 presses, they can make 960 catties of oil per day. About 30 men are employed so that each makes 30 catties of oil on the average a day.

There are two kinds of peanut oil. The better kind is light greenish yellow and is sold for 24 cents per catty. The

cheaper kind costs 20 cents per catty and is brownish in colour. It is somewhat rancid in odor and taste, as it is made from old rotten peanuts. The peanuts which grow in Kwangtung produce the first grade of oil, but as the supply of peanut in this province is limited, peanuts are imported from Siam, and from other provinces in China.

The peanuts from Siam are not very good, and the oil obtained from them does not sell at a good price.

Pottery Industry in Shek-waan 石灣.—Shek-waan is the center of the pottery industry in Kwangtung. The industry is about 700 years old. Although it is so old, yet there is little improvement, because the potters are uneducated and conservative.

The industry was centered at Shek-waan, because at first there used to be clay in Shekwaan available for use. Later it was found that the clay in Tung Koon 東莞 was better, so they bought it from that district: they also use clay from Fa-Yuen 花縣. The Tung Koon clay is more plastic, while the clay from Fa-Yuen is stiffer.

Before the clay can be used, it has to be mixed with sand in the proportion of 20% sand and 80% clay. Then water is added to make it soft and uniform in texture. The clay and sand have to be thoroughly mixed.

From 12-13 piculs of clay and sand are mixed at one time, and for a mixing machine they use the hands and feet of a man, who mixes the clay and sand by raising and stamping his feet; and stirring with his hands. It takes four hours to make a batch.

After the mixing is done, the potter attaches big lumps to a wall to dry for 24 hours.

The clay for fine work such as dishes and plates is mixed for 24 hours with a machine mixer and is then dried. The clay which is to be moulded must be drier than the clay to be made on the potter's wheel. Those to be moulded must have a higher percentage of Fa-Yuen clay, being less plastic.

When the clay is dry, the big lumps are cut into sheets by means of a piece of wire tied to a bow, and drawn through the pile of clay, the wire is raised through one notch and drawn toward the man's body. Then the sheets of clay are allowed to dry for an hour in the sun. There are three ways by which the articles are formed:—

I.—Some of the articles such as dishes are formed on the potter's wheel which is made of wood. Two men are needed to each wheel, and there are seven wheels in a factory. One man puts some ash in the wheel so that the dish formed is not so sticky, and then he turns the wheel with his hand. A

small dish is completed in 8 seconds, is taken by the other man with a bamboo, and is placed on a piece of board and taken to be dried. Sometimes the partly dried mud is pressed in moulds to form one surface of the article, the other being completed on the wheel as is the case with plates and dishes.

The articles are very slowly dried at atmospheric temperature, and then burned at a low red heat to give them sufficient coherence to permit of glazing.

II.—Some of the articles are made in the mould. At first the mould is made of wood and then from the wooden form a clay mould is made, which is burned in a less hot fire, and using less time. The moulds are only burned in the kilm for 4-6 hours, while the articles are burned for from 12 to 24 hours. The moulds are filled with a sheet of clay, and the edges are cut off in order to make it smooth.

III.—Figures of animals are made with small tools by hand. These require more time and skill than those made on the potter's wheel or in the moulds. Some of the articles such as tiles are formed in the moulds and completed by hand work. For instance, two pieces of tiles are joined together, and a band is put around the joint and smoothed out by the hands.

In making large jars like Kam Ta 金塔, five pieces of clay are used, the pieces are made separately and are joined together forming a truncated cylinder and are then worked to the shape desired.

After the articles are formed they are piled in a kiln to be burned. The kilns are long tunnels, about 200 feet in length. The smaller end of the kiln is at the bottom which is 3½ feet in width and is 3¼ feet high. The wall of the kiln is 8 inches thick, and they are built of vitrified bricks. The kiln is built on the slope of the hill and inclines with an angle of 15 to 20 deg. It is not uniform, the higher up it goes the larger it gets. Fire is started at the bottom of the kiln as in an ordinary furnace. About 2,000 catties of wood are used for one burning, depending on the length of kiln and the kinds of things to be baked. Firing is begun at the bottom in the morning and goes up to the top at night. On the top and sides of the kiln are holes which are 32 inches apart. They are for putting in fuel from time to time. There are five holes in each row. These holes are not very large, but the draft underneath is very strong.

The top of the kiln is covered with the dishes to dry. The articles which require a stronger fire to burn are placed near the upper end of the kiln. For instance, flower pots, tiles and fancy things are burned at the upper end of the

tunnel to get a higher temperature. For burning figures and finer articles, they use a small kiln in the shop.

Then the articles have to be glazed. There are three kinds of glazes. The green glaze consists of a mixture of copper oxide, powdered glass, some ashes of rice and wood and river mud which is used as a reducing agent. For the blue glaze, they use English green, and for the yellow glaze, lead oxide is used.

The finely powdered glazed mixture is tirred up with water to form a cream, into which the articles are dipped and at once withdrawn. A layer of the glaze adheres to the surface, and after drying the articles are ready for the second or glaze burning.

Common dishes are glazed from the inside. A little of the liquid is put inside and turned. Then the unused liquid is poured out. If any decoration is to be done, the design is either painted or molded upon the surface of the article before glazing.

Various kinds of articles are made in Shekwaan. The most common ones are the glazed earthenware, jars of many shapes, tiles (fancy and plain), roof tiles, green and blue tiles, verticle or bamboo tiles, railing tiles, dishes, plates, teapots, water pots, figures of animals, etc.

As these articles are easily broken if the burning is not efficient, so 80% is considered a very good result.

It is strange to see that the potters in Shekwaan do not own the kilns, but the kilns are rented, and $10 are charged for each burning per kiln. There are about 70 kilns in Shekwaan and several thousand laborers are employed. Each laborer is paid by the number of pieces of work he does. But the maximum amount they can earn a day is 80 cents (Cantonese money). There are women laborers as well as men and they do the simpler kind of work, but there is no child labour.

The potters must go through an apprenticeship of six years; during this time they receive no wages. They form a number of guilds which are organized according to the kind of pottery, as each kind of pottery has one guild. In order to join the guild, one must pay the sum of $150.

Porcelain or Chinaware is not made in Shekwaan but is made in Ko Chow 高州. The best kind of porcelain work is done in Kong Sai. The clay used to make Chinaware is different from that used in the pottery.

While the processes used in the manufacture of the articles in Shekwaan and Ko Chow differ in details, fundamentally they are the same and may be summed up under three heads—namely (1) the preparation of the body of the ware (2) the process of glazing and (3) the decoration.

The kilns in Ko Chow are not built on the sides of the hill as those in Shek-waan, but are built like small towers. The work done here is much finer than that in Shekwaan.

Building bricks are chiefly made in Nam Kong 南崗, Ching Yuen 清遠 and Tung Koon 東莞 (green bricks) and also at Im Bo 鹽步 (white bricks). For making bricks the river mud and clay which contains no sand is the best. The bricks are formed in moulds.

The simplest form of moulding consists in pressing the soft clay into wooden frames which have been dusted with sand to prevent sticking. The operation is done by hand. Each man makes about 300 bricks a day.

After moulding, the bricks have to be dried before burning. This is done by spreading the bricks and allowing them to dry in the sun. The bricks having been thoroughly dried are placed in kilns and burned. The temperature and time of burning depends upon the kind of clay employed and the degree of hardness desired. Each kiln can hold 70,000 bricks, and usually the bricks are burned for 7 days, and cooled for 2 days. In Nam Kong there are about 10 kilns. Green bricks are made in Tsing Yuen and white bricks are made in Im Bo.

Lime is burned in kilns dug out of the earth. You can see this in Tung Shan 東山 (not far from Canton). Shells which contain calcium carbonate are used and they are mixed with fuel and burned until they are changed to lime and carbon dioxide.

There are two kinds of lime kilns, namely continuous and periodic. In the continuous kilns less fuel is used and much time is saved. In Kwangtung, you can only find periodic kilns. They are 12 feet in diameter and 3 feet deep.

In America, the kilns are built of bricks and are usually from 40-45 feet high, by 7 feet in diameter.

The lime kilns in this province require much fuel and time, but are probably preferred because of the simplicity and cheapness of building. The lime obtained is not pure, but is contaminated with ashes.

After burning, the kiln is allowed to cool. During the time of cooling, discharging, and recharging, the kiln stands idle, and thus much time is lost. Moreover, a large amount of fuel is necessary to heat the walls of the kiln after each recharging, so that the method is not an economical one.

No attempt is made in this province to save the carbonic acid gas which escapes from the kiln. In Europe, the gas is often collected and used for technical purposes.

In America and Europe lime is used for mortar and cement mixing, bleaching powder, in the Leblanc soda

process, in the preparation and purification of many chemicals such as acetic, citric, oxalic; and tartaric acids, potassium chlorate, caustic soda and potash, etc., for purifying illuminating gas and sugar solution; in bleaching and dyeing cotton; in tanning; in glass making; in metallurgical operations; for disinfecting, etc.

In Kwangtung lime is used only for mortar and cement mixing, and in bleaching and dyeing work, in glass making and for disinfecting.

Lime for mortar and many other purposes is always slaked immediately before use.

As a rule 100 catties of good lime stone yield about 60 catties of lime.

T'ung Oil 桐油. T'ung Oil which is generally known as "Chinese Wood Oil" is made in Canton. It has been known in America since 1896. It cannot be used in its raw state, but must always be heated to a temperature of over 500 deg. F. It makes a very water-proof material. It is obtained from the seeds of aleurites cordata, a tree which grows in South and North China and in Japan.

The seeds are usually roasted, broken into powder and pressed as is the case with peanut oil. The cold pressed oil is pale yellow, and is known in the trade as "White Tung Oil." That resulting from hot pressing is dark in colour, and is termed "black tung oil." The raw oil has a peculiar odor suggestive of ham.

Tung Oil is used principally in the manufacture of varnishes and linoleum. When it is made with ordinary resin, and suitably thinned, a varnish is obtained which is not affected readily by water, while varnish made with resin and linseed oil alone is quickly turned white by contact with water. In consequence of this behavior of tung oil, it has become very popular with the varnish maker as a means of producing cheap but good varnish.

Chinese Vermilion. — Chinese vermilion is made in Wing Kat 永吉 in Canton. It is the finest quality of vermilion, and its manufacture was long kept a secret. It is known to be made by heating mercury and sulphur together in shallow iron pans until they combine to form a black mercuric sulphide. This is pulverized, and put into retorts in small amounts at a time. The larger part of the black sulphide sublimes into the upper part of the retort as a bright red powder. This is ground, washed and dried. Owing to the patience and care exercised by the Chinese workmen, a very fine product is obtained.

Vermilion is very expensive and is a very heavy, opaque and brilliant pigment. It is permanent, and not readily

affected by acids and alkalies. It is also used as Chinese red ink and as a medicine.

Red Lead.—Lead is also made in Wing Kat in Canton. It is made by the direct oxidation of metallic lead. The process is carried on in two stages. In the first operation, the lead is converted into lead monoxide by heating with free access of air in a large iron pan which can hold 1,000 catties, to a temperature just above that of melted lead (540 deg. C.). The temperature must be carefully regulated, for if the lead monoxide melts, it passes into ordinary litharge, from which red lead cannot be made. In order to do this, it has to be stirred frequently. Finally the unoxidized lead is allowed to run off, and the lead monoxide is taken out and cooled. It is pale yellow, of granular texture, and contains pellets of unoxidized lead. It is then immersed in water to separate the impurities and dirt from it, then it is taken out of the water, dried and finely ground and then transferred to the second process.

In the second process, it is heated to a dull red heat in a larger pan. The mass is stirred frequently to assist the absorption of oxygen, and to develop the color. It takes several days to complete the process, and then the furnace is allowed to cool. The product is ground and then sold as a pigment and is also used for glass making.

Soap.—The methods employed by the people in this province for making soap are very crude. The art of soap making is very old; only Chinese soap was used before foreign soaps were introduced into Kwangtung.

Instead of treating lard or fatty material with a solution of sodium hydroxide or potassium hydroxide, lime is used to react with the oil. So instead of soda soap and potash soap, we have lime soap which is made in the shape of a bowl and is termed "bowl soap." It is hardly soluble in water, and is used only for washing purposes.

Fire crackers and fireworks are made in Fa-Ti 花地, Tung Koon 東莞 and Im Bo 鹽步. Nitre which is the chief constituent of these minor explosives has been known in this country for many centuries.

I have given you a brief outline of the chemical industry of Kwangtung province. You see that owing to the lack of machinery everything is done by hand-work, and owing to the lack of scientific knowledge, there is little improvement in methods and products. Furthermore, things are made on a small scale as hand-power and foot-power cannot compete with machinery; so there are no facilities for handling large quantities on an industrial scale. As much time and energy are wasted the manufacturers do not get much profit by the industry.

The factory is managed and the work is supervised by men of practically no training and education. Unlike the foreign factories where chemists and Chinese engineers are employed, and the raw material is carefully analyzed before use, the chemical factories in Kwangtung employ no chemists or engineers. Their success depends entirely upon the experience of the foreman who is most secretive. The factories are dark, dirty and poorly ventilated, so that the laborers have a very hard time and besides this their wages are low. This is a great handicap to the chemical industry in this country.

Again the apparatus and instruments used in chemical industry are crude and inefficient. As science finds no place in the curriculum of old schools and colleges, it is no wonder that men of learning pursue no research work in chemistry.

This accounts for the fact that the chemical industry in this country has made little or no progress. Although wine has been made for 4,000 years, the methods which are now used do not differ much from those used by people of the early ages.

In America, the university and the chemical factory have close relationship. The former sends out men to help develop the chemical industry. The chemical factory is the best place for a trained chemist and graduate of the colleges of chemistry outside of the laboratory.

A LIST OF THE BIRDS IN THE MUSEUM OF THE ANGLO-CHINESE COLLEGE OF FOOCHOW CHINA

C. R. KELLOGG.

Preface.

The birds listed herewith are all in the Museum of the Anglo-Chinese College in Foochow, and have been secured within the boundaries of Fukien Province so this will serve as a representative, though incomplete, list of the commonest birds of the province. The classification followed is that of the Museum of the North China Branch of the Royal Asiatic Society in Shanghai, for most of the names were secured through its published list and with the help of the native collector, who is also employed by the Shanghai Museum.

There are still a score or more of birds undetermined in our Museum and it is hoped that before long they may be classified and their names added to the list so as to make it as complete as possible. This does not purport to be a complete list of the birds in the province for we are aware that there are a number of birds reported from this region whose names do not appear in this list. Corrections or additions from those who have been working longer on the ornithology of China will be welcomed by the writer.

Although the actual collecting and preparation of the specimens has been done by the Chinese taxidermist, T'ang-Wang-Wang, the existence of the collection was made possible only through the generosity of Dr. J. Gowdy, the President of the College, who supplied the funds and whose enthusiasm and interest in its development were untiring.

FAMILY CORVIDAE.

No. of A.C.C. Museum

Sub-Family Corvinae.

1. Corvus torquatus Less. White-necked Crow.
2. Corvus dauricus (Pall.) Pied Jackdaw.
3. Corvus dauricus x neglectus. Hybrid Jackdaw.
4. Corvus macrorhynchus Wgl. Oriental Raven.

No. of A.C.C. Museum

5. Pica caudata (L.) Common Magpie.
6. Cyanopolius cyanus (Pall.) Chinese Azure-winged Magpie.
7. Urocissa sinensis (L.) Chinese Blue Magpie.
8. Dendrocitta sinensis (Lath.) Chinese Tree Pie.
9. Garrulus sinensis (Gould.) South China Jay.

Sub-Family Parinae.

10. Parus minor (T. & S.) Lesser Tit.
11. Parus pekinensis (Dav.) Chinese Cole Tit.
12. Parus venustulus Swinhoe. Yellow-bellied Tit.
13. Machlolophus rex (Dav.) David's Yellow-cheeked Tit.
14. Melanochlora sultanea (Hodgs.) Sultan Tit.
15. Aegithalus concinnus (Gould.) Red-headed Tit.
16. Silviparus modestus (Burt.) Yellow-browed Tit.

Sub-Family Paradoxornithinae.

17. Paradoxornis heudei (Dav.) Heude's Crow-Tit.
18. Suthora webbiana (Gray.) Webb's Crow-Tit.
19. Scaeorhynchus sp. Grey-headed Crow-Tit.

FAMILY CRATEROPODIDAE.

Sub-Family Crateopodinae.

20. Dryonastes perspicillatus (Gm.) Spectacled Laughing-Thrush.
21. Dryonastes sannio (Swinhoe.) White-cheeked Laughing-Thrush.
22. Dryonastes berthemyi (Dav.) Rufous Laughing-Thrush.
23. Ianthocincla cinereiceps (Styan.) Styan's Hwamei.
24. Garrulax picticollis (Swinhoe.) Collared Laughing-Thrush.
25. Trochalopteron canorum (L.) Hwamei.
26. Pomatorhinus swinhoei (Dav.) Fukien Large Scimitar Babbler.
27. Pomatorhinus stridulus (Swinhoe.) Chinese Lesser Scimitar Babbler.

Sub-Family Timeliinae.

28. Alcippe hueti (Dav.) Fukien Quaker-Thrush.
29. Schoeniparus superciliaris (Dav.) David's Quaker-Thrush.
30. Stachyridopsis sinensis (Grant.) Chinese Red-headed Babbler.
31. Proparus guttaticollis (La Touche.) Fukien Tit-Babbler.

No. of A.C.C. Museum

SUB-FAMILY BRACHYPTERYGINAE.

32. Myiophoneus coeruleus (Scop.) Violet Whistling Thrush.
34. Drymochares sinensis (Rickett.) Chinese Short-Wing.

SUB-FAMILY SIBIINAE.

33. Staphidia torqueola (Swinhoe.) Collared Staphidia.
35. Yuhina pallida (La Touche.) Pale Yuhina.

SUB-FAMILY LIOTRICHINAE.

36. Liothrix lutea (Scop.) Red-billed Liothrix.
37. Pteruthius ricketti (Grant.) Rickett's Shrike Tit.
38. Allotrius pallidus (Dav.) David's Shrike Tit.

SUB-FAMILY BRACHYPODINAE.

39. Pycnonotus sinensis (Gm.) Chinese Bulbul.
40. Pycnonotus xanthorrhous (And.) Yellow-vented Bulbul.
41. Hemixus canipennis (Seebohm.) Chestnut Bulbul.
42. Iole polti (Swinhoe.) Swinhoe's Green-winged Bulbul.
43. Hypsipetes leucocephalus (Gould.) White-headed Black Bulbul.
44. Spizios semitorques (Swinhoe.) Swinhoe's Finch-billed Bulbul.
45. Chloropsis lazulina (Swinhoe.) Chinese Chloropsis.

FAMILY SITTIDAE.

46. Sitta sinensis (Verreaux.) Chinese Nuthatch.

FAMILY DICRURIDAE.

47. Buchanga atra (Herm.) Black Drongo.
48. Chibia hottentotta (L.) Hairy-crested Drongo.

FAMILY SYLVIIDAE.

49. Locustella certhiola (Pall.) Pallas's Grasshopper-Warbler.
50. Acrocephalus orientalis (T. & S.) Eastern Great Reed-Warbler.
51. Phylloscopus sub-affinis (Grant.) Yellow-bellied Grass-Warbler.
52. P. trochiloides (Blyth.) Blythe's Crowned Willow-Warbler.
53. P. coronatus (Temm.) Crowned Willow-Warbler.
54. P. superciliosus (Gm.) Yellow-browed Willow-Warbler.

No. of A.C.C. Museum

55. Cryptolopha sinensis (Rickett.) Chinese Flycatcher-Warbler.
56. C. burkii (Burt.) Green-headed Flycatcher-Warbler.
57. Abrornis fulvifacies (Swinhoe.) Fulvous-cheeked Flycatcher-Warbler.
59. Horornis canturiens (Swinhoe.) Swinhoe's Bush-Warbler.
60. Horornis sinensis (La Touche.) Chinese Bush-Warbler.
61. Prinia extensicauda (Swinhoe.) South China Wren-Warbler.
62. Burnesia sonitans (Swinhoe.) Grey-headed Wren-Warbler.
63. Suya superciliaris (Anderson.) White-browed Hill-Warbler.

FAMILY LANIDAE.

Sub-Family Laniinae.

64. Lanius schach (L.) Great Red-backed Shrike.
65. Lanius fuscatus (Less.) Dusky Shrike.
66. Lanius bucephalus (T. & S.) Bull-headed Shrike.
67. Lanius superciliosus (Lath.) White-browed Red-backed Shrike.
68. Lanius tigrinus (Drapiez.) Thick-billed Shrike.
69. Tephrodornis pelvica (Hodgs.) Hodgson's Wood-Shrike.
70. Pericrocotus speciosus (McClell.) Great Scarlet Minivet.
71. Pericrocotus grinseigularis (Gould.) Grey-throated Minivet.
72. Pericrocotus cinereus (Lafresn.) Grey Minivet.
73. Pericrocotus cantonensis (Swinhoe.) Swinhoe's Minivet.
74. Campophaga melanoptera (Ruppel.) Black-Winged Cuckoo-Shrike.
75. Graucalus rex-pineti (Swinhoe.) Chinese Great Cuckoo-Shrike.

FAMILY ORIOLIDAE.

76. Oriolus indicus (Jerdon.) Black-naped Oriole.

FAMILY STURNIDAE.

77. Spodiopsar cineraceus (Temm.) Grey Starling.
78. Spodiopsar sericeus (Gm.) Silky Starling.
79. Sturnia sinensis (Gm.) Chinese Starlet.

No. of A.C.C. Museum

80. Sturnia sturnina (Pall.) Daurian Starlet.
81. Graculipica nigricollis (Payk.) Black-necked Mynah.
82. Acridotheres cristatellus (L.) Chinese Crested Mynah.

FAMILY MUSCICAPIDAE.

83. Alseonax latirostris (Raffles.) Broad-billed Flycatcher.
84. Hemichelidon sibirica (Gm.) Siberian Flycatcher.
85. Poliomyias luteola (Pall.) Robin Flycatcher.
86. Cyanoptila bella (Hay.) Blue and White Flycatcher.
87. Xanthopygia tricolor (Blyth.) Tricolor Flycatcher.
88. X. narcissina (Temm.) Narcissus Flycatcher.
89. Terpsiphone incii (Gould.) Ince's Paradise Flycatcher.
    One male reddish-brown. Another male white. Latter said to be old.
90. T. princeps (Temm.) Japanese Paradise Flycatcher.

FAMILY TURDIDAE.

Sub-Family Saxicolinae.

91. Pratincola maura (Pall.) Eastern Stonechat.
92. Oreicola ferra (Hodgs.) Grey Stonchat.

Sub-Family Ruticillinae.

93. Henicurus sinensis (Gould.) Chinese Forktail.
94. Henicurus guttatus (Gould.) Spotted Forktail.
95. H. schistaceus (Hodgs.) Grey Forktail.
96. Microcichla scouleri (Vigors). Little Forktail.
97. Rhyacornis fulginosa (Vigors.) Plumbeous Water-Redstart.
98. Ruticilla aurorea (Pall.) Daurian Redstart.
99. Cyanecula coerulecula (Pall.) Blue Throat.
100. Calliope camschatkensis (Gm.) Ruby Throat.
101. Erithacus akahige (T. & S.) Japanese Robin.
102. Ianthia cyanura (Pall.) Blue-tailed Robin.
103. Copsychus saularis (L.) Dayal Bird.

Sub-Family Turniinae.

104. Merula mandarina (Bp.) Chinese Blackbird.
105. M. pallida (Gm.) Pale Ouzel.
106. M. obscura (Gm.) Gray-headed Ouzel.
107. M. hortulorum (Sclater.) Grey-backed Ouzel.
108. M. cardis (Temm.) Japanese Black Ouzel.
109. M. naumanni (Temm.) Red-tailed Auzel.
110. M. fuscata (Pall.) Dusky Ouzel.
111. Geocichla sibirica (Pall.) Siberian Ground-Thrush.

No. of A.C.C. Museum

112. Petrophila manilla (Bodd.) Red-bellied Rock-Thrush.
113. P. gularis (Swinhoe.) White-throated Rock-Thrush.
114. Oreocincla varia (Pall.) White's Thrush.

Sub-Family Cinclinae.

115. Cinclus souliei (Oustalet.) South China Dipper.

Sub-Family Accentorinae.

116. Accentor montanellus (Pall.) Mountain Accentor.

FAMILY PLOCEIDAE.

Sub-Family Viduinae.

117. Munia sinensis (Briss.) Chinese Munia.
118. Uroloncha acuticauda (Hodgs.) Sharp-tailed Munia.

FAMILY FRINGILLIDAE.

Sub-Family Coccothraustinae.

119. Eophona migratoria (Hartert.) Lesser Black-headed Hawfinch.

Sub-Family Fringillinae.

120. Pyrrhula ricketti (La Touche.) Fukien Bullfinch.
121. Chloris sinica (L.) Chinese Greenfinch.
122. Fringilla montifringilla (L.) Brambling.
123. Passer montanus (L.) Tree Sparrow.
124. P. rutilans (Temm.) Ruddy Sparrow.

Sub-Family Emberizinae.

125. Emberiza pusilla (Pall.) Little Bunting.
126. E. spudocephala (Pall.) Grey-headed Bunting.
127. E. rustica (Pall.) Rustic Bunting.
128. E. aureola (Pall.) Yellow-breasted Bunting.
129. E. chrysophrys (Pall.) Yellow-browed Bunting.
130. E. elegans (Temm.) Yellow-throated Bunting.
131. E. cioides (Temm.) Chestnut Bunting.
132. E. fucata (Pall.) Painted Bunting.
133. E. tristrami (Swinhoe.) Tristram's Bunting.
134. E. rutila (Pall.) Ruddy Bunting.
135. E. sulphurata (?)
136. Melophus melanicterus (Gm.) Crested Bunting.

FAMILY HIRUNDINIDAE.

143. Chelidon dasypus (Bonap.) Japanese Martin.
144. C. kashmirensis (Gould.) Kashmir Martin.

No. of A.C.C. Museum

145. Cotile riparia (L.) Sand-Martin.
146. Hirundo gutturalis (Scop.) Eastern House-Swallow.
147. H. nipalensis (Hodgs.) Nipal Striped Swallow.

FAMILY MOTACILLIDAE.

148. M. lugens (Pall.) Kamschatkan Wagtail.
149. M. melanope (Pall.) Eastern Grey Wagtail.
150. Motocilla leucopsis (Gould.) White-faced Wagtail.
151. Anthus macalatus (Hodgs.) Eastern Tree-Pipit.
152. A. japonicus (T. & S.) Eastern Water-Pipit.
153. A. cervinus (Pall.) Red-throated Pipit.
154. A. richardi (Vieill.) Richard's Pipit.

FAMILY ALAUDIDAE.

155. Alauda arvensis (L.) Skylark.

FAMILY NECTARINIIDAE.

Sub-Family Nectariniinae.

156. Aethopyga latouchii (Slater.) La Touche's Sunbird.
157. Dicoeum ignipectus (Hodgs. Fire-breasted Flower Pecker.

ORDER PICI.

FAMILY PICIDAE.

Sub-Family Picinae.

158. Gecinus tancolo (Gould.) South China Green Woodpecker.
159. Gecinulus viridanus (Slater.) Chinese Three-toed Green Woodpecker.
160. Dendrocopus cabanisi (Malh.) Chinese Pied Woodpecker.
161. D. insularis (Gould.) Chinese White-backed Woodpecker.
162. Iyngipicus kaleensis (Swinhoe.) South China Spark-headed Woodpecker.
163. Lepocestes sinensis (Rickett.) Chinese Bay Woodpecker.
164. Micropternus fohkiensis (Swinhoe.) Fukien Rufous Woodpecker.

Sub-Family Picumninae.

165. Picumnus chinensis (Hargitt). Chinese Piculet.

No. of A.C.C. Museum

SUB-FAMILY IYNGINAE.

166. Iynx torquilla (L.) Wryneck.

ORDER ZYGODACTYLI.

FAMILY CAPITONIDAE.

167. Megalaima virens (Bodd.) Great Chinese Barbet.

ORDER ANISODACTYLI.

SUB-ORDER CORACIAE.

FAMILY CORACIIDAE.

168. Eurystomus calonyx (Sharpe.) Chinese Broad-billed Roller.

SUB-ORDER HALCYONES.

FAMILY ALCEDINIDAE.

137. Halcyon pileatus (Bodd.) Black-capped Kingfisher.
138. H. smyrnensis (L.) White-breasted Kingfisher.
139. Alcedo bengalensis (G.) Common Kingfisher.
140. Ceryle varia (Strickl.) Eastern Pied Kingfisher.
141. C. lugubris (Temm.) Great Spotted Kingfisher.

SUB-ORDER UPUPIDAE.

FAMILY UPUPIDAE.

142. Upupa epops (L.) Hoopoe.

ORDER MACROCHIRES.

SUB-ORDER CYPSELI.

FAMILY CYPSELIDAE.

SUB-FAMILY CYPSELINAE.

169. Cypselus pekinensis (Swinhoe). North China Swift.

SUB-FAMILY CHAETURINAE.

170. Acanthyllis caudacuta (Lath.) Spine-tailed Swift.

FAMILY CAPRIMULGIDAE.

171. Caprimulgus jotaka (T. & S.) Japanese Night-jar.

ORDER TROGONES.

FAMILY TROGONIDAE.

172. Harpactes yamakanensis (Rickett). Fukien Trogon.

ORDER COCCYGES.

FAMILY CUCULIDAE.

No. of A.C.C. Museum

Sub-Family Cuculinae.

173. Cuculus saturatus (Hodgs.) Himalayan Cuckoo.
174. C. poliocephalus (Lath.) Small Cuckoo.
176. Hieroccoccyx sparverioides (Vig.) Great Hawk-Cuckoo.

Sub-Family Phoenicophainae.

178. Eudyhamis honorata (L.) Indian Koel.
179. Centropus sinensis (Steph.) Common Crow-Pheasant.

ORDER STRIGES.

FAMILY ASIONIDAE.

Sub-Family Asioninae.

181. Asio otus (L.) Long-eared Owl.
182. A. accipitrinus (Pall.) Short-eared Owl.

Sub-Family Bubonidae.

183. Bubo ignavus (Forster). Great Eagle Owl.
184. Scops semitorques (T. & S.) Half-collared Owl.
185. S. strictonotus (Sharpe.) Chinese Little Scops-Owl.
186. Glaucudium whiteyi (Blyth.) Whitley's Owlet.
187. G. brodeie (Burt.) Collared Pygmy Owlet.
188. Ninox japonica (T. & S.) Japanese Brown Hawk-Owl.

ORDER ACCIPITRES.

FAMILY PANDIONIDAE.

189. Pandion haliaetus (L.) Osprey.

FAMILY VULTURIDAE.

189A. Vultur monachus L. Cinereous Vulture.
(Very rare. Killed near sea-coast. Must have lost its way and been driven by storm).

FAMILY FALCONIDAE.

190. Aquila chrysaetus (L.) Golden Eagle.
191. Aquila heliaca (Sav.) Imperial Eagle.
192. Hieraetus fasciatus (Vieill.) Bonelli's Eagle.
193. Spizaetus nipalensis (Hodgs.) Hodgson's Hawk-eagle.
194. Butastur indicus (Gm.) Grey-faced Buzzard-Eagle.
195. Haliaetus albicilla (L.) White-tailed Sea-Eagle.

No. of A.C.C. Museum

196. Milvus melanotis (T. & S.) Black-eared Kite.
197. Circus cyaneus (L.) Hen-Harrier.
198. Buteo plumipes (Hodgs.) Common Buzzard.
199. A. gularis (T. & S.) Japanese Sparrow-Hawk.
200. Accipiter nisus (L.) Common Sparrow-Hawk.
201. Falco peregrinus (L.) Peregrine.
203. F. subbuteo (L.) Hobby.
204. Æsalon regulus (Tunst.) Merlin.
205. Erythropus amurensis (Radde.) Eastern Red-footed Falcon.
206. Cerchneis japonicus (T. & S.) Japanese Kestrel.
207. Microhierax melanoleucus (Blyth.) White-legged Falconet.

ORDER COLUMBAE.

FAMILY COLUMBIDAE.

SUB-FAMILY COLUMBIAE.

208. Turtur orientalis (Lath.) Eastern Turtle-Dove.
209. T. chinensis (Scop.) Chinese Turtle Dove.
210. Turtur humilis (Temm.) Chinese Ruddy Ring-Dove.

ORDER GALLINAE.

SUB-ORDER ALECTOROPODES.

FAMILY PHASIANIDAE.

211. Phasianus torquatus (Gm.) Ring-necked Pheasant.
212. Pucrasia darwini (Swinhoe.) Darwin's Pucras Pheasant.
213. Gennoesas nycthemerus (L.) Silver Pheasant.
214. Tragopan caboti (Gould.) Cabot's Tragopan.
215. Bambusicola thoracica. (Temm.) Bamboo-Partridge.
216. Coturnix communis (Bonnat.) Common Quail.
217. Francolinus chinensis (Osbeck.) Chinese Francolin.

ORDER HEMIPODII.

FAMILY TURNICIDAE.

218. Turnix blanfordi (Blyth.) Blanford's Button Quail.

ORDER GRALLAE.

SUB-ORDER FULICARIAE.

FAMILY RALLIDAE.

219. Rallus aquaticus (L.) Common Water Rail.
220. Hypotaenidia striata (L.) Blue-breasted Banded Rail.
221. Porzana pusilla (Pall.) Pallas's Crake.

No. of A.C.C. Museum

222. Amaurornis aokol (Sykes.) Crimson-legged Crake.
223. A. phoenicura (Penn.) White-breasted Water-hen.
224. Gallinula chloropus (L.) Common Moor-hen.
225. Gallicrex cinerea (Gm.) Water Cock.
226. Fulica atra. (L.) Common Coot.

FAMILY OTITIDAE.

241. Otis dybowskii. Great Eastern Bustard.

ORDER LIMICOLAE.

FAMILY GLAREOLIDAE.

Sub-Family Glareolinae.

230. Glareola orientalis (Leach.) Eastern Pratincole.

FAMILY PARRIDAE.

227. Hydrophasianus chirurgus (Scops.) Pheasant-tailed Jacana.

FAMILY CHARADRIIDAE.

Sub-Family Charadriinae.

228. Microsarcops cinereus (Blyth.) Grey Lapwing.
229. Vanellus cristatus (W. & M.) Lapwing.
231. Charadrius fulvus (Gm.) Eastern Golden Plover.
232. Squatarola helvetica (L.) Grey Plover.
233. Ægialitis. veredus (Gould.) Eastern Dotterel.
234. Stupsila intrepres. Turnstone.
235. Æ. geoffroyi (Wagl.) Geoffrey's Sand-Plover.
236. Æ. flacidens. Ringed Plover.
237. Æ. minor (W. & M.) Little Ringed-Plover.
238. Æ. placidus (Gray). Hodgson's Ringed-Plover.

Sub-Family Haematopodinae.

239. Mimantopus *candidus* (Bonnat.) Black-winged Stilt.

Sub-Family Totaninae.

240. Numenius variegatus (Scop.) Eastern Whimbrel.
242. N. minutus (Gould.) Little Curlew.
243. Terekia cinerea (Gm.) Terek Sandpiper.
244. Totanus hypoleucus (L.) Common Sandpiper.
245. T. glareola (L.) Wood Sandpiper.
246. T. ochropus (L.) Green Sandpiper.
247. T. glottis (L.) Greenshank.

No. of A.C.C. Museum

248. T. brevipes (Vieill.) Grey Sandpiper.
249. T. calidris (L.) Red-shank.
250. Tringa ruficollis (Pall.) Red-necked Stitt.
251. T. subminuta (Midd.) Long-toed Stint.
252. T. acuminata (Horaf.) Sharp-tailed Stint.
253. T. canutus (L.) Knot.
254. T. subarcuata (Gould.) Curlew Stint.
255. T. cinclus (L.) Dunlin.
256. T. platyrhyncaa (Temm.) Broad-billed Stint.
257. Eugnorhynchus pygmens. Spoon-billed Sandpiper.
258. Scolopax rusticula (L.) Woodcock.
259. Gallinago megala (Swinhoe.) Swinhoe's Snipe.
260. G. stenura (Bp.) Pin-tailed Snipe.
261. G. coelestis (Frenz.) Common Snipe.
262. Rhynchoea capensis (L.) Painted Snipe.

ORDER GAVIAE.

FAMILY LARIDAE.

SUB-FAMILY LARINAE.

263. L. vegoe (Stejn.) Pink-footed Herring Gull.
264. Larus canus (L.) Common Gull.
265. L. ridibundus (L.) Laughing Gull.

SUB-FAMILY STERNINAE.

266. Sterna sinensis (Gem.) Chinese Little Tern.

ORDER STEGANOPODES.

FAMILY PELICANIDAE.

SUB-FAMILY

267. Pelecanus philippensis (Briss.) Spotted-billed Pelican.

FAMILY PHALACROCORACIDAE

268. Phalacrocorax carbo (L.) Common Cormorant.

ORDER HERODIONES.

SUB-ORDER PLATALEAE.

FAMILY PLATALEIDAE.

269. Platalea minor (T. & S.) Lesser Spoonbill.

SUB-ORDER CICONIAE.

FAMILY CICONIIDAE.

270. Ciconia nigra (L.) Black Stork.

Sub-Order Ardeae.

FAMILY ARDEIDAE.

No. of A.C.C. Museum

271. Ardea cinerea (L.) Gray Heron.
272. A. manillensis (Mey.) Eastern Purple Heron.
273. Herodias alba (L.) Great Egret.
274. H. intermediae Wagl. Lesser Egret.
275. H. garzetta (L.) Little Egret.
276. Bubulcus coromandus (Bodd.) Cattle Egret.
277. Ardeola bacchus (Bp.) Chinese Pond Heron.
278. Butorides. javanica (Horaf.) Little Green Heron.
279. Nyctiardea nycticorax (L.) Night Heron.
280. Botaurus stellaris (L.) Bittern.
281. Gorsachius goisagi (Temm.) Japanese Tiger Bittern.
282. A. cinamonea. Chestnut Bittern.
283. Ardetta sinensis (Gm.) Chinese Little Bittern.
284. A. eurythma (Swinhoe.) Von Schrenk's Little Bittern.
285. Dupetor flavicollis (Lath.) Yellow-necked Heron.

ORDER ANSERES.

FAMILY ANATIDAE.

Sub-Family Anserinae.

286. Anser serrirostris (Gould.) Eastern Bean Goose.
287. A. cygnoides. Swan Goose.

Sub-Family Anatinae.

288. Tadorna cornuta (Gm.) Sheldrake.
300. Casarca rutila. Ruddy Sheldrake.
289. Nettopus coromandeliamus (Gm.) Cotton Teal.
290. Anas boschas (L.) Mallard.
291. A. zonorhyncha Swinhoe. Yellow-nib Duck.
292. Eunetta falcata (Pall.) Falcated Teal.
293. Nettium formosum (Georgi.) Spectacled Teal.
294. N. crecca (L.) Common Teal.
295. Querquedula circia (L.) Garganey Teal.
296. Aex galericulata (L.) Mandarin Duck.
297. Mareca penelope (L.) Wigeon.
298. Dafila acuta (L.) Pintail Duck.
299. Spatula clypeata (L.) Shoveller.
301. Fuligula baeri (Radde.) Eastern White-eyed Duck.
302. F. mariloides (Rich.) Eastern Scaup.
303. F. cristata (L.) Tufted Duck.
304. Oidemia carbo (Pall.) Eastern Velvet Scoter.

No. of A.C.C. Museum

SUB-FAMILY MERGINAE.

305. Mergus albellus (L.) Smew.
306. M. castor (L.) Goosander.
307. M. squamatus (Gould.) Gould's Merganser.
308. M. serrator (L.) Red-breasted Merganser.

ORDER PYGOPODES.

FAMILY COLYMBIDAE.

309. Colymbus septentrionalis (L.) Red-throated Diver.
310. C. arcticus (L.) Black-throated Diver.

FAMILY PODICIPEDIDAE.

311. Podicipes cristatus (L.) Great Crested Grebe.
312. P. philippensis (Bonnat.) Eastern Little Grebe.

FORMOSA

BY OLD CATHAY.

The island of Formosa, or Taiwan, originally the largest insular possession of China, was formally ceded to Japan in 1895, and is now becoming so thoroughly surveyed and developed by its new rulers that the following notes may prove not uninteresting from a European point of view.

Perhaps it is unnecessary to remark that under the fierce latter-day competition of the Japanese, the trading interests of all European firms on the Island have steadily declined.

"Formosa," or "The beautiful Isle," as the Portugese first named it, extends between 22° and 26° N. Lat., and 120° to 122° E. Long. By the British Treaty signed in Peking in 1858 three of its ports were thrown open to foreign commerce; viz. Tamsui and Kelung on the North, and Takao on the South. From thence an increasing trade has been carried on by a few British firms; branches from the Mainland ports of Amoy and Foochow; the principal exports being Manchester goods, opium and a few sundries; the chief exports are sugar and rice from the South; tea, sugar, hemp, camphor, liquid indigo, rice and coal from the North.

A large traffic is also carried on by Chinese merchants in junks; they, in exchange for export products supplying the emigrants to the Island with clothing materials, agricultural implements, raw cotton, crockery, and many other articles of every-day use which are best obtained from the mainland ports. The Island is rich in natural products and extremely fertile. Its Northern coalfields are extensive and only await the introduction of mining machinery to turn out large supplies of coal for steam purposes; its mountain ranges abound with valuable timbers—sixty different kinds have been collected—some of very fine grain; two *Solfataras* are known, from which the purest sulphur might be readily procured; whilst the *locale* of petroleum oil springs has been discovered, the natives in their vicinity employing the oil in its crude state for lighting purposes.

The great drawbacks of the Island are, want of deep-water harbours,—that of Kelung on the North being the only one suited to a deep-draught vessel,—and the excessive

humidity of the climate during the greater portion of the year.

What may be described as the native population of Formosa consists of no fewer than four classes of people, viz:—1st. the Aborigines of the Island who have been driven inland by the emigrants from China, and who now occupy the wooded hills and mountains of the interior, also the Eastern seaboard. 2nd. Ping-poo-hwans, or savages, of the plains, *i.e.* those Aborigines who originally occupied the table-lands adjacent to the Coast, and who, by contact with the Chinese, have now adopted to a more or less extent their manners or customs, and who further owe allegiance to China's Emperor. 3rd. Hakkas, a peculiar race of Chinese emigrants, who were in their turn emigrants from the more Northern to the Southern provinces of the Mainland. 4th. Chinese from the opposite coast of China, and chiefly natives of the Fuh-kien province.

As to the peculiarities of these four classes, it may be noted, that the Aborigines in appearance resemble the natives of the Malay Archipelago, and, like them, are inclined to slothful and indifferent habits. They appear to be split up into several tribes; feuds are common amongst them, and one and all are bitter enemies to the Chinese emigrants, whom they only tolerate because, by means of a barter trade with them, they obtain articles of raiment, arms, ammunition, and that greatest of necessaries, salt. They pay but little attention to agriculture, being content to subsist on mountain rice, sweet potatoes, and the products of the chase.

The *Ping-poo-hwans* or tame savages, as they are now called, are certainly improved by their inter-marriages and intercourse with the Chinese, both as regards physique and industrious habits. They still, however, retain their aboriginal simplicity of disposition, and on this account are often the victims of Chinese duplicity.

The *Hakkas* I may style the Scotch of the Chinese emigrant element. Most industrious, keen in business, daring in disposition, they are ever to the front when a new tract of land is being colonised or where, by running more than ordinary risk, they may succeed in establishing a new border station.

The Chinese, amongst whom are included the mercantile and manufacturing classes, are as industrious and as keenly alive to their own interests as their brethren of the mainland.

The island and its people having now been roughly described, I will give a short account of a journey, undertaken during the dry weather of the Autumn of the year, 1873, with a view of penetrating to the savage territory and seeing

the savages on their native soil. My companion was a worthy missionary, who had succeeded in establishing chapels and gaining converts among the "tame" savages.

For the first three days after leaving the treaty-port, our route lay in a generally South and westerly direction across elevated table-land, with intervening valleys of some miles in breadth, running parallel to the coast, and in a high state of cultivation.

On the evening of the fourth day we found ourselves in a village peopled by tame savages, amongst whom my companion had laboured and who boast of a chapel of their own. I was much struck with their kindly disposition, and particularly decorous and attentive behaviour at evening service. They being in direct communication with the savages of the woods, it was with some of their party that we expected to resume our march on the morrow.

Soon after daylight, therefore, we started with two of them as guides, and pursued a path running up a rugged-looking valley, bestrewed with boulders, and trending East, towards the hills. By noon we reached a low line of hills, and after some three hours of up and down work, we came upon the first party of savages, who were on duty at a small clearing where bartering was carried on between their people and the *Hakkas*, but beyond which point the latter would not dare to be caught.

On seeing us, the savages, who had ugly-looking iron knives in wooden sheaths hanging at their girdles, and who were otherwise armed with long gingalls, jumped to their feet. The men, small in stature, like the Malays, were tattoed in one straight line, about half an inch in breadth, right down the forehead to the bridge of the nose, and again from the lower lip to the extremity of the chin; those who, in raids against the Chinese, had been successful in bringing home heads of any of their foes, were further tattooed in parallel lines of the same breadth below the nipple of the breast, each line representing a head brought home.

Their clothing consisted of a sleeveless jacket, cut from coarse cloth of their own make, and of a strip of the same material bound round their loins. Nether garments and shoes they had none. Nearly all the group were ornamented with strings of very common-looking beads, which they nevertheless appeared to prize highly; and all were furnished with short bamboo pipes, at which they sucked incessantly.

The women, some of whom had sharply cut features and beautiful eyes, were tattooed in three lines from beneath the lobes of each ear across the cheek-bones to the centre of the chin, the spaces between the broad lines being filled in with

ornamental work. In regular Malay style, they wore a loose sort of petticoat twisted round their loins, and reaching to the ankles, the rest of their dress consisting of the same sleeveless jacket as the men.

The women were somewhat timid, but not so the men, who at once asked to be shown foreign guns and pistols, and who evidently judge of a man by the style of his weapons. Their houses, by the way, are miserable affairs, having roofs formed of split bamboo and walls of mud or thatch. As to their language we could learn but little. It would seem, however, they employ but a limited vocabulary, and that different dialects exist in the tribes occupying territory comparatively adjacent. The tame savages, who acted as interpreters, when asked what so-and-so was called would point North, and say, "Up there they call it by such a name, and down here by another."

The chief of the tribe we were visiting being absent in the woods, we were disappointed in our plan for a further advance into the hills, none of the savages being willing to conduct us. After a short trip, therefore, on the second day of our stay, to a spot where some natives were engaged in cutting and splitting rattans ready to carry to market, we decided to quit savage territory, and return to the Foreign Settlement.

THE ATTRACTIONS OF ENTOMOLOGY

Enhanced by a Simple Method of Preserving Insects, Etc.

ALFRED MOORE, B.A.

Until very recent years the collection of insects was regarded by most people as an employment suitable only for children, whilst adults who devoted themselves to the study of these creatures were looked upon as amiable simpletons wasting their time in an utterly useless pursuit. There can be no doubt, that the study of entomology forms a very congenial and efficient, though greatly neglected, method of training all the most important faculties of mind and body in the young, and it likewise provides an extremely delightful and instructive hobby which can be pursued with unfailing lifelong interest by intelligent adults of all ages and widely different tastes. Lovers of beauty, in colour, in form, and in structure, are richly rewarded by observation of these as displayed by insects, particularly in tropical or semi-tropical countries. Those who are interested in mechanical problems do well to study the infinite variety of strange devices with which insects are endowed, for it is scarcely an exaggeration to say that most human contrivances,—either simple tools, such as hooks, knives, files, saws, drills, etc, or complicated machine processes, like spinning, weaving, etc., or even such modern inventions as aeroplanes, submarines, etc.,—are merely clumsy imitations of the wonderfully compact instruments and efficient arrangements found even

[1] To exemplify this statement; the finest surgical needle is a coarse article compared with the proboscis of a mosquito, yet this latter is in reality a complete surgical dressing case comprising a pair of lancets, a delicate probe, a couple of fine saws, an only too efficient aspirating needle, and a hypodermic syringe. We are dependent on an insignificant caterpillar for the delicate thread which forms our most beautiful silken fabrics—the aeroplane is obviously modelled on the structure of a dragonfly,—whilst the submarine and its periscope find their living likeness in a mosquito larva with its breathing tube.

amongst the simplest forms of insect life.[1] Again, persons attracted by biological questions connected with the origin and development of life on the earth, find much food for abstract thought in observing the springs of life actually at work in the transparent tissues of some of these perfectly constructed creatures; in following out their strangely complicated metamorphosis; in noting their wonderful adaptation to environment and fierce struggle for existence ensuring the survival of the fittest; in the amazing intelligence revealed by their social life, and in their altogether inexplicable powers of instinct:—Surely then we should also obtain inspiration in insects, if we can find

> "Tongues in trees, books in the running brooks
> Sermons in stones and good in everything."

More practical minds, however, care for none of these things and demand impatiently whether the study of these low forms of life has any direct bearing on human affairs, or serves any directly useful purpose in every day life. The astonishing and far reaching practical results obtained by the study of entomology during the last quarter of a century warrant a very decisive affirmative reply to these questions. For a long time past it has been known that insects were essential agents in the fertilization of plants, as well as in scavenging all the dead, useless, putrefactive matter that would otherwise render the earth unfit for habitation,—thus playing a twofold beneficial role in the economy of Nature. But, as so frequently happens in this world, evil is inextricably associated with good in both these processes, and quite recently, serious attention has been drawn to the ravages committed by insects on the fruits, cereals and vegetables that form such a large part of the world's food supply, and on many other plants necessary for various industrial purposes. So large have been the losses sustained from these causes that many civilised countries find it advisable to maintain experimental stations where the life histories of these pests are carefully investigated with a view to preventing their growth and development, for it is chiefly in the larval or caterpillar stage that such insects exert their most injurious effects on plants. But although vast quantities of valuable food material are saved every year through the study of what may be called agricultural entomology, yet this represents only a small fraction of the total practical results obtained from applying our knowledge of the life history of insects. For whilst the larvæ are such potent factors in destroying useful forms of vegetable life, the full-grown insects have been found to be equally dangerous to animals, the human race in particular suffering terribly from various diseases

propagated by these parasites; and it is only by carefully working out all the different life stories and habits of these deadly pests that we are gradually gaining knowledge which, if systematically and intelligently applied, will enable us to stamp out these fell scourges. As an illustration of these statements may be mentioned the fact that the first attempt to construct the Panama Canal failed, owing largely to the decimation by malaria and yellow fever, of those who were engaged in the work. At that time it was not known that these diseases were caused by the bite of two different kinds of infected mosquito, but when this fact had been ascertained, and the breeding habits of these special varieties had been thorouhly investigated, it became possible to equip an effective anti-mosquito brigade whose work enabled the gigantic undertaking to be completed without further hindrance from this cause. Again, the simple fact that fleas desert the corpses of plague-infected rats and carry the disease to human beings, has enabled intelligent measures to be adopted, whereby Europe has been protected from this deadly scourage, although Asia has been terribly and extensively ravaged by it for the last quarter of a century, and the two continents are closely associated both geographically and commercially. Many other instances might be given of the part played by insects in propagating human diseases, and of the scientific triumphs achieved by the judicious application of measures directed against these infection carriers, but enough has been said to show how essential to man's very existence is the study of this branch of natural history.

How is it then that this subject is very generally neglected notwithstanding that it is so attractive to every healthy minded child, is inexhaustibly full of strange and wonderful beauty, is replete with material for abstract thought, and at the same time is of such immense practical importance to man's welfare? There appear to be two reasons for this regrettable lack of popular interest. In the first place entomologists in the past have largely concentrated their attention on the mere outward form and structure of insects, and have constructed very elaborate and complicated systems of classification based on the number of hairs, or bristles, or scales possessed by closely related insects, the slightest variation being deemed sufficient justification for labelling a specimen with some distinctive, outlandish name. Very often, further study shows the creature to possess an overlooked hair or some undetected remnant of an organ entitling it to be put into another class with a new name; or two observers may have described the same insect in-

dependently and baptised it differently, or an old obsolete account may be discovered giving it a long-forgotten title in which case this supersedes the modern name. As a result, the already innumerable species known bear in very many cases half a dozen synonyms each, and every year this confusion in regard to nomenclature is becoming worse confounded, so that the intelligent layman who desires to get a good general idea of entomology is dismayed and repelled by this formidable array of dry, uninteresting tables of names.

Now a complete system of classification is indeed essential to accurate scientific knowledge, but the ordinary man may very well leave these refinements to the specialist, and simply confine himself to the characters of the chief subdivisions, referring to a good text-book for any further details of structure and classification whenever he requires them. This is all that is really necessary in order to give him an adequate idea of the position occupied by whatever insects engage his attention for the moment, and he is then sufficiently prepared to take an intelligent pleasure in observing their life history and habits either under natural or artificial conditions. Such seems to have been the method adopted by that "incomparable observer," J. H. Fabre, whose fascinating memoirs reveal most clearly the charm of this subject, and show what splendid results can be achieved by a self-trained student in his leisure hours.[2]

The other reason why so many people are discouraged from the pursuit of entomology consists in the fact that, no matter what may be the object in view, a collection of some sort is indispensable, and the methods adopted for preserving these delicate creatures are very troublesome, mutilate the specimens badly, and yield by no means satisfactory results. Most people, at some time in their lives, have started such collections, and after pinning the specimens in the usual way and labelling them carefully, have been disheartened to find in a few weeks that they were completely dried up, the beautiful colours had faded, the shrivelled limbs became detached with the slightest touch, and in utter disgust the collection was relegated to the dust heap, with a muttered

[2] This obscure country schoolmaster, born of peasant parents in France, spent all his spare time during a very long life, in closely observing and experimenting on the insects in his immediate neighbourhood; the results he embodied in the ten volumes of his "Souvenirs Entomologiques" which have provided material for several excellent English extracts under the titles of "Social Life in the Insect World," "The Wonders of Instinct," etc., etc.

vow not to waste any more time on such things in the future. In Museums, too, many valuable specimens are ruined by ants, beetles, moths, or moulds, notwithstanding all precautions in the shape of tightly fitting cases, application of preservatives, etc.; moreover the extreme fragility of pinned out insects makes it undesirable to handle them freely and this interferes with their educational value. Such specimens are indeed very awkward to examine satisfactorily even with a simple lens, and are altogether unsuitable for adjustment on a microscope stage. All these drawbacks can be avoided by the following very simple method, which consists merely in enclosing each insect in a separate flat transparent little chamber, hermetically sealed so that destructive agents of all kinds are completely excluded from gaining entrance, and the specimen itself cannot give off its natural moisture and so become dry and shrivelled up. This is very easily effected by laying the insect in a suitable position on the centre of a slip of clear glass;—a convenient size is 2 in. by $1\frac{1}{4}$ in.,—surrounding it with a somewhat thicker ring of the modelling putty called "plasticene," covering it with another glass slide of the same size, and pressing this down until it first flattens out the plasticene ring evenly all round, and then, with a little further pressure, comes to bear *very lightly* on the enclosed insect, thus keeping it in position. The opposite ends of the two superposed slides are next securely bound together by passing half inch wide strips of gummed paper round each in turn, taking care while doing so that sufficient pressure is maintained to keep the slides in close contact with the flattened plasticene ring without pressing unduly on the enclosed insect. Finally full details concerning the specimen should be written on the ample surface provided by the paper binding.

In the case of very small insects ordinary microscope slides, 3 in. by 1 in., should be used and a thin round cover glass be placed directly on the plasticene ring and pressed down on it by a second glass slide which is then removed leaving the cover slip in position; any excess plasticene which may have been pressed out beyond the end of the cover slip should be trimmed off and the specimen completed by affixing a paper label with the details on the end of the slide; the cover slips being very thin, of course allow these minute objects to be examined with high powers of the microscope.

In order to afford protection against injurious agents of various kinds, it is advisable to incorporate a preservative, such as napthalene, with the plasticene; for this purpose about $\frac{1}{2}$ an ounce of the former substance, finely powdered,

is sprinkled over a table, on which a pound of plasticene is then rolled out with a rolling pin or bottle, and another ½ ounce of the napthalene having been sprinkled on the top of this, is well rolled in and kneaded up. This will probably make the plasticene dry and crumbly, in which case it must be moistened with glycerine or liquid paraffin until it regains its former sticky condition, suitable for modelling.[3] This material, which may be called "napthaplas," should be kept in a covered tin, and not be exposed to strong sunlight or other source of heat, as this makes it soft and messy.

The rings of "napthaplas" are best prepared by putting a small piece,—about the size of a bean, but varying with the size of the insect,—on a flat surface, and covering it with a glass plate, or one of the above slides, which is then rolled backwards and forwards a few times, under gentle pressure, until the "napthaplas" takes the shape of an elongated roll of the required thickness; viz., about once and a half the thickness of the specimen. The two ends of this roll are taken up between the finger and thumb and the loop so formed is cast round the insect as it lies in position on the slide, making a complete circle wide enough to allow for the spreading of the insect's limbs, etc., under the pressure of the upper slide; the superfluous stalk of the loop is then detached, and at this point where the ends meet on the slide, a secure joint is made by a few touches with a blunt stick or pen handle, care being taken to make it the same thickness as the rest of the ring; the specimen is then completed as previously described. With a very little practice the whole process can be neatly carried out in a few minutes, and when complete, the little preparation permits the most fragile insect to be handled with impunity, enables every part of it to be readily examined with the naked eye, lens, or micro-

[3] If the very poisonous substance, cyanide of potassium, be incorporated with the plasticene in an exactly similar manner to the above, the resulting material, which may be called "cyanoplas," can be spread out in a thick even layer on the bottom of a tin with a tightly fitting lid, so as to form a very effective killing receptacle for freshly caught insects. The layer of "cyanoplas" can with advantage be covered over with a sheet of perforated tin so as to prevent the insects adhering to its sticky surface, and a further improvement consists in dividing the interior into four compartments by means of two thin plates at right angles to each other, so that, say, moths, beetles, flies and spiders may be kept separate from each other. This forms a very convenient killing and collecting box combined, and inside it insects remain perfectly fresh and supple for an indefinite period pending mounting. A few little glass tubes, each fitted with a plug of "cyanoplas" (wrapped in muslin to facilitate removal) are very useful for tiny, delicate specimens which would be lost or damaged in the large tin.

scope, and is so compact that two hundred such specimens can be safely stowed away in a 100 cigar box; further it is very easy at any time to reopen the preparation if it is desired to remove excess of moisture, to readjust the specimen, or to use it for dissection, the supple, pliant condition in which it remains greatly facilitating these operations.

A very moderate amount of ingenuity will enable all sorts of instructive preparations to be mounted in this way, using larger glass plates if necessary. For example when mating couples are captured they can be mounted on the same slide so as to demonstrate the frequently extraordinary difference in structure between the male and female. Leaves, twigs, bits of tree bark, or small stones on which insects have laid their eggs can be mounted intact, and in some cases the mother may be shown with her offspring; *e.g.* a queen ant in her cell surrounded by her eggs, or a spider carrying her purse of eggs. Caterpillars should, if possible, be displayed in their natural habitat (inside galls or rolled up leaves, etc.), and cocoons be opened so as to exhibit the pupa lying inside, whilst all the stages in development: egg, larva, pupa, and mature insects—can be advantageously arranged in one specimen. The mimicry of insects may be illustrated by including the imitated object, characteristic poses should be reproduced, and predaceous creatures exhibited clutching their victims, etc., etc. In this way the mounting of insects ceases to be a stupid, mechanical process of empalement and becomes a pleasing and instructive art. Nor need the method be restricted to spiders and insects for it can obviously be applied to all other small creatures and indeed to innumerable interesting objects presented by the hazard of the chase.

It will be seen from the above description that the only materials requisite for this process are (1) the "napthaplas," a pound of which suffices for several hundred specimens, (2) the glass slides and cover glasses obtainable at small cost from any dealer in microscope sundries, and (3) half inch wide strips of strong white, gummed paper; to these may be added a couple of needles, preferably mounted in pen handles, scissors, forceps, and a large cigar box for storage. For collecting purposes a little buttercloth net (on a metal ring which can be screwed on to the end of a walking stick) and the "cyanoplas" tin and tubes previously described are the only other items required to complete the entomological outfit, which however ought to be supplemented with a good lens and if possible a microscope. With these simple and inexpensive requisites both children and adults can add greatly to the enjoyment of their leisure

hours and holiday trips. Searching for specimens invests the ordinary aimless walk with quite an absorbing interest; mounting the preparations affords a pleasant occupation for rainy weather, whilst the completed collection forms a most delightful and instructive souvenir for subsequent reference during long winter evenings, particularly if its examination be aided by a microscope and well illustrated books on the subject. But let it not be forgotten that collection, preservation, and classification, are merely means to an end, and form only an introduction to the study of entomology proper. This really consists in investigating the *living* insect during all phases of its existence; its birth, development and education; its habits and mode of life; the nature of its nourishment and methods of obtaining it; its courtship and marriage; its relation to its fellow creatures; its character and mental capacity; the wonderful powers and strange limitations of its instinct; in short a complete investigation of the niche each particular insect occupies in the great scheme of Nature and the qualifications of mind and body it possesses for fulfilling its "destined end and way."

Along such lines this most captivating subject furnishes any intelligent observer with abundant opportunities for adding to our stores of useful information, and at the same time, like every other branch of Nature study, it brings the thoughtful mind into close association with the hidden mysteries of the Universe—for Nature is indeed the chief, if not the only, infallible medium, through which we are able to comprehend somewhat of the wonder workings of the Infinite.

NOTE.—By kind permission of the Curator, Dr. Stanley, a selection of specimens mounted by the above process, will be kept on view at the Royal Asiatic Society's Museum during the next few months.

A BEGINNING OF THE STUDY OF THE FLORA AND FAUNA OF SOOCHOW AND VICINITY

N. GIST GEE

Soochow, China.

For several years we have been trying to get together as many as possible of the identifications that have been made of the plant and animal life in this portion of China. Unfortunately, the literature is badly scattered and we have been forced to make our own collections and get specialists to check up our identifications or in many cases make these determinations for us. It is only within the last year or so that we have had the time and help that would allow us to do this and it has been done as we have taken our classes out from time to time for field work.

Our location is unusually fine for all kinds of fresh-water biological work and many of our lots of material have come from the water. We are surrounded by clear lakes, canals abound everywhere, ponds-both temporary and permanent-are very numerous on every hand, and ditches and puddles can be found in all open places.

Algae.

In such places as these the Algae naturally abound and can be found throughout the entire year. We are listing a few of the forms and will doubtless be able to double this number and give more specific determination when we have heard from several specialists who have material now in hand and are working it over for us.

Dr. West, Mr. Collins, and Dr. Mann have helped us in naming some of these species.

Some Soochow Fresh Water Algae.

Blue Green Forms.

Chroococcus sp.
Clathrocystis sp.
Gloeocapsa sp.
Microcystis sp.
Chamaesiphon sp.
Arthrospira sp.
Spirulina sp.
Lyngbya sp.
Oscillatoria princeps.
Oscillatoria tenuis.
Oscillatoria tenerrima.
Phormidium angustissimum
Phormidium tenue.
Anabaena sp.
Cylindrospermum sp.
Nostoc sp. several species.
Plectonema sp.
Calothrix sp.

Green Forms.

Sphaerella sp.
Chlamydomonas sp.
Pandorina sp.
Eudorina sp.
Volvox sp.
Gonium sp.
Tetraspora sp.
Protococcus sp.
Eremosphaera sp.
Scenedesmus quadricauda.
Scenedesmus bijuga.
Scenedesmus denticulatus.
Scenedesmus obliquus.
Scenedesmus obliquus var. dimorphus.
Ankistrodesmus falcatus.
Ankistrodesmus falcatus var. acicularis.
Pediastrum sp.
Hydrodictyon reticulatum.
Vaucheria sp. 3 species.
Chaetomorpha herbipolensis
Cladophora keutzingiana.
Cladophora fracta?
Cladophora sp.
Ulothrix zonata.
Ulothrix subtilis.
Chaetophora sp.
Stigeocloniun lubricum.
Draparnaldia plumosam
Aphanochaete vermiculoides.
Mougeotia sp.
Zygnema, several species.
Spirogyra longata.
Spirogyra, many species.
Sirogonium sp.
Closterium acerosum.
Closterium leibleinii.
Pleurotaenium sp.
Cosmarium granatum.
Oedogonium, several species.

The Diatoms to be found around us are numerous and beautiful. The preparation and study of these fascinating little plants give us some idea of the marvellous design in nature and test out our microscopes as no other common forms do. To watch the motion and study the structures of these forms is a continuous pleasure. The list we give here includes the forms taken at Ningpo years ago and published in Fauvel's notes on Chinese plant and animal life.

SOME DIATOMS RECORDED FROM CHINA.

Achnanthes brevipes Ag.	Nimrod Sound.
Achnanthes lanceolata (Breb.) Grun.	Soochow.
Achnanthes marginulata Grun.	Nimrod Sound.
Achnanthes subsessillis Ktz.	Nimrod Sound.
Achnanthes subsessillis var. enervis Fauv.	Nimrod Sound.
Actinocyclus ehrenbergii Ralfs.	Ningpo.
Actinoptychus undulatus Ktz.	Nimrod Sound.
Amphiprora alata Greg.	Nimrod Sound.
Amphora costata W. Sm.	Ningpo.
Amphora cymbelloides Grun.	Nimrod Sound.
Amphora cymbifera Greg.	Nimrod Sound.
Amphora ergadensis Greg.	Nimrod Sound.
Amphora hemicolor Grun. ?	Soochow.
Amphora lineata Greg.	Nimrod Sound.
Amphora ovalis (Breb.) Ktz.	Soochow.
Arachniodiscus ehrenbergii Bail.	Nimrod Sound.
Biddulphia aurita (Lyng.) Breb.	Nimrod Sound.
Chaetoceros bacillaria Bail.	Ningpo.
Cocconeis lineata (Ehr.) Grun.	Soochow.
Cocconeis ningpoensis Fauv.	Ningpo, Nimrod Sound.
Cocconeis placentula Ehr.	Soochow, Ningpo, Nimrod Sound.
Cocconeis scutellum Ehr.	Soochow.
Cocconema gracile (Rab.)	Ningpo.
Coscinodiscus concinnus W. Sm.	Nimrod Sound.
Coscinodiscus excentriscus Ehr.	Ningpo.
Coscinodiscus gigas Ehr. ?	Ningpo.
Coscinodiscus heteroporus Ehr.	Nimrod Sound.
Coscinodiscus lineatus Ehr.	Ningpo.
Coscinodiscus lineatus oculatus Fauv.	Ningpo.
Coscinodiscus minor Ehr.	Ningpo.
Coscinodiscus nodulifer A. S.	Nimrod Sound.
Coscinodiscus oculus iridis Ehr.	Ningpo.
Coscinodiscus radiolatus Ehr.	Ningpo.
Coscinodiscus subtilis Ehr.	Ningpo.
Cyclotella operculata Ktz.	Soochow.
Cyclotella rotula (Ehr.) Ktz.	Ningpo.
Cyclotella sinensis Ehr.	Ningpo, Nimrod Sound.
Cymbella lunata Rab.	Soochow.
Cymbella obtusa Greg.	Ningpo.
Cymbella stomatophora Grun.	Soochow.
Cymbella tumida Breb.	Soochow.

Epithemia gibba Ktz.	Soochow.
Epithemia lunaris (Ehr.) Grun., var.	Soochow.
Epithemia westermanni Ktz.	Nimrod Sound.
Epithemia zebra (Ehr.) Ktz.	Ningpo.
Gomphonema acuminatum Ehr., with vars.	Soochow.
Gomphonema capitatum Ehr.	Ningpo.
Gomphonema intricatum Ktz.	Soochow.
Gomphonema micropus	Soochow.
Hyalodiscus subtilis Bail.	Nimrod Sound.
Melosira sulcata (Ehr.) Ktz.	Ningpo, Soochow, Nimrod Sound.
Melosira varians Ag.	Soochow.
Melosira costata Grev.	Ningpo.
Navicula ambigua Ehr.	Soochow.
Navicula amphirhynchus Ehr.	Soochow.
Navicula appendiculata Ktz.	Soochow.
Navicula bisulcata Lag.	Soochow.
Navicula brebissonii Ktz.	Soochow.
Navicula elliptica W. Sm.	Ningpo.
Navicula elongata Grun.	Ningpo.
Navicula gemina Ehr.	Ningpo.
Navicula gracilis Ehr.	Nimrod Sound.
Navicula graeffii Grun.	Ningpo.
Navicula longa Greg.	Ningpo, Nimrod Sound.
Navicula parca A. S.	Ningpo.
Navicula pupula Grun.	Soochow.
Navicula major	Soochow.
Navicula smithii Breb.	Ningpo.
Navicula sp.	Nimrod Sound.
Nitzchia angustata (W. S.)	Soochow.
Nitzchia compressa (Bail.)	Ningpo.
Nitzchia distans Greg.	Nimrod Sound.
Nitzchia macilenta Greg.	Ningpo.
Nitzchia minuta Bleisch.	Nimrod Sound.
Nitzchia palea (Ktz.) W. S.	Soochow.
Nitzchia panduriformis Greg.	Ningpo.
Nitzchia sigma (Ktz.) W. S.	Ningpo.
Nitzchia thermalis (Ktz.) Grun.	Soochow.
Nitzchia tubicula Grun. doubtful.	Soochow.
Nitzchia (Homaocladis) vidovichii Grun.	Nimrod Sound.
Pleurosigma affine Grun.	Nimrod Sound.
Pleurosigma acuminatum W. S.	Ningpo.
Pleurosigma formosum W. S.	Nimrod Sound.
Raphoneis fasciolata Ehr.	Ningpo.
Raphoneis scutellum Ehr.	Ningpo.

Rhoicosphenia curvata Grun.	Soochow, Nimrod Sound.
Rhoikoneis bolleana Grun.	Nimrod Sound.
Podosira nummuloides Ehr.	Nimrod Sound.
Stauroneis phoenicenteron Ehr.	Soochow. Ningpo.
Stephanodiscus sinensis Ehr.	Ningpo.
Surirella fastuosa Ehr. Type.	Ningpo, Nimrod Sound.
Surirella fastuosa, many forms.	Ningpo.
Surirella gemma Ehr. abundant.	Nimrod Sound.
Surirella ovalis Breb.	Soochow.
Surirella pinnata W. S.	Soochow.
Synedra sp.? (similar to S. tabulata Ktz. which is brackish)	Soochow.
Synedra pulchella (Ralfs.) Ktz.	Soochow.
Synedra ulna var. amphirhynchus (Ehr.)	Soochow.
Syringidium daemon Grev.	Ningpo.
Triceratium rostratum Fauv.	Ningpo.
Triceratium sinense Schw.	Nimrod Sound

Fungi.

So far as we can learn, next to nothing has been done on Chinese fungi and this promises to be an interesting field for the one who can take up this line of investigation seriously. Three or four unique things have already come to hand in even our haphazard collecting of these forms. Lysurus sinensis proves to be a new species though something very similar to it was recorded from China about 138 years ago.

Another one that was picked up on Mokanshan growing on the immature forms of a cicada has been named Isaria mokanshanii by Mr. Lloyd who has kindly gone through all of the fungi which I have sent in to him.

Some Chinese Fungi.

Calvatia lilacina Berk.	Soochow.
Cordyceps sinensis. (Medicine).	
Cyathus stercoreus Schw.	Soochow.
Daedalea sp.	Soochow.
Fomes applanatus Pers.	Soochow.
Hirneola auriculae-judae Linn.	Soochow.
Isaria mokanshanii Lloyd.	Mokanshan.
Isaria sp.	Mokanshan.
Lentinus lepideus.	Soochow.
Lentinus sp.	Soochow.
Lenzites subferruginea Berk.	Soochow.

Lysurus sinensis Lloyd.	Soochow.
Marasmius sp.	Mokanshan.
Morchella esculenta Linn.	Soochow.
Phallus rugulosus Cibot.	Soochow.
Polyporus adustus Willd.	Soochow.
Polyporus lucidus Beys.	Soochow.
Polyporus puttemansii.	Soochow.
Polystictus n. sp.	Soochow.
Polystictus velutinus Fr.	Soochow.
Polystictus versatilis Berk.	Soochow.
Polystictus veriscolor L.	Soochow.
Polystictus sanguineus L.	Soochow.
Polystictus sp.	Soochow.
Schizophyllum commune Fr.	Soochow.
Stemonitis ferruginea Ehrens.	Soochow.
Stemonitis splendens Lath.	Soochow.
Trametes?	Soochow.
Xerotus n. sp.	Mokanshan.
Xylaria sp.	Soochow.

Also an unidentified Hyphomycete from Mokanshan.

Higher Plants.

The higher plants we have already listed in a little pamphlet, "A Preliminary List of the Plants of Kiangsu Province." This lists the ferns and seed plants that have been reported up to the time that we published it. Just now this list is being revised enlarged and will soon be again ready for publication doubling the former lists. In addition to this there is great need for a comprehensive list of the common cultivated plants used for food and in the industries. We are getting together a good deal of data on the food plants, confining our efforts to our section of the country. This could well be done in many sections and the combination of these lists would prove of great value.

The mosses and liverworts have been neglected and we see many of them which we cannot name at all. Marchantia, Asterella, Riccia and other forms are to be occasionally found even in Soochow, doubtless the streams and shaded nooks on the hills will furnish many attractive forms.

Some Soochow Animals.

The simplest forms of animal life find conditions under which they thrive and almost any little mass of material brought in will yield its full share of the lower forms of life.

We will simply name a few of the genera of Protozoans which are readily found. Several species of Amoeba can be

obtained though not always just when one wants them for class work. A number of species of Difflugia and Arcella with their delicate shells can be located in canal or pond material after it is left for a short time in dishes on the table in the laboratory. The following additional forms are not at all rare:—

Actinophyrs sp.
Euglena, a large number of species.
Coleps sp.
Paramoecium, several species.
Stentor sp.
Oxytricha sp.
Stylonychia sp.
Vorticella, several species.
Nuclearia sp.
Phacus, two species.
Spirostomum sp.
Halteria sp.
Uroleptus sp.
Urostyla sp.
Vampyrella sp.
Carchesium sp.
Epistylis sp.
Podophyra sp.
Lacrymaria sp.
Actinosphaerium sp.
Centropyxis sp.
Vaginicola sp.
Dinobryum sp.
Amphilepsis sp.
Trachelocerca sp.
Chilodon sp.
Loxodes sp.

These and numbers of other forms occur here in large quantities.

Chinese Fresh Water Sponges.

Through the kindness of Dr. Annandale of Calcutta, who has identified all of our earlier sponges, we are able to report a number of sponges from Soochow. Including his collections there are now ten species of fresh water sponges known from round Soochow. Three from Yunnan have also been found and we list them all herewith:—

Yunnan.

Spongilla (Euspongilla) lacustris.
Spongilla (Stratiospongilla) clementis Annandale. (synonym = S. yunnanensis).
Nudospongilla coggini (Annandale).

Kiangsu.

Spongilla (Euspongilla) micron Annandale. Tai Hu, Soochow.
Spongilla (Euspongilla) semispongilla (Annandale). Soochow.
Spongilla (Eunapius) geei Annandale. Loen Mung, Soochow.

Spongilla (Eunapius) conifera Annandale.
Spongilla (Stratospongilla) sinensis Annandale.
Foo Mung, Soochow.
Spongilla (Stratospongilla) stanleyi Annandale. Tai Hu.
Ephydatia meyeni (Carter). Foo Mung, Soochow.
Ephydatia bogorensis Weber. Soochow.
Trochospongilla latouchiana Annandale. Loen Mung, Soochow.
Trochospongilla sol Annandale. Si Dong Ding, Tai Hu.

Other Animals.

There seems to be only one Hydra in and around Soochow. It is rather a pearly colour and is easily obtained in suitable locations. These provide us with all of the materials that we need for class work and can be had in large numbers in the fall from many of the ponds.

The worms and the larvae of the aquatic diptera occur abundantly in the scums from the ponds and canals, or may often be found in masses of algae or water weeds. The larvae of the Chironomous, a little fly resembling a mosquito, are possibly those which occur in largest numbers. Chaetonotus, a "lithe and graceful little creature," is occasionally found and we believe that there are several species of this little fellow.

Two planarians are more or less common. A small one under stones and bricks in the canals and a large brown bodied one, which we often see in our gardens, that has a fan shaped head. The former is Planaria sp. and the latter Bipalium sp. The latter becomes several inches long and has distinct lines down the middle of its dorsal surface.

Anguillula occurs in Chinese vinegar and others of related genera occur in the water plants.

A very small worm with reddish freckles over its body is frequently found, it is Aelosoma sp. Stylaria sp. is a regular form in our aquaria.

Rotifers.

The rotifers have furnished us a great deal of interesting material. The occurence of these forms seems to be subject to peculiarities that we are not yet familiar with and often we will find one thing in abundance at one visit to the pond and the next time it will have almost disappeared. We have with the help of Mr. Harring got the following list of Chinese forms: —

Chinese Rotifers.

Ascomorpha volvocicola	Wuhu.
Actinurus neptunius	Wuhu.
Anuraea hypelasma	Wuhu.
Asplancha sp.	Soochow.
Asplanchnopus myrmeleo.	Wuhu.
Brachionus bakeri.	Soochow, Wuhu.
Brachionus pala, long spined.	Soochow.
Brachionus pala, short spined.	Soochow.
Brachionus falcatus.	Yangtse River.
Brachionus militaris.	Wuhu.
Brachionus urceolaris.	Wuhu.
Brachionus urceus.	Soochow.
Cathypna flexilis ?	Soochow.
Cathypna luna.	Soochow.
Cephalosiphon limnias.	Wuhu.
Colurus caudatus.	Wuhu.
Diaschiza?	Soochow.
Diglena forcipata?	Soochow.
Euchlanis (dilatata?)	Soochow.
Floscularia campanulata.	Wuhu.
Lacinularia megalotrocha.	Wuhu.
Lacinularia racemovata.	Wuhu.
Limnias annulatus.	Wuhu.
Limnias ceratophylli.	Wuhu.
Megalotrocha procera.	Soochow, Wuhu.
Megalotrocha semibullata.	Soochow, Wuhu.
Megalotrocha spinosa.	Wuhu.
Melicerta ringens.	Soochow, Wuhu.
Metopidia triptera.	Wuhu.
Microcodides chlaena.	Wuhu.
Monostylla (bulla?)	Soochow.
Noteus quadriconis.	Wuhu.
Octotrocha speciosa.	Wuhu.
Oecistes?	Soochow.
Pedalion mirum.	Soochow, Wuhu.
Philodina macrostyla?	Soochow.
Polyarthra platyptera.	Soochow, Wuhu.
Pterodina patina.	Soochow, Wuhu.
Rattulus (longiseta?)	Soochow.
Rotifer vulgaris?	Soochow.
Rotifer macroceros.	Wuhu.
Rotifer tardigradus.	Wuhu.
Triarthra longiseta.	Wuhu.
Triarthra mystacina.	Soochow.
Trochosphaera solstitialis.	Wuhu.

While the Bryozoans are not so plentiful as some of the other forms mentioned above, yet we have recently found the two forms, Plumatella repens, and Lophopodella (carteri?) in several new localities.

We have not been able to get our common earthworms named yet, but we are still hoping that soon some one will have the patience and the time to undertake this job for us. There are other interesting forms of this group that we have. Branchiura sowerbyi is a common form found here. To those who are interested in leeches, however, and we are able through the kindness of Prof. Oka of Japan, to give this splendid list of Chinese leeches, most of them from Soochow.

Chinese Leeches.

Glossiphonia lata Oka.	Soochow.
Glossiphonia smaragdina Oka.	Soochow.
Glossiphonia (Helobdella) sp.	Soochow.
Hemiclepsis kasmiana Oka. (In Anadonta woodiana).	Soochow, East Dong Ding Creek.
Hemiclepsis marginata (Muller).	Woochang, Changsha.
Herpobdella atomaria (Carena).	Soochow, Peking.
Herpobdella sp.	Soochow.
Hirudo nipponia Whitman.	Soochow, Woochang, Peking, Changsha.
Mimobdella japonica Blanchard.	Soochow, Changsha.
Myxobdella annandalei Oka.	Hongkong.
Ozobranchus jantseanus Oka.	Moh Doh (Soochow), Woochang.
Piscicola elegans Blanchard.	Kiukiang.
Piscicola sp.	Soochow.
Placobdella, close to torugosa (Verrill).	Soochow.
Scaptobdella blanchardi Oka.	Soochow, Woochang, Changsha.
Trachelobdella sinensis Blanchard (from Carp).	Soochow.
Whitmania acranulata (Whitman).	Woochang.
Whitmania edentula (Whitman) var.	Soochow, West Dong Ding Creek, Woochang.
Whitmania laevis (Baird) var.	Soochow, East Dong Ding Creek, Woochang, Paoting, Zangtuh.

Entomostraca

The list that we give of this group has been worked out very carefully by one of our students, Mr. Wu Chen Fu,

and his results have been checked up by Professor Juday in America. Mr. Wu's work has been on the group Cladocera and we believe that this represents most of the common forms which occur in our immediate vicinity. The other groups are doubtless like the other data given here, just the beginnings.

List of Entomostraca found in Soochow.

Cladocera.

Sida crystallina (Muller).
Daphnia psittacea (Baird).
Daphnia pulex (de Geer).
Daphnia pulex var. obtusa Kurz.
Daphnia longispina var. hyalina form galeata.
Simocephalus vetulus (Muller).
Simocephalus exspinosus (Koch).
Scapholeberis mucronata (Muller).
Ceriodaphnia rigaudi Richard.
Ceriodaphnia quadrangula (Muller).
Moina macrocopa Straus.
Moina brevicornis Sars.
Moina affinis Birge.
Bosmina longirostris (Muller).
Macrothrix rosea (Jurine).
Camptocercus rectirostris Schoedler.
Leydigia acanthocercoides (Fisher). (Leydigia propinqua also described from Central China).
Pleuroxus denticulatus Birge.
Pleuroxus trigonellus (Muller).
Chydorus globosus (Baird).
Chydorus sphaericus (Muller).
Leptodora kindtii Focke.

Copepoda.

Diaptomus sp.
Cyclops leuckarti Claus.
Cyclops serrulatus Fischer.
Cyclops strenuus Fischer.
Cyclops viridis Jurine.
Pseudodiaptomus forbesi.
Pseudodiaptomus inopinus.
Limnocalanus sinensis.
Canthocamptus sp.

Ostracoda.

Cypris sp. Several species.
Iliocypris sp. Two species.

Crustaceans.

The list herewith is the result of Dr. Annandale's collecting around in this region on a recent trip up from India. Dr. Kemp worked out the identifications.

List of Crustaceans.

Caridina denticulata (de Haan) sub. sp. sinensis Kemp.	Tai Hu, Soochow.
Caridina nilotica Roux. sub. sp. gracilipes de Man.	Shanghai.

Eriocheir leptognathus Rathbun.	Shanghai.
Eriocheir sinensis (Milne-Edwards)	Moo Too, Shanghai, Woosung.
Leander annandalei Kemp.	Shanghai.
Leander modestus Heller.	Tai Hu, Shanghai.
Palaemon asperulus von Martens.	Tai Hu, Shanghai.
Palaemon nipponensis de Haan.	Tai Hu.
Palaemon sinensis (Sollaud).	Soochow, Shanghai.
Potamon (Potamon) denticulatum (Milne-Edwards).	Tai Hu.
Rhynchoplax introversus Kemp.	Tai Hu.
Sesarma dehaani Milne Edwards.	Shanghai.
Sesarma intermedium (de Haan).	Shanghai.
Tympanomerus deschampsi Rathbun.	Shanghai.

There are other smaller Crustaceans yet to be worked out. We name three that we have located.

Gammarus sp.

Ichthyoxenus geei Smith, a common isopod parasite on carp.

Armidillidium vulgare L., the common pill bug.

It is a matter of much interest to find the carp so much beset with parasites. We have found a small round worm in great masses in the abdominal cavity, the Agamonema capsularis; the Trachelobdella sinensis, a good sized leech, attached to the inner side of the gill covers; and a large isopod parasite, Ichthyoxenus geei, often in a cavity in the flesh on the ventral line between the pectoral fins.

A Few Insects.

To attempt to enumerate the insects would be too big an undertaking for the present, but we give the latest determinations which we have received, Dr. Wheeler has named the Ants and the Smithsonian Institution has sent us the determinations of the water beetles.

Some Soochow Ants.

*Aphaenogaster geei Wheeler.
Camponotus caryae Fitch, var. 4-notatus Forel.
Camponotus herculaneum L. sub. sp. japonicus var. aterrimus.
Cremogaster laboriosa F. Smith.
*Liometopum sinense Wheeler.
Mescor sp.
Pheidole rhombinoda Mayr.
Pristomyoimax japonicus Forel, new var.
*Solenopsis soochowensis Wheeler.
Tetramorium caespitum L. new var.

Another collection of Mokanshan ants is now being worked over, the results have not yet been received.

Common Local Water Beetles, and Bugs.

Amphiops mater.
Appasus japonicus.
Bidessus japonicus.
Canthydrus sp.
Cybister limbatus.
Cybister tripunctatus.
Dineutes marginatus.
Eunectes sticticus.
Haliplus sp.
Helocharis sp.
Helophonus sp.
Hydaticus fabricii.
Hydaticus fabricii, var. ?
Hydatrious bowringi.
Hydrocanthus sp.
Hyphydrus orientalis?
Ilybius apicalis.
Kirkaldyia deyrollii.
Laccophilus difficilus?
Philhydrus sp.
Sandracottus festivus.
Sphaerodema rusticum.
Stethonus cashmiriensis.
Volvulus profundus.

There are several additional specimens which are just now under study and not yet determined. This list will be considerably lengthened later.

Mollusks.

Our little collection of mollusks represent the Province. Mr. Moffett of Kiangyin has assisted us a great deal in getting together these shells and we give also a list of the forms of this group collected by Dr. Annandale in the Tai Hu.

List of Mollusks found in Tai Hu by Dr. Annandale.

*Anodonta woodiana (Lea).
Assiminea scalaris Heude.
*Bythinia striatula Benson.
Bythinia longicornis Benson.
Corbicula sandai Roin.
Hypsobia minuscula Annandale.
Limnea classini Neumayr.
*Melania cancellata Benson
*Modiola lacustris von Martens.
*Nodularia douglasiae (Gray).
Nodularia dactylina (Heude).
Planorbis saigonensis Crosse and Fischer.
Pseudovivipara hypocrites Annandale.
Sphaerium sp.
Stenothyra decapitata Annandale.
Vivipara catayensis (Heude).
Vivipara lapillorum (Heude).

*Those starred have also been found around Soochow.

Mollusks from Kiangsu.

Anodonta woodiana, var. pulchella Heude.
Anodonta woodiana (Lea).
Arconaia lanceolata (Lea).
Buliminopsis buliminus strigata Mlldf.
Buliminus cantori Ph.
Bythinia fuchsiana Moller.
Bythinia striatula Benson.
Bythinia toucheana Heude.
Clausilia shanghaiensis Pfr.
Clausilia tan hunanensis Mlldf.
Corbicula fluminea Mull.
Corbicula squalida Heude.
Cuneopsis capitatus Heude.
Cuneopsis heudei (Heude).
Cuneopsis pisciculus (Heude).
Cytherea lusovia Ch.
Eulota ravida Benson.
Eulota similaris Fer.
Hyriopsis cumingi (Lea).
Lanceolaria cylindrica (Simpson).
Lapidodisma languilati (Heude).
Lymnaea sp.
Lymnaea pervia Mts.
Lymnaea plicatula Benson.
Melania cancellata Benson.
Melania ningpoensis Lea.
Meretrix (?) compressa Romer.
Modiolus (Modeola)lacustris Von Martens.
Nodularia douglasiae (Gray)
Nodularia grayana (Lea).
Planorbis sp.
Planorbis cantori Benson.?
Parreysia chinensis, var. squammosus (Heude).
Plectopylis(Traumatophora) triscalpta Mrts.
Plectotropis gerlachi hunanicola Gredl.
Quadrula fibrosa (Heude).
Quadrula leai, var. leleci (Heude).
Quadrula leai (Gray).
Quadrula polystictus (Heude).
Quadrula tortuosa (Lea).
Schistodesmus lampreyanus (Baird and Adams).
Stenothyra hunanensis Mlldf.
Vivipara angularis Mull.
Vivipara chinensis(Benson).
Vivipara lecythoides (Benson).
Vivipara quadrata (Benson).

Higher Animals.

The difficulties of working with the lower animals are lessened when we come to the higher and larger forms, and there has always been a fascination for sportsmen in working out these forms. Consequently we know the birds pretty well and Mr. Moffett and I have attempted to put the common forms into such a shape as to be useful for the beginner in our "Key to the Birds of the Yangtse Valley." Mr. Sowerby has worked out the Mammals in North China and has published his list in a former issue of the Journal. Dr. Stanley has done a splendid piece of work on Chinese Reptiles and Amphibians and it is through his help that we give the following list of forms which are likely to be found in and around Soochow.

LIST OF AMPHIBIA IN AND AROUND SOOCHOW.

AMPHIBIA.

Ranidae. Frogs.
- Rana kuhlii, D. & B.
- Rana plancyi, Lataste.
- Rana tigrina, Duad.
- Rana limnocharis, Weigm.
- Rana esculenta, L.
- ? Rana latouchii.

Hylidae. Tree Frogs.
- Hyla arborea, var. immaculata, Boett.
- Hyla arborea, var. sinensis, Gthr.
- Rhacophorus leucomystax, Gravh.

Bufonidae. Toads.
- Bufo vulgaris, Laur.
- Bufo vulgaris, var. bufo bufo asiaticus, Stein.
- Bufo vulgaris, var. bufo bufo gargarizans, Cantor.
- ? Bufo melanostictus.

Salamandridae. Salamanders.
- Diemictylus pyrrhogaster, Boie.

Amphiumidae.
- Cryptobranchus maximus, Chapmn.

LIST OF REPTILES IN AND AROUND SOOCHOW.

REPTILIA.

Trionychidae. Soft Shelled Tortoises.
- Trionyx sinensis, Wiegm.
- Trionyx maachii, Brandt.

Testudinidae. True Tortoises.
- Damonia reevsi Gray.
- Damonia reevsi, var. unicolor (Black variety from Tai Hu).

Lacertidae. Lizards.
- Takydromus septentrionalis, Gthr.

Scinidae. Skinks.
- Eumeces sinensis, Gray.
- Eumeces elegans, Blgr.

Geckonidae. Geckos.
- Gecko japonicus, D. & B.
- Lygosoma laterale, Say.

Colubridae. Snakes.
- Lycodon rufozonatus, Cantor.
- Ablabes major, Gthr.
- Simotes cyclurus, Cantor.
- Coluber taeniurus, Cope.
- Coluber rufodorsatus, Swinhoe.
- Coluber dione, Pallas.
- Zaocys dhumnades, Cantor.
- Tropidonotus annularis, Hall.
- Tropidonotus tigrinus, Boie.

Viperidae. Pit Vipers.
- Ancistrodon blomhoffii, Boie.

Also Alligator sinensis, Fauvel.

Father Courtois has made a brief systematic list of some of the fishes of China and we have already printed a list of some three hundred species, representing about one third of the forms known from China. A complete listing of the fishes is a thing much to be desired.

It is to be hoped that before very much longer descriptions and keys to these various groups may be made so that more students may begin to work along these lines.

NOTES ON KANSU.

GEORGE E. KING, M.B.CH.B.
LANCHOWFU, KANSUH.

In the course of medical wanderings in the little-known north-western corner of China, various peculiar and interesting experiences are met with, and now not so much to impart information but to invite explanation, I am putting on paper a few details of things seen in Kansuh.

The province is most easily understood as consisting of three tracts—a central tract, made up of the basins of the Yellow River and some of its great tributaries, and bounded on north and south by two mountain-chains: the northern-chain separating it from the Mongolian deserts, and the narrow strip of watered land between the mountains and the deserts that constitutes the northern tract of Kansuh. And a southern tract of land sloping southwards towards Szechuen where the streams flow into the Yangtse. This southern tract is mountainous and partakes of the characteristics of western China. Indeed, the contrast between the north and south parts of Kansuh is so great as to make it almost unbelievable that they belong to one province. Again, on the west the province rises into the mountains of Tibet and the steppes of Central Asia, so that for variety of scenery, diversity of inhabitant, and glamour of novelty, the province has hardly an equal throughout China.

The northly tract as I have described it is long—reaching from Ningsiafu to Kanchowfu and Ansihchow. It thus would take some 35 days to travel from one end of it to the other, though its utmost width cannot be greater than 250 *li* or 3 days journey. It is the product of the age-long war between the desert and the mountains—the last stand as it were of man on the encroaching desert edge, where faced with the limitless expanse in front that would engulf him, and with his back to the stable mountains behind that nourish him with their streams of water, the race is fighting still the battle against the unhasting, unstaying desert sands. Each of the cities here might be the duplicate of the other

in a general kind of a way, with the irrigated plain and orchards, and desert to the north, and hills to the south in each case. Some day if a strong government will set itself in earnest to the irrigation of this area and conservation of the waters that are so largely lost, this tract may support a much larger population and be greatly widened in area at the expense of the desert. Many of these cities have good coal supplies, and the hills to the south are known also to contain gold, tin, copper and iron. In one of these hills I came across a volcano—as I suppose—at least the "crater" has been smoking for some 600 years. The fumes given out are very sulphurous, and the local people use them to make alum by the conversion into that substance of some stone they dig from the hills near by. It does not seem to be widely known that there is more than one smouldering volcano in that part of Kansuh bordering on the desert.

One original method of obtaining salt used not far away from there is to pour the brine (taken from wells) upon the soil, and let it dry. Then the soil is removed and packed into large filters, more brine poured on, and the filtrate subsequently boiled dry. In this way it is said that three times as much salt is obtained as by boiling the brine in the ordinary way. I do not know the explanation.

Historically this northern tract belongs to the Tangut Kingdom which had its capital at Ningsia. Repeated enquiries in that district, however, elicited little information as to the former Si-hsia Kingdom. The ground is so alkaline that old monuments are few in the city or near it. But we heard that in the hills 60 *li* to the west there was, or used to be, a monument in that strange writing. Probably search among these hills that run north as a spur from the main East to West range, would be productive of interesting results. The scene of some old Chinese plays is laid in the same range and there are interesting temples and tombs of an early age.

Let us now cross the mountains and enter the central tract of Kansuh—the Yellow River system, with its shapely loess hills, and alluvial plains and here and there the great rock mountains that are hid from the traveller usually, as he wanders along in the dusty loess cuttings of the hillsides. This is the most characteristic part of all Kansuh, and here both the most beautiful and least beautiful of scenery is to be found; on the one hand, enchanting mountains, abundant verdure, singing birds, and flowers everywhere; on the other, bare dusty breathless hillsides brown in winter, and only beautiful by the yellow wheat and pink buckwheat and brown millet of autumn, or, the universal green of Spring. Here

to cope with the scanty rainfall an ingenious method is in use by the farmers. The surface of the soil is covered with 4 or 5 inches of gravel, and the crops come up through this. The gravel prevents desiccations of the soil, and perhaps helps the earlier ripening of the grain. It has to be renewed every 30 or 40 years, and the effort is so beneficial that the great labour involved is cheerfully undertaken, and newly gravelled land will fetch almost as high a price as irrigated land. The gravel is obtained from deposits mainly, and only rarely from river beds. In some cases the deposit beds are very deep and the gravel is brought up in buckets as out of a well, but more often it is carried on men's shoulders. This peculiar method is said to have been originated some hundreds of years ago by a man who noticed how well the grass grew in the gravel turned up with the roots of a fallen tree. I wonder if there is any other part of the world where this is done? Possibly the "dry farming" in America has the same principle behind it.

Huge waterwheels are erected along the course of the Yellow River to draw up water to a sufficient level to put it upon the land. Some are 70 feet high, and consist of a hub and spokes, at the outer of which there is a series of paddles and buckets, all of which are of wood. As the wheel revolves the buckets are carried up filled, and empty themselves into a trough that leads into the fields. The mechanism is simple but effective. Some of these erections are worth hundreds of pounds.

Another interesting thing is the coal mine, and one who has climbed down the miles of steps into the part where the miners are working is not likely soon to forget the experience. Each step is the lower side of a hexagonal frame that supports the tunnel, and the deeper the mine goes the more of course the steps. At the same time the main shaft is being sunk a parallel air shaft is also being sunk, and there are frequent passages connecting them. Notwithstanding the air at the bottom is foul and almost intolerable, and the weird sight of the naked figures of the long queue of carriers, each with his basket on his back, crouching in the tunnel till his turn comes—men from all parts of China, many blind, some runaway rogues, others poor to a degree, leaves an indelible impression on the mind.

Another peculiar plant must be referred to, for the explanation of which any book on bacteriology may be consulted. The gardeners tend their pear trees with great care. Here indeed are to be found perhaps the best pears in China—and each year they scrape off the bark (doubtless to remove insects and grubs) and then cover the bare underbark with a layer

of mud. But first this earth is boiled in large cauldrons and then applied. Here is antiseptic surgery for you, surely!

Did time permit I might go on to speak of many peculiar medical points—of the incidence and prevalence of goitre, or of leprosy or of elephantiasis, and of the popular Kansuh explanation of the etiology of each of these—or of Kansuh local hospitals or medicinal hot springs—or of folklore in our dear old queer old province. Some day there may be opportunity of referring to these or to our rather peculiar internal communication by road and water. But I trust I have said enough to whet the appetite of some readers to care more for the little-known and barely touched Kansuh.

AN EXHIBITION OF PICTURES BY A RUSSIAN ARTIST.

E. B. HOWELL.

The Society was fortunate at the end of last year to have an opportunity of inspecting a series of water-colour and crayon pictures of Chinese and Mongolian life which broke entirely new ground in the pictorial representation of the peoples of this portion of the Far East. Many European artists have visited China but their work has hitherto been confined to scenery, architecture, and human types which, while interesting enough, were so mainly for reasons of picturesqueness that would have justified their portrayal in any part of the globe.

The work in China of Mr. Alexander Iacovleff, however, stands alone. He is a young Russian, who, having won by his art in Petrograd before the war a scholarship that enabled him to pursue his studies in any part of the world he fancied, selected the Far East as the scene of his labours. He lived for eighteen months in China and is now working in Japan. Mr. Iacovleff has approached his immense subject from a point of view which has either not appealed to or has appalled all previous workers. He has chosen as the subjects of his pictures in China not the curling roofs and temple walls, the pagodas and the sunsets, that have so engrossed, and with reason enough, other artists, but the human beings that he saw around him—the ragged beggar, the petty shop-keeper, the obese compradore, the bawling virago, and, in Mongolia, scenes of religious celebration and of tent and pastoral life—uniting the touch of the artists with the keen vision of the student of anthropology to an extent which entitles his work to be called unique.

To produce satisfactory photographs of human subjects in China is rendered a difficult enough task by reason of the curiosity and the superstitious fears of the lower classes, to say nothing of the reluctance felt by most Europeans to coming into close contact with a Chinese crowd. But to be able to show such careful and accurate human documents as Mr. Iacovleff has produced, under circumstances which those who live in China can well imagine, places his work well-nigh

hors concours, and argues a wonderful quickness of touch and memory combined with rare personal qualities.

Two exhibitions of his pictures were held in the Society's library, the first on 12th December and the second on 8th January. The former consisted of pictures produced for the most part in Peking and comprised a large number of portraits in sepia and *sanguine*, the latter representing his work during a summer stay in and around Dolonor and Lamamiao in Inner Mongolia.

It is not possible within the scope of this short notice to attempt any detailed description of Mr. Iacovleff's work. Photographs of two of his pictures are reproduced here—the one representing a Lama wearing the curious head-dress used by Mongolian Buddhist dignitaries, the other of a Chinese actress, who wears in the original a brilliant scarlet robe. Among the pictures in the first series exhibited were many of actors and actresses in the old-fashioned costume which now shows sign of being improved off the stage of New China, and it is understood that Mr. Iacovleff made a special study of the theatrical world in Peking.

The Mongolian pictures which were exhibited on the 12th of January consisted of about seventy water-colour sketches and fifty crayon drawings; and some idea of the rapidity of Mr. Iacovleff's work and his devotion to his art may be gained when it is stated that this whole series was the result of only forty days stay in Mongolia. Some of his sketches were but lightning indications, though not one but was instinct with life and feeling: others were careful studies which must have taken considerable time to elaborate. Living and working all day in the open air, in the wonderful weather of the Mongolian summer, Mr. Iacovleff slept in one of the round felt tents which were represented in so many of his pictures. The daily occupations of the people round him formed the subjects of most of his sketches but there were also exhibited careful studies of the interiors of tents and temples and detailed drawings of head-dresses, garments and utensils.

Mr. Iacovleff intends to publish reproductions of his work in an album illustrative of his tour and work in the Far East.



A Lama wearing the curious head-dress used by Mongolian Buddhist Dignitaries.

[*see page 190*]



A Chinese Actress.

[*see page 190*]

REVIEWS OF RECENT BOOKS.

The New Atlas and Commercial Gazetteer of China. Compiled by the Far Eastern Geographical Establishment and Published by the North China Daily News and Herald.

A work must not only be judged from its size but its utility. Were size and weight the only criterion of value this Atlas would indeed be valuable. It makes one pant to carry it from one room to another. A motor car seems necessary to the owner of such a work.

That it requires a table or desk to itself is evident: and that business house that has the Atlas so placed is a business house of good augury, for it implies that trade is good and that further developments in trade and the capacities of the Country are being studied.

The work has been wholly produced at the Commercial Press: European editors and Chinese skilled workmen collaborating. This in itself was a difficulty. When the binding, the need of type, the coloured maps and a 100 other things are considered it will be at once evident that the art of printing and book-binding have made great strides in China, during the last few decades. To see people ruddy of countenances and still smiling after such operose labours implies also a good moral basis.

That the work had to be bulky and heavy stands to reason. Such a large volume demanded heavy binding: the fine maps demanded wide spaces; and thick strong paper was necessary to give consistency and strength to the whole work. So the demands of the mechanical parts made it essential to have such a heavy volume. It is bulky and weighty.

This quality however after all is secondary. The essential thing is the utility of a work. At the outset it should be said that this is great. It may be shown that this private enterprise will be for merchants the first and essential step in the development of business. Without a thorough knowledge of a country under every aspect it is impossible to organize business in an adequate way. One of the questions in Fawcet's 'Political Economy' is, 'What relation does a cricketer's bat bear to political economy'? The answer shows that the relation is very deep and comprehensive. A similar question might be asked relative to a thousand things in China such as what relation does a knowledge of the Climatology of China bear to the success of the British merchant in the country. A little consideration will amply

Mr. Edwin J. Dingle is the Organizer and General Editor of the Gazetteer. It will be known for short as "Dingle's Gazetteer."

demonstrate a wide connection. The reviewer once had occasion to enquire into the work of the Japanese in Manchuria. Here, as everywhere, they are equipping their people most thoroughly in the commercial knowledge of the country. If they are not doing much for others they are missing no avenue in mastering the knowledge of that country's resources for themselves. It was found that by commercial day and night schools, Japanese boys and young men were taught most carefully and thoroughly in everything pertaining to the commercial possibilities of Manchuria. As the British merchant has not organized any such training schools for his nationals it is hoped that this Gazetteer will be the first step in such a direction. In itself it will offer a liberal education to the commercial student, but we hope it will also stimulate British merchants to develop their plans for a better organization of business in China. Given a proper and suitable table business people and commercial students could spend profitable hours poring over the maps and letterpress of this volume : and as the panorama of people, sources of wealth, agriculture, industries and communications of this great land began to unrol themselves before the mind it would more and more offer unparalleled attractions to the merchant, traveller, student, missionary. Recently a lady came to enquire of the writer as to sources of information on the Canals of China. Having exhausted one's knowledge easily the lady was recommended to consult the Gazetteer to which she replied that it had already been done, and that this work really had supplied the only information that she had been able to get on the subject! Thus the help that the Gazetteer had given to this lady over an out-of-the-way subject indicated its scope and utility to the general public as well as the business people.

It is one of the most comprehensive works ever published in China. It opens with a General Introduction full of valuable information on commerce. It covers a wide field : geography, politics, engineering, and so on : a succinct conspectus is given of many fields. This is followed by a section given to a Geographical and Economic survey of China : and then a section follows dealing with the Provinces of China, giving a brief description of each of the 18 with a list of their products, agriculture, minerals, and so on. Then follows an index, giving the place-name and province both in Chinese and English and its position N.E. It would have been of great advantage if the map number had been inserted. As it is, given only the name of the province, the place is not easily found since the maps are not alphabetically arranged.

The Forest Conditions in China is written by Mr. Norman Shaw. After his paper we have a list of the Changed Place-names, followed by a summary of values of Latitudes and Longitudes.

On page 36 begins a marked feature of the Gazetteer, the Production maps of China. These must have entailed immense labour, and should prove of great value. The graphs are really marvels of work. The series opens with the New Productions map of China. In this small compass we have a bird's-eye view of the mineral and other production of the land. It may be said in passing that there is no indication of the hill near Kuo Hsien where gold is supposed to exist. The Rothschilds were interested in this once. The Index to this Map is also full : but it should be pointed out Arrow-root is not a speciality of Yenchowfu Shantung. Hangchow is renowned for this both for quality and quantity. Besides it is grown in almost every province. Vast fields of it may be seen almost anywhere. The same may be said of Indigo. Shensi is noted for it.

Half the contents of this monumental work has not been told. In a work of such scope and great merit; and in view of the imperfect statistics existing of the country it is not surprising that the work is not entirely free from errors and omissions. Space will only permit us to point out a few of these : for instance Chiang Chou is one of the leading towns of South Shansi and not of Shensi as given (p. 34). San Yuan (in Shensi) and Chiao Ch'eng (in Shansi), one being the great banking and piece goods centre of Shensi and Kansu, the other one being the leading fur-curing centre in China are not mentioned. South Shansi has the great and celebrated salt lakes in Yün Ch'eng, but no mention is made of these : whereas Shensi is said to have salt as one of its great industries when as a matter of fact the salt of Shensi is unimportant. M.

Totemic Traces Among the Indo-Chinese" (Reprinted from "the Journal of American Folk-Lore," October-December, 1917).

Sous ce titre, M. Berthold Laufer a rassemblé plusieurs données de grand intérêt pour l'ethnographie des peuples sino-tibétains. Ces données se réfèrent aux liens, attestés par le tabou, la tradition ou l'onomastique, qui rattachent certaines tribus ou familles à telle ou telle classe d'animaux, de végétaux ou d'objets. Les groupements ethniques envisagés sont les Tai noirs du Haut Ton Kin, les Lolo du Yunnan méridional, les Hei-miao du Kouei-tcheou, les Man aliàs Yao de la frontière sino-annamite, les Sia du Fu-kien, les anciens Ai-lao du Nan-tchao, les anciens K'iang occidentaux du Kan-su et les Tangut, enfin les chinois eux-mêmes. La documentation utilisée comprend d'une part, des sources chinoises, d'autre part, des travaux français publiés tant à Hanoï qu'à Paris, et un article de M. A. Henry dans le journal de "l'Anthropological Institute."

Des précisions curieuses sont empruntées à une étude de M. Henri Maspero sur quelques interdits existant chez les Tai noirs en fonction des noms de famille. La tribu dont il s'agit habits à l'ouest du Fleuve Rouge, dans la province tonkinoise de Yen-Bay. La plupart des tabou cités dérivent de l'homonymie : ainsi, la famille Lau ne peut manger de jeunes pousses de bambou (no-lau) ; la famille Vi ne peut user d'éventails (vi) pendant le repas, au moment où l'on sert le riz ; la famille Tong ne peut porter de pointe de cuivre (tong) au chapeau. Mais, à côté de tabou de cette sorte, en figurent d'autres plus énigmatiques, comme celui de la famille Luong vis-à-vis des champignons qui poussent sur un arbre ébranché. Il est à noter qu'aucun rite expiatoire n'est connu, qui puisse relever du tabou. Chez ces mêmes Tai noirs, la principale famille est assignée à l'ascendance du tigre. Elle est tenue au tabou alimentaire, lequel s'étend aussi à la chair de chat, et au tabou de chasse. Elle doit, de plus, rendre des honneurs au tigre mort, lequel est salué du titre de grand père. Mais l'affinité de cette famille avec le tigre la prive du droit de paraître dans les lieux de culte et de contracter des alliances avec le prêtre héréditaire ou ses frères.

Chez les Lolo de Tse-mao, étudiès par M. A. Henry, la façon courante de s'enquérir du surnom de quelqu'un consiste à lui demander à quoi il ne touche pas. Ainsi, celui qui est surnommé Bu-lu, ancien mot pour Sa-lu, citron, répondra qu'il ne touche pas au citron.

Dans les indications fournies par M. Schetter sur les Hei-miao du Kouei-tcheou, il n'y a rien de décisif pouvant faire conclure à l'existence du totemisme.

Les Man aliàs Yao qui chevauchent sur le Haut Ton-kin et le sud de la Chine reconnaissent, encore aujoud'hui, un chien pour ancêtre. Une de leurs chartes, conservie à Hanoï à l'Ecole française d'Extrême Orient, en porte l'image. Cette tradition se trouve déjà relatée aux annales des Han. Certaines tribus Man s'abstiennent de manger du chien ; d'autres retiennent dans leur costume la forme d'une queue de chien ; enfins détail plus typique encore, des losanges brodés aux épaules sur des robes de femme figurent la place où se posèrent les griffes du chien ancêtre, aux épaules de la princesse épousée par lui. Une petite tribu du Fu-kien appelée Sia se dit également issue d'un ancêtre à tête du chien et possède un temple où elle en adore l'image.

Dans le même ordre d'idées, et au témoignage des annales des Han, les anciens Ai-Lao du Nan-tchao se tatouaient de l'image d'un dragon et partaient à leurs habits des queues de dragon, parce qu'ils avaient un dragon pour ancêtre.

Selon les annales des Han et des Sui et selon le Wei-lio de Yu-Huan, les anciens Si-K'iang du Kansou, appartênant au trone tibétain,

se dissocièrent en plusieurs clans sous des rubriques animales, tels les clans du Yak, du cheval blanc du Loup, du Bœuf jaunes du chien blanc. Il imparte de mentionner aussi un clan à nom végétal : le clan de l'Ail.

Se rattachant à ces anciens K'iang, les fameux Tangut comportaient eux-mêmes un clan du Singe. Ceci nous ramène à la légonde tibétaine bien connue du couple ancestral formé d'un singe et d'une Râksasî.

M. Berthod Laufer parle enfin des chinois et remarque qu'en raison du formalisme social, établi de longue date, il n'est guère facile de discerner des éléments primitifs pouvant déceler le totemisme. Il cite totifais de nombreux noms patronymiques qui sont des noms de plantes au d'animaux et conclut à juste titre qu'il y a là tout un champ ouvert à l'investigation. J. Ch. T.

"Origin of Tibetan Writing" (Reprinted from the Journal of the American Oriental Society, Vol. 38).

Sur l'origine de l'écriture tibétaines qui a toujours été assignée à l'Inde par les Tibétains eux-mêmes, M. Francke a avancé et M. Hoernle épousé une théorie hasardeuse, dont M. Berthold Laufer fait, sous le titre précité, une excellente réfutation.

Cette théorie consiste à regarder l'écriture tibétaines comme venant non pas de l'Inde, mais de Khotan.

A la vérité, les alphabets usités au Turkestan étaient eux-mêmes venus de l'Inde et l'origine de celui du Tibet demeurerait au fond la mêmes puisque, en définitive, il est bien certain qu'il dérive d'une écriture indienne du VIIe siècle, passée ou non dans la Sérinde. Je pencherais, pour ma part, vers l'opinion du Dr. Cordier, le grande tibétanisant français, mort en 1914 des suites d'une dure captivité en Allemagne, et qui a insisté sur l'analogie avec l'écriture Gupta du VIIe siècle.

Ce qui est le moins admissible, à mon sens, dans la théorie que combat M. Laufer, c'est de nier le voyage jusqu' à l'Inde de Thon-mi, l'énvoyé du roi Srong-btsan-Sgam-po. M. Francke prétend que Thon-mi s'est arrêté en route, au Kashmir, et que c'est là qu'il a reçu de Li-byin l'alphabet de Khotan M. Francke avance cette négation du voyage de l'Inde sur la foi d'un texte du Ladakh, qui apparaît des plus douteux c'est vraiment insuffisant pour méconnaître la tradition précise et constante du Tibet central, d'où venait Thon-mi.

Quant à Li-byin, il est tout ensemble improbable et que Thon-mi l'ait rencontré au Kashmir et que son nom signifie "gloire de Khotan." L'argument soï disant historique ne porte pas davantage : M. Laufer observe avec raison que les Tibétains ne vinrent en contact avec Khotan

que vingt ans après la mort du roi Srong-btsan-Sgam-po : or le roi avait reçu l'écriture dont son envoyé Thon-mi rapportait les éléments.

Dans une épigramme finale, M. Laufer dit : "Turkistanitis is a *new form of learned disease*." Je suis pourtant d'avis que l'importance de l'évolution du Buddhisme au Turkestan a réellement été considérable et que nous n'en connaissons pas encore toute l'étendue. Mais je suis d'accord avec M. Laufer pour regarder comme inadmissible la thèse de M. Francke et de M. Hoernle analysée ci-dessus.

J. Ch. T.

An English-Chinese Dictionary of Peking Colloquial. By Sir W. Hillier, C.B. New Edition enlarged by Sidney Barton, C.M.G. and Edmund Backhouse. Shanghai. Printed at the American Presbyterian Mission Press. $7.00.

Of the making of dictionaries there is no end. This is a good thing for students. Dictionaries are the most useful and fascinating of all books ; and the person who can use properly, and enjoy the treasures of a dictionary has entered into great possessions. It is fortunate that there are persons of ability and leisure to compile them. When Sir W. Hillier published his work he became a public benefactor. And Sir E. Backhouse and Mr. S. Barton share in this philanthropy. The revision and additions of these two scholars must have involved great drudgery. And the least the public can now do is to use the book that has cost so much labour. It will not be a matter of *hsing shan* for them to do so, they will have their money's worth. We cordially commend this work to our readers. It will often help them in a difficulty, and open up avenues of suggestion and lines of thought. It is compact and handy and can be easily taken with one. The revisers give the reason in the preface for this new undertaking. They say, 'The eight years which have elapsed since the first edition of this dictionary was published have witnessed the advent of a Republican régime in China, followed by a development of parliamentary and legal institutions and of the press, all of which events have had a marked effect on the language. New terms have been found necessary in order to enable public and private speakers and writers on the events of the day to convey to their audiences the new ideas connoted by revolution and progress. It was inevitable under the circumstances that, in order to meet this need, recourse should be had in the first instance to the kindred language of the neighbour Japan, where large stocks of expressions coined in recent years to give currency in the East to the ideas of the West were ready at hand. So marked has been the Japanisation of the modern Chinese vocabulary as a result of this

borrowing that it is hardly too much to say that a Japanese dictionary has become almost an essential in the study of the language in its present form.'

There is truth and exaggeration in this language. It is true that Japan has been a factor in the creation or rather the resurrection of old words : but it is an exaggeration to say that there has been a Japanisation of the modern Chinese vocabulary. The influx of French words during the Norman conquest was considerable but the language was still Anglo-Saxon and maintained its identity. It was in no sense Gallicized. It is a suitable parallel to the present tincture of words from Japan. Chinese remains Chinese and the language is in no sense Japanised. Even most of the words that bear the Japanese complexion are old Chinese terms. The purely new Japanese creation are very few. Another apt illustration of the case may be found in the expressive slang of America. These can be traced largely to old English, as is pointed out by Lowell in that interesting disquisition that forms an introduction to the Bigelow papers. Further it is questionable how far this influx has affected the colloquial. It mostly affects literary compositions.

Much of the difficulty of dictionary makers and translators is to determine the exact value of a word or phrase etymologically. There appears to be a certain inexactitude and indefiniteness attached to Chinese phraseology that is confusing. In Wenli this may arise from dissociation : and until the word is seen in its connection it is hard to define its value. Position and function govern the etymology. The same word may have different values just as in Shakespeare we have, 'But me no buts, but,' etc. We shall find that the compilers of this dictionary have experienced these difficulties, without surmounting them in many instances. And students must be prepared to find a good many errors, in this respect, in this dictionary of many excellencies.

Some interesting study in words is suggested by this dictionary as the value of 的 in the phrase 的確不錯. This gives quite a new view of *ti* to the beginner. It is clothed with substance and not a mere ghost of a word. And the same may be noted of 下 cp under *abandon* p. 2, *underneath* p. 960 : *about* p. 4 and so on. Students will take note of some tricky expression and discern how a little word makes a difference. *Chu te hsia* is *sufficient accommodation* : but *Chu pu hsia* is not only the opposite, but may connote a moral idea as well : but this is not noticed in the book.

There are some glaring omissions, as well as an insertion of phrases we little expected to find. *Jones has the entrée into the legations*—surely a new idea to the Chinese, is given; but older and

more popular ideas are absent. We have looked in vain for such words as *legate, cardinal, prelate.* These are as old as Kang Hsi, at any rate, and we should have expected an entrée for them into this work. Jones it is true is more modern, but these venerable terms should not have been forgotten.

The equivalents for the word *condemn* are very incomplete. There are ecclesiastical, moral and legal condemnations. The last only is given. It would be useful if the authors had given the noun *condemnation.* Comparisons of such formations throw much light on the flexibility of language.

The foreigner finds certain adverbial and other expressions difficult The look of them startles him; such as *As early as* : *From time to time* : *In the meantime* : *The secret of it was* : *The venture was justified* : *Bring into contact with* : but unfortunately he will find no relief here. Many acids are given but the most common and colloquial *carbolic* is absent. Under *secret* there are many valuable phrases entered, but a most puzzling one to the student, *he made no secret of it* is omitted. Just what he wanted too! Also *he took the risk.*

On the other hand there are many happy phrases. Under *triumph* we have a *Pyrrhic victory* : and those troublesome words *object* and *subject* are found.

We have found that a few phrases lack correspondence, or may it be said that they are complements : such as *absent-minded* is given as 失神, 出神 but under *Minded-absent* we have 忘神, 恍心. It should be pointed out that these terms do not quite imply the same state of mind. *Ch'u shen* is not quite the same as *shih shen* and hardly means absent-minded, but implies quite a different meaning. *Wang shen* is of doubtful validity; *huang hsin* is *flurried.* The colloquial expressions *Hsin pu tsai, pu liu hsin* are not given.

There are a few errors arising from an incomplete exposition, too, to be pointed out. For example *Ability,—a person of,* is given as *Yu ts'ai kan.* But this phrase equals *He has ability.* The noun should be *Yu ts'ai kan ti. Administrative ability* is given as *Yu ching chi* but this is a predicative form; and *Ability,—great natural* is given as *t'ien fen kao* which is qualitative : a better phrase would be 好天分. We should also like to draw attention to the phrases given for *abstract,—in the* : *account,—advance on* : Again under *monopoly, Monopolist is* given as *Chuan mai,* but this is a descriptive verb. *Monopoly* is given as *Chuan mai ch'üan* : it would have been better if in the sense of *a patent* had been added. *To monopolize* is given as *pao lan* the better term is 壟斷; *lung tuan* is given but the character *lung* is not correct : Pao lan is in the sense of contracting and the idea of monopoly can only be very indirect : and the phrase *pa ch'ih* 把持

should have further explanation. It conveys the idea of penalizing as in the acts of Trades Union, etc. The phrase conveys a certain amount of opprobrium and illegality.

A line of useful study is suggested by the reading of this dictionary in this way that it greatly helps to an exact knowledge of words,—not only of Chinese but English words too and for the English speaking person. It is marvellous how inexact we are as to the shades of meaning.

It should be mentioned that phrases run away with their authors occasionally : and therefore there is much Wenli in the work. Colloquialism seems unequal to the occasion. Thus the student must by no means try to speak all the phrases in this work.

The length of the review will show that we have found it most interesting. It is a mine of information. We most heartily commend this useful work. M.

Indian Archaeology.

(1) *A Guide to Sanchi*, by Sir John Marshall, Director General of Archaeology in India, Government Printing Office. Calcutta, 3*s*/9*d*.

(2) A *Guide to Taxila*, Government Printing Office, Calcutta, 4*s*/6*d*.

(3) *The Astronomical Observations of Jai Singh*, by G. R. Kaye, in India, Government Printing Office, Calcutta, 23*s*/—

The Indian Râj has always shown an intelligent interest in the antiquities of that great country, and these books are excellent examples of what can be done in the way of reserch. While they do not bear to any extent on Chinese matters (except in so far as *Taxila* was visited by both the famous pilgrims Fa Hsien and Hsuan Tsang) yet they have a great indirect value to Sinologues.

The first two books relate to ancient Buddhist shrines and help to support several hypotheses which are of great importance in regard to the development of Asiatic culture, viz :—the predominance of the Hinayana type of Buddhison in early days, the assimilation by Buddhism of the worship of death and the strong influence of Greece on Indian art.

The third book relates to culmination of oriental science in India under the enlightened Maharajah Jai Singh of Jaipur in the early eighteenth century and although covering quite a different field from the other two books also shows how much the Orient owes to the West.

It is of course an insoluble problem whether any real physical knowledge of any value ever originated in India, but in any case it is

very unfavourable to the hypothesis of those who think that the Indian sages penetrated the secrets of the cosmos to find that the wisest of the Indian potentates was obliged to borrow extensively from Greece, Arabia and even France and England.

Sanchi is the site of the most important of the Bhilsâ topes, or Buddhist relic mounds, in the State of Bhopal. These remains date from the third century B.C. to the eleventh century A.D. so covering almost the whole period of Indian Buddhism. The oldest stupa dates from the reign of the Buddhist Constantine, Asoka, but it was subsequently enlarged and four decorative gateways were added to it in the middle of the first century B.C. There gateways or toranas, seem to be the direct prototypes of the Japanese *torii* and Chinese *pai-lou*. They are elaborately carved with scenes from the life of Buddha and the Jatakas or legends of Buddha's previous metempsychoses. Somewhat as with early Christian antiquities, Buddha himself is never figured, being only indicated by a symbol.

The stupa itself was surmounted by a railing and an umbrella, the latter indicating the presence of relics, and it was surrounded by a processional path for the early circumambulatory ritual.

There are many other remains of a later date, stupas (in some which relics have been found), pillars, temples and monasteries, and are all well described and illustrated. The stupas show one more example of the grave mound in all its variations from the simple earth mound covering the coffin of primitive man in N. China to the pyramids of Egypt or the hill of Chin Shih Huang Ti.

Taxila is more elaborate and better known than Sanchi. It was probably part of the Achaemenid Empire and was later occupied by a Macedonian garrison. Being recaptured by Chandragupta it later became the vice-regal seat of Asoka, was captured by the Graeco-Bactrians and overrun successively by the Scythians and Kushans, and was finally ruined by the White Huns in the 5th century. It was visited by Apollonins of Tyana, St. Thomas, Fa Hsien, Sung Yün and Hsüan Tsang. It naturally shows in its art the most varied influences, but the most noticeable feature is the quickening effect of the Greek spirit. The remains are similar to that of Sanchi but include palaces, and also coins and inscriptions.

Jai Singh's astronomical instruments and buildings are very remarkable and remind one of the Chinese instruments referred to in the Shu Ching and the old equipment of the Peking observatory. Mr. Kaye describes the astrolabes and other portable instruments and the large masonry sundials and observation structures in great detail with excellent diagrams and photographs. He gives Jai Singh's literary sources and collates all the records, calibrations and memonics

on the instruments. Ptolemy, Ulu Begh, De la Hire and Flamsteed all contribute their quota of data but unfortunately the instruments were put to but little use and in view of improvements which had already been made at the time of their construction in Europe could not hope to do much more than serve for demonstration purposes and relatively simple observations. HERBERT CHATLEY.

Berthold Laufer.—*The Story of the "Pinna and the Syrian Lamb"* (the Journal of American Folk-Lore, vol. 28, No. 108, April-June 1915, pp. 103-128). *"Optical Lenses, I. Burning-Lenses in China and India"* (Tung-pao, 2nd series, vol. 16, No. 2, May 1915). *"Cardan's Suspension in China"* (Holmes Anniversary volume, Washington, 1916).

Since the publication of Hirth's celebrated work "China and the Roman Orient" much new information has come to hand which has enlarged our knowledge of this interesting subject : the relations of the realms of Ta Ts'in (the Roman or Greek near East) with China. Mr. Berthold Laufer has recently—in a series of papers of different sizes—further contributed to this knowledge and it seems only fit that mention should be made of this here. The papers referred to are remarkable by their ingenuity, by the sagacity shewn by the author, and by that considerable wealth of information of which he has already given so many proofs.

I.—*Pinna* (or more correctly *pina*) is the generic name of a large family of sea mussels (*pinnidae*) which inhabit the Mediterranean and the Indian Ocean. One of these bivalves, the *pinna nobilis* or *pinna squamosa* possesses this peculiarity that it fastens itself to the bottom of the sea by the means of a bunch of fibres which, suitably spun, can be made into a tissue of the colour of dark gold. Even in our days the Italians of the gulf of Taranto manufacture this particular tissue. The Annals of the later Han period (25-220), the Wei-lio (written between 239 and 265) mention this material as being used by the inhabitants of Ta-Ts'in, but they ascribe its origin to a sea-sheep. Furthermore, the narrations of travellers of the middle ages mention an *agnus scythicus*. Yule has presumed a relation to exist between the "sea-sheep" of the Chinese and the "lamb" of Brother Odoric; Hirth, in his work on the Roman Orient, has made certain reservations without, however, elucidating the problem; Schlegel, on the other hand, has made the matter even more obscure by many confused theories. It is Chavannes who has been the first to point out that it is necessary to make a clear distinction between the two notions : the *sea-sheep* and the *Scythian*

lamb, and this he has done justly although the 2 notions, in the historical development of the legend, end by becoming partly united.

Chavannes while correctly connecting the origin of the material referred to, with the filament of the *pinna*, only relies on the authority of an Arab author of the tenth century, Istakhri, according to whom he reconstructs the legend which may have given birth to the Chinese idea of the *shui-yang* or *sea-sheep*. In fact, according to Mr. Laufer, the Arab traditions as well as those of the Chinese are reducible to a Hellenic tradition.

The first Greek author to mention materials made of the fibres of the *pinna* is the sophist Alciphron who, in his letters, calls them "woollen stuff out of the sea" Τὰ ἐκ τῆς θαλασσης ἔρια As the sheep is the principal animal to furnish wool one is thus lead, so to say, to the idea of a sea-sheep. Tertullian, in his treaty "De Pallio," written after 208, explains why he wears a *pallium* instead of a *toga* and he there takes the opportunity of alluding to the fleece recovered from the ocean where are to be found certain shells of rather large size and furnished with mossy hair. Basile the Great (4th century), in one of his homilies, expresses wonder at the golden fleece of the *pinna* which no dye is able to imitate.

The Arabian authors also speak of this sea wool which is so beautiful that a robe made of it is worth more than a thousand gold pieces. The arabian idea undergoes a curious development : the tissue which, at first, was thought to be a product of an aquatic animal becomes finally that of the plumage of a bird. This transformation, so Mr. Laufer says, may be explained by linguistic and commercial reasons. *Pinna* in Latin meant also "feather" (the form *penna* is later) and this ambiguity may have lead the Arabs to understand the fibres of the *pinna* as being the plumage of a bird. The Chinese texts bear witness to the existence in the Far East of such materials woven of feather; the Arab word *suf* (wool or down) even passed during the Mongol period into the Chinese language under the form of *su-fu* or *so-fu* (Watters, Essays p. 355). According to Bretschneider (Mediaeval Researches, pp. 258, 291, 308) *so-fu* (wool or down) was sent to China from Samarkand in 1392, from Ispahan in 1483 and from Lu-mi (Rum, Byzantium) in 1548 and 1554. The Chinese works which mention these materials are rather numerous. They have also picked up another tradition which, upon close examination, seems to be a development of the history of the shui-yang, namely that of lambs born of the womb of the earth and connected with the ground by the umbilical cord. The annals of the Tang (618-906) mention that they are to be found at *Fu-lin* (Syria, possibly including Byzantium) and an earlier text, cited by Chavannes, determines their habitat as being the country of Ta Ts'in (that is the Roman or Hellenic near East), the

same being the case of a later text quoted by Pelliot. This allows to determine the date for the transmission of the legend to China as being *before* the beginning of the sixth century, this being the period when the name Fu-lin appears for the first time.

Mr. Laufer finally shows that the original *pinna* transformed into a sheep, into a lamb, even into a bird ends by becoming a human being in the Talmud. But Mr. Laufer goes further : considering that Syria when the legend came from there, was christian and further, that the expression *yang-kao* used by the Chinese follows intentionally the Syrian tradition and consecrates the substitution of the sheep by the lamb, he finally arrives at the supposition that the old Hellenic story of the sea-sheep has become modified under the influence of the christian allegory of the divine lamb.

It is out of question here to follow the thought of the author in all its developments as this would lead us out of the limits for this review. Let it suffice to say that thanks to the author we are now able to follow the history of the legend of the *pinna-agnus* which extends over fifteen centuries and which, founded on a natural fact of trifling importance, has developed into a marvellous and intricate story which has interested Europe during centuries and kept the sagacity of innumerable scholars on the look-out for the lamb producing this wonderful golden fleece. It is remarkable that the principal evidence which enables us to follow step by step the development of the legend, is furnished by the Chinese texts which reproduce the data of the western folk-lore.

II.—Mention will only be made here of that part of the paper which deals with the knowledge which the Chinese have had of *burning-lenses*, a question on which the current idea is totally wrong. As the French saying goes : one lends only to the rich, so it has indeed been the custom to attribute the invention of the lense to the Chinese. Mr. Laufer mentions a Dr. E. Hill who in 1914 wrote : "it is said that a Chinese Emperor used lenses as long ago as the year 2283 before Christ to observe the stars" ! Even professional sinologues as F. I. G. Schlegel and, quite recently, Forke, have maintained that burning-lenses were known to the Chinese long before they were known to the Greeks and quite a long time before the Christian era.

Mr. Laufer applies himself to show that the conclusions of these scholars are based on an illusion due to their not having understood the texts. Referring to the remark of Th. W. Kingsmill concerning the modern myths[1] he adds not without irony : "I apprehend that the

[1] "Myths have been not inaptly described by Max Muller as a disease of language ; and to this category we may perhaps relegate the group of modern myths which have grown up in and around our description of China and its arts." *Chinese Recorder*, Vol. VII, 1876, p. 43.

assigning to the ancient Chinese of burning-lenses belongs to this category of modern myths based on misinterpretation of terms." He shows without difficulty how Forke and Schlegel have been lead astray in their common error.

Indeed, even if the Chinese have known the lenses and some of their properties, they are nevertheless not their inventors; their knowledge of them came from India. The first historical mention of them is found in the T'ang shu in connection with a tribe called Lo-cha (羅刹) living on an island in the eastern P'o-li (婆利) archipelago (Bali); according to the annals their country produces fire-pearls (huo-chu 火珠); when held against the rays of the sun "mugwort[2] and rushes will be ignited at once by fire springing from the pearl." It is possible from this text and from another taken from *Kiu T'ang shu* to conclude, that these *fire-pearls* were convex lenses of rock crystal which were used to generate fire for cauterising purposes; to conclude: they were used for the same purpose as the copper or bronze mirrors of an earlier period (a text from the fourth century mentions this practice).

It is furthermore known that in the second quarter of the seventh century the Champa offered to China burning-lenses which he had procured from the Lo-ch'as. But how had the Lo-ch'as, a savage tribe, obtained them? Mr. Laufer says: from India, although unable to show in what manner; more especially from Kahmir which, in the T'ang shu, is indicated as producing *fire-lenses;* the Chinese term: *huo chu* represents the translation of a corresponding sanskrit word.

China has received the fire-lenses from India as Europe of the middle ages and the Arabs received them from Greece and from Rome. The following problem then presents itself: "in what reciprocal relation or obligation are India and Hellas? Mr. Laufer concludes that the priority belongs to Hellas considering that in 423 Aristophanes in "The Clouds" mentions *burning-lenses* and it is likely—for very good reasons—that India at that time did not know them. The Hellenic Near East should thus have made the lenses known to India between the fourth and the sixth century and from there they have passed into China at the beginning of the seventh century.

III.—In this short article Mr. Laufer describes a brazier which he has purchased in China for the Field Museum at Chicago and which probably dates from the Ming dynasty. The peculiarity of this brazier is that it is furnished with a Cardan suspension; filled with live coal it may serve as a bed warmer as the vessel cannot be upset. Mr.

[2] Artemisia vulgaris, a plant common in China and used for cauterising the skin.

Laufer cites a passage from Berthelot saying that "suspension à la Cardan has been employed in eastern Asia probably from times immemorial, as the Chinese do not change their processes." He adds, however, that this point requires further elucidation.

Well, in accordance with Chinese tradition, this manner of suspension is due to Ting Huan, a renowned mechanic of the Han period (226 B.C.—A.D. 220); to him indeed is attributed the invention of "the brazier in the bed-clothes." This tradition refers to an appliance as the one described and it is quite possible that its origin goes back to the time of the Han, "the period when mechanics and engineering awoke in China" and because it is just during this epoch "when along the trade-routes leading across Central Asia into the Roman Orient Hellenistic ideas and inventions were conveyed to the Chinese."

The author terminates with an assertion which—generalised and extended from the realm of the mechanical science—may serve as a conclusion to this series of reviews: "A single case certainly lacks convincing force, but the totality of coinciding phenomena with which we are now confronted is so overwhelming that Hellenistic influence on Ancient China can no longer be denied. . . . All that is recorded of mechanical innovations in the Han period is traceable to the writings and models of the Alexandrian mechanicians."

C. B. M.

The Kan Ying Pien. 感應篇 With full Introduction, the Text, Translation, and Notes. By Rev. James Webster. Price, $1.00. For sale at the Mission Book Company, Shanghai.

Of this book Wylie in his Notes on Chinese Literature says: "Among all the publications of the Taoists, there is none which has attained a greater pupularity. The assumption that it is the work of Laôu Keun is a fable, which few, if any believe. It appears to have been written during the Sung, but the author is not known. This treatise which is composed in a style easy of comprehension, has for its object to elucidate the doctrine of future retribution. The various editions are innumerable, it having appeared from time to time in almost every conceivable size, shape, and style of execution. Many commentaries have been written on it, and it is frequently published with a collection of several hundred anecdotes of the marvelous, and pictorial representations appended, to illustrate every paragraph seriatim. It is deemed a great act of merit to aid by voluntary contribution towards the gratuitous dissemination of this work."

Mr. Webster's edition is bound in cardboard. It is well printed. It contains 14 pages of Introduction, 16 pages of Chinese text with

translation and Notes and a vocabulary of ten pages. The Introduction contains four sections, dealing with Tracts in Chinese Literature, Popular Taoism. The authorship and date of the Kan Ying Pien, Analysis of the Kan Ying Pien. The remarks on Chinese Tracts are interesting and the account of Popular Taoism is on the whole a fair one. But credit should have been given for the way in which Taoism has peopled the minds of a quarter of the human race with a store of imaginary persons, as well-known and popular in China as Robin Hood or Jack the Giant Killer in England. Taoism is the Chinese fairyland.

In transliterating Chinese words Mr. Webster uses Wade's system of spelling. He writes good English and his translation will be read with pleasure by the general reader. "As shadow follows form, so are good and evil requited"; "to murmur against Heaven and blame men; to rave at the wind and curse at the rain"; are sentences from the Kan Ying Pien that have become proverbial in China. The student of Chinese will also welcome the translation, but it would be still more welcome were it more literal. At times it is too diffuse. On page 21 (last line) it is hard to find any Chinese equivalent for "robbing them for his own advantage," and many sentences might have been rendered more accurately: *e.g.* on p. 28, line 1 非不暫飽 = "not that these do not fill you for the time being," instead of "these may, indeed, bring temporary pleasure"; on p. 22, line 7, 辱人求勝 = "he seeks success by shaming others," not "triumphs over another's disgrace"; on p. 22, line 9, 苟免無恥 = "to escape dishonourably leaves him unashamed," not "shamelessly excuses himself for his crimes."

L. A. L.

Ancient Chinese Paper Money as Described in a Chinese Work on Numismatics. PROCEEDINGS OF THE AMERICAN ACADEMY OF ARTS AND SCIENCES—June 1918.

This is a translation of the Ch'üan Pu T'ung Chih by K. Tomito, who writes a short Introduction dealing with the main principles he has followed in turning the Chinese terms and words into English. Mr. Andrew McF. Davis contributes the Foreword. In this we have an account of the genesis of the book itself and a general survey of Chinese paper notes. He treats the question historically and discusses the sizes and designs on the face of the notes. Facsimiles of many notes are given together with the seals attached to them. Except the Seal characters these are plain enough. The illustrations have been reproduced from the pages of the Ch'üan Pu T'ung Chih. The article by Dr. S. W. Bushell in the Journal of the Peking Oriental Society has been freely drawn upon and discussed. We do not notice any reference to the compilation of Ma Tuan Lin on the question of

currency. He is an authority that should not be neglected or overlooked.

The translator in his Introduction says, "In translating the inscriptions on the various notes, the original wording has been followed as closely as possible, with the purpose of bringing out such distinctions as," etc.; "to translate the Chinese freely . . . would have been simpler, but by this method the slight but important distinctions in the text of each issue could not be brought out," (p. 477).

But this attempt at literalness has its dangers as we shall point out later on. What should be aimed at in translations is not a free translation, but rather an idiomatic rendering equivalent in meaning to the original. It is here that the translator has failed badly. Let one term be taken in confirmation of this criticism. *Tien hsia* 天下 occurs on almost every note. This is translated, *under the Heavens*: '*To the world*' and so on. Neither of these translations is good, since they do not convey to the English reader the idiomatic significance of the original. *Tien hsia* is the idiomatic term for '*Empire* or country.' So in attempting to be too literal the translator has confused the meaning.

It must be owing to the same reason that other obscurities remain. For instance *I Kuan* 壹貫 is gives as *one Kuan*. It would have been more consistent to say '*One String*' or simply *i Kuan*, and so on throughout. Again *Yin tsao* 印造 is '*Coins*' or '*fabricates*' and not prints and issues, (p. 480).

Fen hsing Tien hsia should be rendered for *Circulation in the Empire*, rather than, *distributed under the heavens* (p. 488). Again, *Shou ts'ung* 首從 is given by *principal or conspirator* but should be *principal and accomplice* (p. 514, etc.). The 3rd line on plate 33 is rendered by "*authorization decree.*" A more correct rendering would be *The Imperial decree having been received by the Civil Board, authorizing this script to bear the value of 30 taels.* It is questionable whether '*which value cannot be altered*' is the correct rendering. The word Ssû 私 is rendered *privately* it would be better to use the technical term of *illegally or clandestinely*. *Pan pu* 頒布 seems to have disappeared in the translation of plate 10, p. 490.

And on page 499 we have the phrase '*petitioned the Imperial decree.*' Now the Imperial decree cannot be petitioned—it is a dead thing. *Ch'ing chih* 請旨 is a phrase meaning, '*Having asked or prayed for authority to do*' (p. 501). One more: the 2nd line on plate 22 is given as *prints and issues* (p. 503). Should it not be '*commands the printing of?*' There are many such discrepancies and they are pointed out partly to show that the translator in trying to be too literal has often missed the meaning.

The Academy is to be congratulated on its enterprise and this new production is most interesting and valuable. M.

China and the World War. By W. R. Wheeler. New York. The MacMillan Co., 1918.

This is a lucidly articulated account of the foreign relations of China, during the four years of the world war. Brief statements of the events leading up to the beginning of the period are furnished, and in a most valuable series of appendices appears the "Black-Dragon" statement of Japanese policy in China as a result of the European war, documents relating to the twenty-one demands made by Japan on China, official statements in relation to the Lansing-Ishii agreement between America and Japan concerning China, a summary of treaties and agreements with reference to the integrity and sovereign rights of China, and the "open door" policy and "equality of opportunities," and a summary of treaties and agreements with reference to Korea. Finally there is an introductory bibliography on China, in which the reviewer is happy to note that a suggested substitution in the list has been adopted.

We reject a novel if it does not entertain us; a historical novel must be even more careful to do so; and the demand for entertainment has caused some modern writers of narrative history to be more concerned about the entertainment than the facts; or at least they weave about the facts a glowing and sumptuous garment of interpretations. In the East, especially, there is so much behind the scenes at which the historian can only guess; the observable facts often tell little about their causes and their effects; and the temptation to fill out the picture is most alluring, and has proved the call of Circe to more than one writer. There may be a plot into which the events would fit, if it were known, and there may not be. To confine one's self to the more immediate construction which events will bear may not be romantic, but it is satisfactory to the wayfaring reader, desirous to know where events are leading, and it is the method adopted by Mr. Wheeler. The result may be dry reading to one who is not able from memory and experience to fill in the colours which the picture suggests, but it is most useful. Mr. Wheeler is not without his own opinions as to the meaning of the events he narrates, but he is not so much in love with them as to brandish them in the reader's face, as who would say, "Accept this or confess that you cannot read the signs of the times." The tale is clear, consecutive and complete, and if the reader is of the number of those who prefer making their own opinions to having them made for him by a clever special pleader, he will be correspondingly grateful.

The atrocious crime of being a young man is something which Mr. Wheeler should not worry over as much as some of his critics. It should be a cause for rejoicing that a young man should begin, as

soon as he arrives in China, to collect material bearing on current history there, and that he should have the patience which was required to work that material into a useful book. If every young missionary and every young business man were to choose some field of study outside the immediate requirements of the work he does, and try with perseverance to make himself the master of it, the result would be most useful to the individual, and would make fruitful some fields that now are sadly barren. But then how soon should he publish? One would suppose that the answer might be, "As soon as he has something timely to say." At least the book should be judged on its actual merits, and not be decried on the ground that its author has been only a few years in China. Moreover, where is the line to be drawn? If we are inclined to laugh at George Kennan, who steps ashore from his travels in the midst of the Mixed Court riots, and promptly gets all the facts and the meaning of them, and distributes praise and blame in omniscient fashion for the numerous readers of *The Outlook*, yet we remember that Professor Ross, who was in the country only six months, gathered his material by the wise questioning and the wise observing possible only to a trained mind, and produced a book worthy to be included in Mr. Wheeler's prize list, and useful to beginners. Time alone will tell whether Mr. Wheeler's opinions on the present state of affairs in the East are sound judgments or not, but it would be far from surprising if his temperate and carefully thought out book should be considered an authority long after more pretentious works were forgotten. In all books of the sort, there must be an ephemeral element, and in some details this book is already out of date, so rapid is the movement of events in Chinese politics. But the main effect is quite otherwise, and the promise of the book is such as to make us look forward to Mr. Wheeler's further work in this field.

H. K. W.

Greek-Chinese-English Dictionary of the New Testament. By J. Leighton Stuart, D.D. Shanghai. Presbyterian Mission Press.

China is moving, or at any rate, the foreigner in China is making her move. This volume is quite a new departure. It proposes to lead China back to the antiquity of Europe, by offering the theological student, of the Chinese church, an opportunity of studying for himself an ancient vehicle of thought, and move in a sphere of speech that was contemporaneous with their own Han period. It is a bold venture and time alone will show the justification. But the publication of this volume shows unmistakably the enterprise of the Church. Whether the student will be able to cope with it in addition to his other studies time alone will prove: or whether he would not have been better

equipped if he had devoted his time to the study of English. Everything that can be said for Greek is now to be found in English, thanks to the abundant labours of all the scholars that have devoted their time and talents to this field of learning. In any case Dr. Stuart is to be highly congratulated on the end of this difficult task. He has produced a substantial volume. The Greek words are arranged in alphabetical order. Parts of Speech are indicated. The Chinese equivalents are given followed by an English equivalent. References are also given to where the words are found in the N. T.

The printing has been done in an excellent way. It must have been very exacting work and the Printers are to be highly congratulated. The whole cost of the work 'has been generously assumed by the Ginter Park Presbyterian Church Richmond Virginia'; it is to be hoped that this linking of China with ancient Greece by way of America will bear happy fruit, for the good of the nations.

Index to the China Review. By JOHN C. FERGUSON. Kelly and Walsh, Ltd., Shanghai, 1918.

This is an extremely useful subject index to an important publication. Mr. Ferguson disarms adverse criticism to some extent by saying that the preparation of the Index has followed the lines of his reading, and "the result will, therefore, not be wholly satisfactory to anybody else." The chief fault observed is one that would have meant more labor; for the Index is far from complete. There is no index of authors. There is no gathering of titles into general classes of subjects, and those who wish to look up what the volumes of the Review have to offer, for example on Chinese Religions will have to run their eyes over the whole work,—a matter of some two hours labor. The cross references are not consistently planned. "Corvee Services," and "Ningpo Dialect," for example are each found under both title words; but whereas Eitel's articles, "Fragmentary Studies in Ancient Chinese Philosophy," are found only under "Chinese Philosophy," the same author's "Chinese Philosophy before Confucius" is to be found only under "Philosophy." But all this is to look a gift horse in the mouth. When Mr. Ferguson has already relieved us of much labor, it is ungenerous to reproach him for not relieving us from more. We join in what will surely be a hearty chorus of thanks to him from all students of things Chinese. H. K. W.

The Mentor Department of Art. Serial Number 168.

This number is wholly composed of matter dealing with Chinese Paintings written by our Hon. Librarian, Mrs. F. Ayscough. It is an

instructive and artistic number. It is a volume to please the eye and inform the mind. Mrs. Ayscough gives much out of the way information on paintings and painters. She handles the subject in a most sympathetic manner and endeavours to appreciate the spirit of these ancient things.

It is by such methods as these that people generally will get a knowledge of the treasures of art—and from the art itself it is not a long step to the spirit and the ideas that pervaded these great men. A service is thus rendered to the diffusion of culture, and fine feeling becomes more liberally distributed. A spirit of this kind is much needed in these practical and industral times. There is a tendency to became hard and rough; art and religion should be more widely diffused to give more lustre and spirituality to the web and woof of life.

Mrs. Ayscough's remarks as to the intimate connection between writing and painting suggest many thoughts. The Chinese *hand* is fashioned for philosophy and penmanship. Look at the long tapering fingers of the nation. Writing has to do with nerve and lines. It is to a great extent a matter of the eye and hand, and, of course, infinite effort. Again calligraphists are good and bad. The question is whether painting and poetry are not more qualities of the mind. It does not follow that all calligraphists are painters neither are all painters poets. There have been many poets without the gift of drawing and most excellent penmen have written no more than routine verses. It would be illogical, and contrary to experience, to say that all good penmen are painters. So may it not be said that it is an accidental idea that there is this connection between calligraphists and painters. Is there not something true in the saying that these men are born not made. Nevertheless it has been noticed that those foreigners who know something of drawing and painting have a greater capacity to get hold of Chinese characters than others. But this may be a superficial capacity only. The Chinese script lends itself to the art of calligraphy: their very form calls forth the best hand and all that is in man that way. M.

Timber Rafts on The Lower Yangtze. Shanghai. Statistical Department of the Inspectorate General of Customs.

This is one of the papers issued periodically by the Customs. The compilation is by Mr. S. F. Wright. It is not a very long paper, but it is a most important one. The Customs are doing most valuable work besides levying dues and collecting money. The papers they issue from time to time are most valuable historically and full of interesting

matters to the Sociologist. A very full and complete description of timber rafts are given in this paper. A view of one of these rafts from a steamer is a daily occurrence, and it would never enter the mind of any one casually looking at them, that much art and mechanical ingenuity have gone into the making of one of these. But so it is. The construction and the voyage of one of these is fully described by letterpress and diagrams. The largest raft on record of the past 15 years as reported was some 280 feet in length by 110 feet in width, with a depth of 22 feet from deck to keel. The average size would be about 180 feet : and the timber composing this would be worth about Hk. Tls. 20,500. About four months is taken to do the trip and the wage bill would amount to $2,800. But the heaviest item of all is inland taxation. Timber coming from Kan Chou to Nanking is obliged to pay taxes ten times. So that a raft composed of 220,000 cubic feet would have to pay between 5-7 thousand taels in dues : or inland taxation comes to about 25% of the capital value. No wonder things are in a bad way in this country. We said this was not a very large volume : that is so : but the amount of work in its compilation must have been great. M.

An Anglo-Chinese Glossary for Customs and Commercial Use.
By C. A. S. Williams. Shanghai. Commercial Press, Ltd.

Though printed and published privately and not by the Customs it must be concluded that the volume was primarily intended for use by the Customs staff. This can be the sole reason why the book has not been reviewed before. We don't remember seeing a review of the book anywhere. It certainly merited a review, so in a way the work hasn't had its proper deserts. The learned author evidently didn't push his wares. So far the public has been the loser. For this is a work that deserves recognition. The compilation has involved much labour. The subjects dealt with are Maritime and Native Customs : Chinese and Foreign Trade : Postal, Political, Geographical and Miscellaneous matters. It is rich in names of Goods, Business terms, Shipping and such things : the Geographical terms are manifestly incomplete. There is still room for additional phrases in postal matters ; for example *insurance of letters* is not given. Now that the study of Chinese is on the flood, students and British merchants will consult this Glossary. Here they will find names and expressions for anything they may deal in now or hereafter.

We wonder why the author translated *typhoon* by *ta feng*? Did he do so on the idea that typhoon is a transliteration of the sound *ta feng*. This etymology is no longer held. It is now taken that the

word is derived from the Greek. Would not *pao feng* be a truer rendering? This admirably prepared book is heartily commended to the student of Commercial Chinese. M.

The New China Review. Nos. 1 and 2. Edited by S. COULING, M.A.

We most heartily welcome a resuscitation of the China Review. It was a happy thought of Mr. Couling to do this. There is not only room for such a magazine, but surely a demand. In such a vast field with so many workers there must be many students of Chinese things. Speaking of the sinologues of the past, Legge, Kingsmill, Eitel, Chalmers, Edkins, the Editor says, 'in the former Review these men had room to express themselves' : and he thinks that there must be many "successors to these scholars who are equally keen to give expression to themselves but who have lacked the medium so far." The opportunity is now placed at the disposal of these 'expectants' so we should have a general flowering of talent,—talent that has been lying dormant, or *ts'ang* as Chinese philosophy has it, preparing during a winter of obscurity for some spring and summer of opportunity. We hope so.

We should like to congratulate Mr. Couling on the get-up of the magazine. There is something in dress after all : and commercially it is always said that if you are not well dressed no business can be done. Well this magazine is well dressed. Paper, type, and even cover do much to commend this new venture. The appearance and feel of it are all in its favour.

The Editor has succeeded in placing a great variety of subjects before his readers. The 'few remarks' by Dr. Giles, Sen. are very seasonable and refreshing. Dr. Giles very truly says that the British are half asleep regarding Chinese Study. Still we must not be despairing. We must remember the work of Legge, Giles, Chalmers, Parker, Edkins and a host of others. These are all British and their work has been unexcelled. And further we must not give undue assent to the statement that the Germans have beaten the British hollow in Latin and Greek. From Bentley downwards the British can make a good show. There is no room for depression. It would be very interesting to find out why Major Yetts took to Taoist tales. This personal experience would be as interesting as the stories themselves. It is well to have a few of the *hsiens* activities and prodigies. But really many of them are wearisome. We wish he would tackle the serious side of Taoism. We wonder if Major Yetts is correct in saying that the Sou Shen Chi is a Taoist book. It

must not be assumed that all that is marvellous is the creation of the Taoist: even the Confucianist is not altogether free from that. And the first item in the Shou Shen Chi is a biography of Confucius in which a vivid description is given of the personal appearance of the sage. But he is hardly a *hsien*. We think that Major Yetts' assumption is not correct. Dr. Chatley begins his studies in Chinese Psychology. The whole question is treated from the modern point of view. The author does not so much give a description of Chinese thought on the subject as he attempts to account for certain phenomena in China. The treatment is interesting, we should not like to say it is inconclusive: but the student will not find much that is Chinese as to fixation of Soul, Fate and so on. It is a modern disquisition hung on to an old subject. It is none the less valuable for that. Is it true that the Chinese literati have always opposed government by women? Women from time immemorial have taken an active part in ruling China: but the question of sex in Chinese philosophy is an interesting subject.

Space and time forbid mention of all the articles, and a reference to some does not imply that the others are less important. The Chinese would say that Fate has something to do with the choice. Some are luckier than others. And so we will close with another touch of Fate—that Mr. Morley's article begins well. M.

"Sport and Science on the Sino-Mongolian Frontier." By Arthur de Carle Sowerby, f.z.s., f.g.s. London: Andrew Melrose, Ltd., 3 York St. Covent Garden, W.C., 1918.

To the sportsmen of the Far East no introduction of Mr. Sowerby is needed. His ever-welcome books have made his name a houseboat, as well as a household word. To the sportsmen of the wider world he has appealed as one having that rare commodity—something new to tell and sell. For if even the Far Eastern sportsman of the ordinary type is yet in almost Cimmerian darkness regarding the possibilities and the whereabouts of China's sport, how much denser is the gloom in which the European and American must wander? Mr. Sowerby has done much to lighten the darkness hitherto prevailing, and his present book continues that most laudable work.

It takes us to and over the Ordos border: it explores for us the forests and lakes of the Fên Ho basin: it introduces us to sport round Tai-yüan Fu: it takes us on a trip to Hsi-wan-tzû, to K'uei-hua-ch'êng, and the T'ai Hai: it gives us a glimpse of argali and wapiti hunting: and after showing us what life is like on the Mongolian plateau, it sets seriously to work to collect for us all the scattered discoveries connected with the Flora of the regions visited, their trees, fruits, flowers

and cryptogams. Lastly it does what nobody has done before over the same ground and to the same extent, it provides an introduction to the geology of the whole region, and goes into details regarding various sections of it. The book is, therefore, at once a most interesting record of sport, and a very valuable contribution to science, and the two are so interwoven in the earlier sections of the volume as to appeal specially to that ever increasing class, the sporting naturalists.

But there is adventure as well as sport and science in these pages, and the episode at Ku-shan-pu, where the author and his companion were compelled to extricate themselves from real danger by a vigorous use of their natural weapons will give an idea of the possibilities awaiting wanderers in these out-of-the-way places. Travel over trackless hills and mountains is full of risks and hardships. Mr. Sowerby had his full share.

We refrain from reproducing any of the exciting episodes with which the narrative teems, but one specimen of Mr. Sowerby's powers of description will be welcomed. In the chapter, "After Argali and Wapiti," p. 123, we read as follows :—

"We were now in the very heart of a region of high, rugged and precipitous mountains, the deep gorges and ravines of which were filled with small timber. This extended up the steep slopes in many places, while away down in the shadowy ravine bottoms sparkling brooks, now only partially ice-bound, gurgled and plashed over the rounded pebbles and polished boulders. Here and there deep pools temptingly invited a plunge, but the little fringe of ice acted as a gentle reminder of the still frigid temperature. In these pools shoals of small fish might be seen darting in and out of the dark caves beneath the overhanging rocks. On the mountain sides the tender green of the sprouting populars and hazels contrasted strangely with the deep colour of a few scattered pines, while the mountain peach and wild apricot blossomed pink and white, lending a soft beauty to the landscape. Above all the jagged needle-like peaks of granite towered away into the azure blue of the cloudless sky, like the enchanted castles of our childhood's fairy tales."

But one thing more needs telling. We had read Mr. Sowerby's book through from cover to cover, and then wishing to refresh our memory on one or two points, turned to consult an index which . . . wasn't there ! G. L.

Bulletin of the School of Oriental Studies. London Institution, 1918.

The School of Oriental Studies is to be heartily congratulated on this its second (?) Bulletin. Like the School itself the Bulletin is

Catholic. It reviews many languages and peoples : quoting from their prose and poetry as well as dealing with linguistic matters. The Philoligist will find much matter of interest here. Sinologues will also find several topics dealing with China. Dr. Lionel Giles replies to Dr. Steele's criticism of his notes on the Nestorian Monument in the previous number.

Mr. A. Waley gives a rendering of more poems from Po Chu I. Without wishing to be critical, as we have had no time to consult the original, a few questions may be asked. (1) 'An early oriole sang on the roof of my house.' Is the oriole such a bold bird as to stand prominently on the roof? It is rather a shy bird, and eschews publicity. (2) 'The tallest of them is six roods high' : 'The lowest is not more than ten feet.' Would it not be better to read, 'the lowest is not less than 10 feet high.' (3) The character for Lü must be wrong. It is repeated three times, thus it is hardly a printer's error. The correct word may be 滁. The word 毋 mei should be 舟. These errors easily slip in, and Mr. Waley's criticism of the transliterations in Encyclopedia Sinica that they have been carelessly done will therefore be somewhat modified by a locus poenitentia. Of course two blemishes is no justification. But the absence of aspirates and other marks whilst a matter of regret is easily excused. This is a thorny subject, but generally the criticism should be received in a spirit of meekness. Mrs. Ayscough of course was using a translation of the Canons which was already in existence, and the source of which she gives in brochure of a lecture on Chinese Painting, and published 3rd April, 1917.

The Awakening of Asia. By H. M. Hyndman, Cassell & Co., 1919.

From his comfortable fireside within the peaceful purlieus of Well Walk, Hampstead, old Mr. Hyndman discourses on the awakening of Asia. The book is full of those half truths which are half lies. He begins the section devoted to China with the entirely inaccurate statement that 'practically all Chinaman can read, write and cast accounts.' This is but an example of many inaccurate statements by which he develops his theme of 'the blighting influence of the Occidental.' The author seems to forget that trade is mutually beneficial. In the case of China trade is in reality an exchange of piece goods of quality for such raw materials as silk, oil seeds and hides. 'Asia for the Asiatics' is Mr. Hyndman's war cry. And there seems no need for it. Besides the merchants, there are as many engaged in teaching and healing the sick, bringing the benefits of modern education and scientific medicine to thousands of orientals. And these are mostly

temporary sojourners, who, after completing their work, return whence they came. The greatest benefit the occident has conferred on the Orient is the bringing to it of natural science, which has caused more progress in civilisation during the last fifty years than during the previous five thousand. In return for this, the East has given the West one of its discarded religions. The progress of Japan has been due to her application of Western science under the tutelage of Europeans. A ferment of socialism pervades the book, of a kind that is calculated to be entirely misunderstood by most oriental people. The general tenour is such that one cannot but commend the censor who held up the book for two years.

Chinese Pottery of the Han, Tang and Sung Dynasties. Parish-Watson & Co., New York, 1917.

There is a suspicion that this volume is a glorified trade catalogue, yet happily there is no mention of money, so it may be accepted as untainted with commercialism. Suffice it to say that it is beautifully printed and the seventeen coloured illustrations extraordinarily good, notably Nos. 133, 61 and particularly 132. It is difficult to understand why No. 30, a glazed earthenware dog of the Han dynasty period, is included except that there is a demand for ugly quaintness; some of these figures of distorted animals and mankind, by a sort of reversion to totemism, commanding very high prices. Perhaps the explanation may be found in the subtle distinction between artistic and intrinsic value mentioned in the text. It is also hard to find sufficient reason for perpetuating so promiently the pair of crudely designed and coloured Sung jars, No. 109. There is a good summary of the chief characteristics of the earthenware of the periods dealt with, derived from well known authorities to whom due acknowledgement is made; but the description of the actual exhibits is strangely crude and inconsequential.

La Temperature en Chine et a Quelques Stations Voisines. published by the Mission Catholique at T'ou-se-we, 1918.

This monumental work has been compiled by Père H. Gauthier, S.J., director of the Zikawei Meteorological Observatory, from daily observations made at 100 stations. The compilation was begun in 1913, and shows the result of persevering work carried on for 50 years.

The book, which is in three volumes, is divided into two parts: (1) an introduction, which is dealt with later; (2) the results of

thermometrical observations at 100 stations in Manchuria, Korea and China Proper, extending from Aigun on the Amur to Lamko in the extreme South. The observations give the mean daily temperature obtained in three different ways; the mean of maximum and minimum temperatures; the daily range—net and adjusted; and the extreme maxima and minima observed at each station, with the year of observation. The number of years since records were first taken is recorded, Zikawei Observatory going back to 1873, followed by Hsien-hsien (Shantung) in 1877. Finally, records are given for 1916—the latest available year—showing the difference between the mean temperature in that year and the normal previously registered, also the maxima and minima and range. There are also notes on bird migration, phenological observations, and of the fall of snow. Each of these observations is shown for every day of the year, and the collection of this mass of material represents a vast amount of labour in the aggregate, work voluntarily done to further the cause of science.

The first part of the book deals with the methods of taking observations at Zikawei and elsewhere, and gives (1) the amount of heat projected on the soil; (2) the mean temperature of the air, as influenced by the absorption of the atmosphere. This is detected in many ways: by the Arago-Davy actinometer, by a heliograph register, and by a thermometer placed below the soil. Atmospheric pressure is also a factor, as well as absorption of heat by carbonic acid, ozone and the vapour in the air.

The modification of the local conditions by those prevailing in neighbouring regions has also been the subject of study, and tables are given showing the influence of wind on temperature (its evaporative force) and also the influence exerted by the sea, the latter calculated at Shaweishan and at the Saddles.

The second article comprises a study of the daily variation of temperature at Zikawei and Part II of this section with the other stations from which records have been sent, monthly conditions being shown in regard to atmospheric pressure, wind, mist, rain, and temperature. This is a valuable statement of the normal atmospheric situation throughout the year in a wide region extending from North Siberia to the region where typhoons are born. Charts follow giving the isotherms of China and—by way of comparison—of North America, during each month.

The number of graphs is innumerable, a valuable aid to the layman who wishes to learn something of the conditions under which he lives in the Far East. It may be said in conclusion, that although the erudition in this great work is above the head of the average man, there is still much which will be of great help to him, and to the

expert in matters meteorological. "La Temperature En China" comes as a work which has been long looked for, and all who are interested in this most important branch of science will extend their gratitude to the Zikawei Observatory for having filled the gap in knowledge.

Nantungchow, or South Tungchow, so named to distinguish it from Tungchow on the Peiho, is a town situated near the mouth of the Yangtze, a very suitable position for meteorological observations. The whole region is highly developed industrially and agriculturally through the initiative of Chang Chien, the scholar-statesman, to whose efforts the inception of the Observatory of Chen-shan, whose first annual report (for 1917) is the subject of this review.

Studies are undertaken of temperatures, pressure, dampness, winds, and tides, rain-fall, thunderstorms, and there are besides tables showing the temperatures when the various crops sprout and are harvested—a very valuable record for the welfare of the farming community, as Father Moidrey says in his foreword. He suggests also that statistics should be kept concerning noxious insects and plants. The plagues of locusts which from time to time visit Kiangsu could perhaps be anticipated and dealt with in advance if knowledge about the conditions favourable to their diffusion were obtained.

The aims of the Observatory, besides those directly connected with meteorology, are stated in the preface to be investigations in aid of commerce, sanitation, river conservancy and agriculture. Mr. Chang Chien is to be congratulated on his latest work and Mr. W. C. Lew, the principal observer, on the excellent turn-out of this book. The work is purely Chinese, and appears to be one of the best efforts controlled entirely by native skill and industry which has come under our notice. N. S.

Foreign Financial Control in China. By T. W. Overlach. New York, The Macmillan Co., 1919.

If there is such a thing as making the science which is dismal in theory interesting in practice, we have an example of it in this book. To one on the spot, at least, the tale of the financial operations of foreigners and particularly of foreign governments in China for the past thirty and more years, related in a straightforward manner and with a minimum of technical economic phraseology, is almost absorbing. And yet so rapidly do events move in this part of the world that a large part of the book must be classed as ancient history, while the collapse of Russia and the twenty-one demands of Japan do not appear at all. It has the interest, therefore, and the instruction, of a past that is very much past indeed. We must be grateful, however, for a

complete, and yet not prolix account of the course of the dealing of the various important nations with China. After theoretical and historical introductions, Great Britain, Russia, France, Germany, Japan and the United States, are taken up in the order named, and there is a chapter on International Control, and a final chapter in which the author's conclusions are summed up. It is an evidence of the soundness of his method that his conclusions will need very little revision in the light of developments since the book was written. As this is the only book we have on this subject, it offers the first chance to follow the tale of foreign finance in China without distraction, and a sorry tale it is, on the whole. The conclusion of the author on p. 272 is not too severe :

"This, then, is a point of supreme significance, namely : that the bottom idea of all the treaty stipulations and agreements as to intercourse, customs, extraterritoriality, spheres of interest, railway concessions and control was not the welfare of the people of China, but the profit and ease of doing business by the people of the West. With the exception of a few missionaries, and a few scholars, writers and artists who admire Chinese civilisation, the interest of the world was a money interest pure and simple."

We judge that the author's wide preparatory reading was done away from China, and that he has never been there for any length of time. Any disadvantage arising from that fact is more than compensated by the greater impartiality of attitude which it has been as a consequence possible for him to cultivate.

H. K. WRIGHT.

Lectures on Biology. By P. M. BAYNE, M.A. Chengtu. Printed at the Canadian Methodist Mission Press.

This work in Chinese contains lectures delivered to students by Mr. Bayne at the West China Union University. The book is well-arranged and in good, easily-understood style. The printing has been well-done. We must add, however, that it would have increased the value of the book if there had been a list of terms in English and Chinese.

The History of China's Pictorial Art. An Introduction to the History of Chinese Pictorial Art. By HERBERT GILES, LL.D. Shanghai : Messrs. Kelly & Wash, Ltd.

Professor Giles did a great service by his first edition of History of Chinese Pictorial Art. This has been much valued and lately

difficult to get. The issue, therefore, of a second edition is welcome. "It has been carefully revised and considerably enlarged. New biographical notices and other items have been inserted : six beautiful pictures, chosen by Mr. L. Binyon . . . have been added : a seventh has been borrowed from an interesting article by Mr. A. D. Waley . . . an eighth . . . shows the passing of Shakyamuni Buddha. Lastly an exhaustive General Index has been prepared, etc." These are the additions in Dr. Giles' words. The letterpress of the old edition was 171 pp., and the new 202 pp. This will show the quantity of new matter. Apart from a remark here and there, this is composed of more translation of the biographies of painters from Chinese sources.

This work for the most part is a translation of Chinese works. So we have directly the mind of the Chinese on these matters. Biography, criticism, anecdote, the art of painting—ink and colour mixing are all judiciously placed together as in the Chinese authorities : and make very interesting reading.

It is to be noticed that Dr. Giles has had no further light on that very difficult sentence "never put pupils to the eyes even for several years" (p. 18). It is possible the Journal of the North China Branch of the Royal Asiatic Society will offer some help.

Sayings of the Mongols. Dictons et Proverbes des Chinois Habitant la Mongolie Sud-Ouest. Par Le R. P. Joseph Van Oost, Imprimerie de l'Orphelinat de Tou-Se-Wei, Zi-Ka-Wei, près, Chang-Hai.

It does one good to walk in the ways of the Gentiles now and then : by this we mean amongst people who are pagans to ourselves : an inspection of their ways of thought, an acquaintance with their common judgements of daily life, and the deeper intricacies of social intercourse may do much to vary the stagnancy that results from following the same grooves which most people have to do. This new book opens up to us new avenues through whose long vistas we may peer into the customs of alien peoples and gain acquaintance with their daily thoughts. Much of a people's profoundest philosophy is imbedded in popular sayings, and a lot of the philosophy of life may be gathered from proverbs. Père Van Oost has opened a new field for us in these proverbs of the Chinese inhabiting the Ordos. It will be interesting to learn how these wide and rolling plains have impressed the emigrant inhabitants. What new tales have been whispered by the winds that sweep over those steppes. For such may often be reflected in the proverbs that the people use. Camels, horses, dogs,

cats recur frequently in these sayings indicative of the daily life of the people.

But not only so, proverbs further become a powerful instrument in speech.

> Who learns the sayings of the wise
> Will speak with ease without advice

is proverb No. 120 and heads the preface. And the author begins by saying that "nowhere is the value of this proverb better illustrated than in south-west Mongolia. Most of the natives are illiterate, a proverb is an argument with them." The most natural way of entering their intellects and hearts is through their own compressed thoughts where a fund of ideas and experience live hid behind a telling couplet. And he who is able to wield these aright has a powerful instrument.

The work contains exactly 1,000 proverbs or dictons, in two languages—French and Chinese. These are arranged alphabetically as indicated by the author in his preface. But readers must not get bewildered on seeing the sounds sha, shan coming first in the book. For according to the continental sounds these characters are romanized as cha chan, etc., so they are entitled to come first. In the arrangement of these, the Chinese text is given first : then come, line for line, the romanized sounds, followed by a translation in French. Lest the significance even now may not be quite clear, an amplification of the meaning and the method of application are further given by the author. So that when done with, the proverb, in all its bearings, should be quite clear. Nevertheless some like No. 291 are even then somewhat obscure.

Looking at this beautifully arranged volume one would not think there is a war in the world or that paper and ink are scarce and have soared in prices. There is an art in bookbinding with its beautiful tooling and decoration : there is art also in the simpler dress of a volume in paper covers. This book is artistically arranged on lovely paper : there are generous spacings, giving the impression that you are after all living in a liberal world : the type is clear and diversified : different inkings making a distinction between the settings. Great care has been used in the make up; proof reading has been done carefully. A few errors exist, as *chand* for *chaud* (p. 284). In Proverb No. 20 chieh is romanized as ti : this is repeated in the preface, where the proverb is reproduced. Whether this represents local pronunciation or is a mistake we are undecided. It looks like a misprint.

It is interesting to note that both in Vol. 50 and 49 of this series the sound usually romanized as *erh* is spelt *eul*. This is interesting, confirming a contention long held that in Chihli and certain parts of North China the terminal *l* is found.

It is impossible or would be purposeless to quote any of these "dictons." They do not seem to be generally current throughout China but rather confined to the Mongolian steppes. They were born and abide there though perhaps some may have leaked out into the northern confines of China. But though differing in words they reveal the great community of human beings and the unity of the human temperament. They are full of the touches that show the kinship of men : marking their characteristics and idiosyncracies, their folk-lore, and customs. One very useful one at the present time is No. 360. "An official has ten ways open to him : but no one can ever guess which one will be acted on." That is just what we are thinking of present events in Peking. What decision will the authorities come to? It is vain to guess.

It should be mentioned that there is a Table at the end, 'D'apres l'ordre Alphabetique des Matieren' !

From the *N. C. Daily News*. By permission.

The International Relations of the Chinese Empire. By Hosea Ballou Morse, ll.d. 2 Volumes. Published by Messrs. Kelly & Walsh, Ltd., 1918. Price Mex. $10.00 each Volume.

Mr. Morse has solved the problem which confronts so many of those who, after spending the best years of their life in the Far East find themselves for various reasons faced with an indefinite period of enforced leisure, by devoting the years following his retirement from the Chinese Customs Service to a close study of the records of China's relations with foreign powers during the nineteenth century and after, and in giving the results of his investigations to the world in the form of a series of histories of which the volumes now under review form the second and third instalments.

The first volume published in 1910 under the title "*The International Relations of the Chinese Empire*" and the sub-title "*The Period of Conflct*" (1834-1860) is well-known to all students of Chinese history as one of the standard works on the subject of the reluctant opening of the Chinese Empire to intercourse with the outer world, a landmark in the history of China which was finally set up by the treaties of 1858 and 1860. The second volume under the same title, to which the author has given the sub-title of the "*Period of Submission*" (1861-1893), carries on the narrative down to the outbreak of the war between China and Japan, and the third volume of the series, to which he has assigned the sub-title of the "*Period of Subjection*" (1894-1911), describes those troubled years before and after 1900 which

culminated in the downfall of the Manchu Dynasty and the uneasy birth of the Chinese Republic.

We believe we are right in saying that one of the principal reasons which prompted Mr. Morse to divide his history into sections was the fact that on the completion of the first volume in 1910 his state of health was such that he could not count with any degree of certainty on being able to finish his task. The appearance of these volumes and a consideration of the close and sustained effort which he must have given to their production, may, we trust, be taken by Mr. Morse's friends in China, among whom his many readers must be included, as an indication that his health has happily improved and an encouragement to hope that he may live to add yet another volume to his series, for which one would fain wish that he might be able to allot the sub-title "*The Period of Reconstruction.*"

In the preface to the second volume the author mentions that his first idea was to make Sir Robert Hart and the Customs Service his central figures around which he would weave the threads of the story of China's international relations in the nineteenth century. Circumstances prevented him from carrying out this intention, and while the narrative may have lost somewhat in human interest in consequence, we venture to think that the substitution of a history for a biography has undoubtedly enhanced the educational value of the work for the student of Chinese politics and its usefulness as a book of reference for all who are interested in the welfare of China and her people. At the same time the figure of Sir Robert Hart, the "Great I. G." still looms large throughout the pages of this history and reading of the part he played for so many years in trying to save China from the consequences of the folly of her rulers and his untiring efforts to place her finances on a firm foundation of honest and efficient administration, one marvels at the persistent and almost inexplicable failure of the Chinese Government, whether imperial or republican, to follow the example of Japan and call to her aid in adapting the fabric of China's medieval form of government to the exigencies of modern fashions, the statesmen, scientists and teachers of Europe and America who would so willingly have responded to the call.

For close on a century China has had regular intercourse with foreign nations and has been gradually forced by irresistible pressure to learn and adopt their ways of life and thought, yet during all these years the few foreigners whose advice her rulers have sought and followed may be counted on the fingers of one hand : Gordon, Hart, and one or two others, among whom one may hope history will find a place for Sir Richard Dane. And even Sir Robert Hart's sound and loyal advice was, as these pages will show, more often neglected than

followed, so that by the irony fate he found himself at the end of a long life devoted to the service of the Chinese Government and people an unwilling spectator in that midsummer madness of 1900 in Peking when the edifice he had toiled so hard to erect came crashing down, at least so it must have seemed to him, in smoke and ruin. One would gladly believe that the Republican leaders of to-day in China, profiting by the mistakes and misfortunes of their predecessors had learnt the hard lesson of accepting disinterested if often unpalatable foreign advice and assistance and thereby saving their country from these perpetual internal disorders and schisms which must inevitably tend towards loss of independence and final disintegration. But recent events force one reluctantly to the conclusion that this is not so and the long looked for conclusion of a World Peace finds China divided against herself, governed in name only by cabinets and parliaments which are a travesty of democratic institutions, while the people are robbed and oppressed by military despotisms, and we witness the extraordinary spectacle of unpopular ministers being driven from office by the shrill voices of school children and student and merchant associations directing the policy of the country through the medium of the telegraph and the public press. At the conclusion of his preface Mr. Morse truly says that "this history demonstrates that advance, progress and reform must proceed from the work of the Governments which follow the Tsing Dynasty" and he adds that it is the fervent wish of every friend of China that "reform and development may bring an end to corruption, disorganization and weakness," a wish in which we most heartily concur believing with Sir Robert Hart that the country "will stagger onwards through all sorts of mistakes" and will eventually extricate itself from the difficulties which now threaten from within and without by reason of the innate industry, energy and good sense of the Chinese people.

It would be impossible to attempt an analysis of the varied and detailed contents of these two volumes which range from the T'ai-p'ing Rebellion to the Boxer outbreak, from the Burlingham Mission to the American boycott, from Factory days and the Canton Hoppo to the abdication of the Manchu Emperor and the summoning of China's first parliament. There are besides a series of illuminating and authoritative essays on such subjects of general interest but uncertain general knowledge as the Customs Service, its origin, development and functions, the attitude of the Chinese towards foreign missions; extra-territoriality and foreign jurisdiction in China; the development of China's foreign trade, her railways, posts and communications; and last but not least a brief but clear account of the origin of the foreign settlements at Shanghai, an area set apart, in the words of the author

as "a safe and agreeable place of residence for foreign merchants," which might be studied with advantage by some of the latter day critics of the Shanghai Municipal Council.

The author's views and statements on all these complex and often controversial questions are supported by copious notes and references, and at the end of each volume are appendixes consisting of extracts from state papers and statistics. It should be mentioned that the volumes are, as is Mr. Morse's habit, well indexed, each chapter being prefaced by a paged abstract of contents and an alphabetical index of subjects, with a map of China, being placed at the end of the second volume.

Some may consider the cost of these volumes, Ten Mexican Dollars ($10) each, as somewhat excessive at the present rates of exchange and one could wish that it had been possible to produce a work of such general interest to all foreign residents in China and to many English speaking Chinese at something less than £2.0*s*.0*d*. a volume. There are doubtless good reasons for the high price of these volumes, and as far as the writer of this review is concerned he is free to confess that he has since reading through their pages changed his original intention of borrowing the volumes from time to time from the Club Library, and, casting economy to the winds, become the proud possessor of all three volumes! K. H. F.

The Land Tax in China. By Han Liang Huang, ph.d. New York. Columbia University.

Some Aspects of Japanese Feudal Institutions. By Prof. K. Asakawa.

"The purpose of Mr. Huang's book is twofold. It is intended first to serve as a basis for the discussion of the land tax reform . . . and secondly to form an introduction to a larger study of the early fiscal system of the country. . . ." Thus the author. He has given Chapters on the Land tax of Antiquity, continuing the narration down through the Ch'in to the Sui Dynasty : from the T'ang to the Ming. The bulk of the book is concerned with the tax since the Ts'ing Dynasty. This is viewed from many points of view and under different heads such as the Land Policy, Holdings, the Acquirement and transferrence of lands : the Development of the tax : Collection and administration, analysis and criticism of the system : concluding with Land tax reform. There are useful appendices giving Bibliography, Units of Measure, Names and epochs of the Dynasties, etc. The Bibliography is by no means complete. There is for instance not a single reference to articles by French writers.

The work gives an excellent review of land conditions in China from Ancient to Present times. Students of economics and others will find it most useful. The author has relied on the histories of China, especially on the Wen Hsien T'ung K'ao for records up to the thirteenth century. It would have been convenient if he had inserted Chinese characters in addition to the romanized forms. Such works as these are very welcome.

Prof. Asakawa's essays is a clear and concise account of Feudal institutions. It is very well done. M.

Gramatica Chino-Espanola. By Rev. Father P. A. Gonzalez, Agustinian Missionary of Southern Hunan (China). Quarto, 290 Pages. Printed by "The Central China Post," Hankow, 1917.

Those who have learned Chinese cannot help thinking that a Chinese Grammar is not a very necessary part of one's equipment to study the language, for as far as it is known, the Chinese have no idea of grammatical distinctions, as we are accustomed to, indeed, we do no know of any Chinese work on such a subject.

In China, a word may be used as a substantive, adjective or verb, the user following his own judgment, and its position only serves as a clue in what sense it should be understood.

Chinese, one of the most monosyllabic tongues known, is rich in ideographic symbols. Hence, the vulgar saying that other languages speak to the ear, while Chinese speaks to the eye.

Undoubtedly, to this fact is due that men like Giles, Wade, Parker and other well-known sinologues, who have eliminated from their work any serious mention of Chinese Grammar, although Abel-Remusat (French), Morrison (English), Bazin (French), 1854, Philo-Sinensis (Latin), 1842, Edkins (English), Rev. C. W. Mateer and some others, have bequeathed to us more or less classical attempts which are more confusing than practical, in our opinion.

It is, therefore, more to be admired, when we think of the enormous love-labour it represents to compile a Chinese Grammar, in Spanish, especially so. Unfortunately, must we confess regretfully, that very few of our compatriots dedicate themselves to this language, except in the case of a few Spanish Missionaries who reside in China, principally in Hunan and Fokien.

However, it is with natural pride that we go through this work, especially as it reminds us that it is not by any means the first attempt at a Chinese Grammar in Spanish. In fact, one of the first works of this kind ever written in any European language was "Arte de la Lengua Chinica, que vulgarmente se llama Mandarina," composed by

the Rev. Father Fr. Juan Rodriguez, of the same order as the Author of the book under review. This work does not seem to have ever been printed, but numerous copies have been taken from it, the original manuscript still existing in the Manila Agustinian Convent's Archives, and is specially mentioned in the "Monitor de Paris" of 1794. Besides this work, we know of one written in Spanish also, by the Rev. Father Fr. Juan Masip, of the Dominican Order, published in the beginning of the present century.

With Father Gonzalez's work, the Spanish Missionary possesses an extremely important adjunct to his vocabularies, which necessarily must help the student.

We regret though, that in our opinion, it would have been even more useful to the cosmopolitan population in China, had the romanisation used therein been Wade's, which is generally adopted and found the more easy to pronounce. Also we believe it would have improved it, if it did not contain that interminable series of accounts, which must necessarily puzzle the student. To demonstrate our opinion, we have picked up half a dozen words from page 72 of the work, dealing with adjectives :

		Gonzalez Romanizes :	Wade :
Thick leather	(厚皮)	heóu-p'î	hou p'i
Square table	(方棹)	fâng-chô	fang chuo
Cold water	(冷水)	lèng-suèi	leng shui
Unknown man	(生人)	sêng-rên	sheng jen
New	(新)	sîn	hsin
Small	(小)	siào	hsiao

As it can be seen, unless under the direct supervision of a native teacher, no foreigner, not even a Spaniard, can correctly pronounce these words, as given in the text.

Nevertheless, in Father Gonzalez's book, we can find many an excellent point and can unreservedly commend his work to the student.

Juan Mencarini.

Poetry. A Magazine of Verse. Chicago.

This number contains nine pages of translations of poems from Chinese Written Wall Pictures. They are under the joint authorship of Mrs. Florence Ayscough and Miss Amy Lowell.

We have often wondered whether it would ever be possible to bring out the beauties of Chinese poetry which is often in 'feet' and 'allusions,' Chinese poetry when translated appears abrupt or insipid : and one wonders whether a genius would ever arise to put things right. We cannot say that it has yet come but it may be on the way. In many ways Mrs. Ayscough is a pioneer, and this idea of hers to

extract all she can, and more than others thought they should, may be justified in the end. The character invites such a method as the one suggested : they seem to command such an attempt. I believe theological professors, men of a serious bent, often suggest to their students the study of the suggestive pictures of Hebrew words. Fertile ideas are wrapped within,—and sermons may be found in roots as well as stones. Feeling some interest in the translation of Chinese poetry we wish these authors well on the voyage they have embarked on; and trust they will land somewhere with an argosy full of valuable merchandise.

They hope that the *verses libres* will solve this difficulty of rendering Chinese poetry. We have read a most illuminating defence of the method by Miss Lowell. It is very suggestive and throws much light on this theme. Still being inexperienced it would be difficult to criticise it. And one of the chief mazes would come as to when it was time to turn back. What is the end of one line, and where the beginning of the next? The cadences arising from suitable and harmonious combination of words are not always apparent. It requires a strong hand and a firm mind to deal with such tempting misadventures as might ensue in these circumstances. As Dr. Johnson says, "he is too apt to lose his way in quest of mistaken beauties." Of course the Chinese protests vigorously against such a treatment. Itself being under rigid rules, and governed by inexorable laws it seems to object at every pore at the idea of being carried too many feet, or, being left as a short measure. At present we are neutral and stand by to wait and see. All neutrals are we confess, a bad lot, but for the time being necessity is laid upon us. M.

Letters to a Missionary. By R. F. Johnston. (Watts & Co.).

The well-known author of "From Peking to Mandalay," and "Buddhist China," in this book has entered on another field of literature—controversial theology.

The occasion for this departure is explained in his introduction. The author sympathized with the Rev. Stanley P. Smith in the dispute with the directors of the China Inland Mission over the question of the duration of future punishment, and entered upon a correspondence with him in regard to that subject.

From the fact that only the author's letters are published and not those of Mr. Stanley Smith, we surmise that Mr. Johnston's object was to give us a clear statement of his own views on certain theological questions connected with the Christian Religion.

The book is exceedingly interesting, and contains evidence of wide reading and continuous thought on the subject of religion. As the

author himself says, he writes "With brutal frankness," but at the same time he gives us a strong and lucid criticism of the Christian Religion as it appears to him. We are reminded of a similar book written by Mr. A. Michie, several years ago—"An Open Letter to Missionaries by a Candid Friend." It would be interesting to compare the two productions. Unless our memory is at fault Mr. Michie was rather more sympathetic with the missionary movement in China than Mr. Johnston appears to be.

The extended review which this book deserves would be more in place in a theological or philosophical magazine than in the Journal of the Royal Asiatic Society, and hence we feel obliged to curb our inclination to deal with all the questions raised by Mr. Johnston, and to confine ourselves to pointing out briefly some of the merits and defects of his arguments. The author is much incensed by the fact that the old fashioned view of a hell of endless duration is so widely preached in China, and wants to put a stop to what he considers an iniquitious propaganda.

He concludes his introduction with these words, "If the peoples of the West value the souls of the 'heathen' as highly as they profess to do they will surely prohibit a traffic which is just as morally indefensible as the trade in opium or cocaine."

The use of the word *traffic* is unfortunate as the missionary presents his teaching without charge and does not expect any monetary compensation.

Although his language is somewhat strong we feel much sympathy with the writer's moral indignation, but our regret is not caused so much by the fact that harm is being done to the people of China as by the fact that harm is being done to the cause of Christ. Statements of Christianity which are so much at variance with the spirit of the Master Himself must injure His cause, and retard the Christianization of the world.

It does not seem to us to be strictly in accord with facts to claim as the author does that the motive of fear is largely absent from the popular religion of China. In preaching hell, the missionary brings nothing new to China. In fact in order to express himself, and make his meaning intelligible to his hearers, he has to rely largely upon the vocabulary of the Buddhist religion.

On page 26, he criticizes some statements made in "Heathenism under the Searchlight," by W. Remfry Hunt, in regard to the Buddhists terrifying little children with pictures of hell. The statement may not be accurate, but surely the author must have seen the representations of the halls of purgatory to be found in many temples. It would be difficult to imagine anything more horribly cruel! Again

we repeat the pity of it is that instead of preaching the religion of infinite love, some zealous and sincere missionaries proclaim what appears to us to be a sad caricature of Christianity.

We would condemn as strongly as the author does the doctrines of a material hell and the eternal condemnation of those who die without faith in Christ. At the same time we feel confident that such teaching is on the wane and not on the increase. In general, theology on the mission field lags behind theology in the homelands, and is more conservative. We have noticed, however, a great change between the way Christianity is presented now and the way it was presented thirty years ago.

The eternal duration of punishment, preached by some, does not trouble the non-Christian world as much as the author supposes, for the idea of eternity is inconceivable by the human mind.

Although the author commends Mr. Smith for holding more moderate views in regard to future punishment, yet at the same time he is dissatisfied. He criticizes Mr. Smith for basing the belief on the teaching of Scripture. He would like his correspondent to agree to reject the doctrine of eternal punishment no matter what the Bible may have to say on the subject. In other words he is anxious to persuade Mr. Smith to reject the doctrine of the verbal inspiration of the Scriptures, and not to regard the Bible as an infallible authority. The author claims that the final source of authority must be the enlightened moral consciousness of the race (see page 63).

Here again we find much that we can endorse. According to our way of thinking the doctrine of the verbal inspiration of Scripture is responsible for much that has been a drag on the progress of human thought, and the evolution of a higher type of religion.

In our impatience with the doctrine, however, we do well to remember that man is mentally conservative by nature, and that when Protestantism revolted against the authority of the Church, it realized the danger of every one setting up his own creed, and of individualism running mad, and sought a new source of authority in the Scriptures. Modern cristicism has, however, won the victory. Calvinistic theology based on the fall of man is doomed by the fact that we can no longer regard the book of Genesis as history, and the substitutionary theory of the atonement is shaken when we remember that the Priest Code of the Old Testament dates back only to Post-exilic days.

The abandonment of the doctrine of the verbal inspiration of Scriptures removes a great incubus from the Church, and as George Adam Smith points out makes the belief in God as Christ revealed Him free from many difficulties. We do not, however, quite see the need of the insistence of the author that a belief in verbal inspiration

and a belief in eternal punishment are necessarily connected. There are as many passages in Scripture looking forward to the final destruction of evil as there are to the eternal separation of the good and the wicked.

In reading the first three letters of this volume one is led to think that the author is championing the cause of a more liberal theology, but he soon finds that such is not altogether the case.

After arraigning the old fashioned views of hell, the personal devil, and future punishment, he begins a tilt with the liberal theologians, the Broad Churchman, and the Modernist.

We regret that in his able satire upon his Satonic Majesty he failed to remember that ridicule is not argument. This is the only section of the book (Letter IV) which is somewhat marred by lack of reverence. We don't mean reverence for the devil, but reverence for the idea of God.

In his criticism of liberal theology, the author comes close to confusing Christianity and orthodoxy, or to put it in another way, he appears to think that being a Christian is the same thing as holding certain well defined theological propositions. This is a common mistake, but we would not expect to find it cropping out in the book of a man who is a close student of religion.

Jesus Christ undoubtedly taught certain great truths,—the Fatherhood of God, the value of the individual soul, free salvation for all, the Kingdom of God on earth, love and service of our fellowmen, life through death, and He claimed to speak with authority as Son of God and Son of Man, but He did not formulate any extensive creed. The test of discipleship which He gave was the following, "If any man will be my disciple, let him deny himself, and take up his cross and follow me." The human mind naturally tends to formulation, and hence it was natural that creeds came into existence, but it still remains true that Christianity is a life based on faith rather than an intellectual apprehension of mysterious doctrines.

The author appears to be as much disturbed by the re-interpretation of Christian doctrines as he is by the preaching of the doctrine of eternal hell.

Surely he must believe that truth is not static. It is something that lives and grows. The glory of the Christian religion is that it is capable of development and expansion. It does not like Mohammedanism arrest all advance in thought.

He raises the question as to whether a clergyman of the Church who feels bound to reinterpret old doctrines in the light of modern knowledge should retain his office. He does not charge those who do remain in the Church with dishonesty, but he appears to think that at least they are in a false position. We agree with him that one who

denies the fundamental verities of the Christian faith has no place in the Christian Ministry, but at the same time we hold that a very large amount of latitude should be allowed for the reinterpretation of the old creeds.

In "Form and Content in the Christian Tradition" by Sanday and Williams, Dr. Sanday makes the following statement :

"It is so with the Christian Faith. There are the great truths about God and Christ, there are the great fundamental experiences of the Christian life. These are permanent and unchangeable. And yet, the form under which we conceive of them must of necessity change, with the changing apparatus of thought through which they find expression. Every age has its own intellectual outfit. It can but use the tools that it has. When it is using the language of another age, it is like David in Saul's armour : it loses all its freedom and efficiency of motion."

The author naïvely suggests that because there is much variation in the interpretation of Christian doctrine, it would be a good thing if all who call themselves Christians could get together and come to some common agreement as to what Christianity really teaches before the attempt to convert the world is carried on any further.

Does he really believe that such a thing is possible? Can we ever think exactly alike in regard to religion? Having told us there is no infallible authority on earth, would he advise our setting one up?

We can only have glimpses of truth. As Dr. Sanday tells us we must leave room for an element of agnosticism. "Perhaps a better name than agnoticism would be a sense—a devout sense—of mystery."

At times it would appear as if the principal object of the author was to discredit Christianity, or at least to challenge its claim to become a world religion. On the other hand he admires the teaching of Christ, and we hardly feel justified in drawing this conclusion.

He evidently has a high esteem for Buddhism, but we take it that the Buddhism which attracts him is not the superstitious cult of the present day, but the teaching of Buddha himself. In passing a judgment on Christianity, should he not go back of the popular misrepresentation, to the great underlying truths?

F. L. Hawks Pott.

Recherches sur les Superstitions en Chine. Par le P. Henri Doré, s.j. IIIème Partie. Popularisation du Confucéisme, du Bouddhisme et du Taoïsme en Chine. Tome XIII. Chang-hai, 1918.

This is one of the most important and useful works in this important series. The substantial volume in hand deals with Confucianism

only, and as the title states, the attempt is not a critical study of the subject, but an exhibition of the actual beliefs of the Chinese themselves, taken as a whole. As we know, there is little attempt of any sort among the Chinese, with the exception of the school of Kang Yu-wei, to make critical studies of the Chinese classics; still less to judge on scientific principles what truth of history lies behind the accounts in the fragmentary form in which they have reached us. Foreign efforts in this direction have been usually governed by a wise restraint; the student was not criticising Holy Writ,—that is, not holy to him—in the interpretration of which there were vested interests which had to be considered; interests whose injury or destruction would bring sadness and despair to many hearts. But the best of such studies has little more than an academic interest, unless it becomes more than a fragment, and is integrated with later history in such a fashion that some historial wisdom, some ethical value, results for the reader. More useful for the student of national ethics is a work of the kind before us, wherein we learn many facts, not ordinarily accessible, about what living men are thinking and believing; the tales that move their hearts, the basis of their patriotism. As one reads, one begins to look forward eagerly to the volumes on Buddhism and Taoism. The work is also of greater probable value than some of the earlier volumes, interesting as these were. For one thing, it can have a kind of completeness not possible when one is trying to illustrate the inumerable sorts of local animistic superstitions. And whereas these vary with the region, and come and go with the years, the central ganglion for them all is the Confucian system, with its reverence for China's greatest man, and its memory of his disciples.

In detail, the work consists of an illustrated account, taken from popular sources, of the life of Confucius and of the lives of his four associates, his twelve disciples and his one hundred and twenty-eight lesser disciples; these being the sages whose tablets are to be found in the ordinary Confucian temple. The pictures are in the original colors, and follow the tradition in their subjects; so bound is Chinese art by the dead hand that present day pictures on these subjects largely reproduce the coloring, grouping and landscapes of these popular chromos. Other works furnish us with detailed descriptions of the Confucian ritual; the present work confines itself to collecting the biographical matter with which the average Chinese has acquaintance. The lack of an index makes the use of this work, and of the others in the series, somewhat difficult; doubtless that lack will be repaired in the last volume. We are glad to commend the work to the student, and to the general reader as well; whoever reads it will find the explanation of much that seems difficult to understand in the

Chinese mind; and in particular the young student will find it a most useful work. H. K. W.

List of Chinese-Moslem Terms. By Isaac Mason. Mission Book Co. 10 cents.

This useful list of terms is an amplification of one which appeared in the Recorder in 1892. A division is given of Miscellaneous : Transliterations : Names of Places, Persons, etc.

As a first step this little vocabulary will be a help. It will however bear addition and emendation. This will come in time. If a few notes had been added to show the comparative values of terms in Mohammedanism and other Chinese Religions it would have been valuable. For Example 寂滅 is a Taoist term, and if the term had been discussed from the Taoist and Mohammedan content it would have been serviceable. Again if the 五成 and such like had been specified it would have been better. There are some phrases so obscure that it was essential to have supplied some explanation of their origin, but this is lacking. The translation of some terms require confirmation as 諦言 which is translated "Confession of Faith." Should it not be *esoterism* or some such word? Under "Forbidden Practices" it would have been better to have inserted *fellow* before Moslem in each case. Under N we have *Nien Reflection* which is unintelligible 太極 is supreme Ultimate. But this is Confucian : what is the Mohammedan?

It would have been more *methodical* to have put all transliterations together, as it is we have Talmud, Torah, Usurvy, Sura left under *Miscellaneous*.

We have no doubt time will put these immaturities right.

The Chinese Isles of the Blest. By Major W. Perceval Yetts. Reprinted from Folk-Lore.

Major Yetts is quite a dealer in Taoist folk-lore. In this paper he takes us to the fairy land. He has made diligent search into all Chinese books, even if he hasn't tried to explore the coasts for the islands. He has also given a comparative study of the legends. Indeed he has dealt very solidly with an airy thing. M.

NOTES AND QUERIES.

The Honourable Mrs. Gordon writes to say "whole passages of Amido-Kyo have just been found in the Nestorian Stone Inscriptions writes Rev. A. Villion to me who (a fine Japanese scholar himself) with other scholars and native pundits has been working at it."

It is hoped to have rubbings with the identical passages marked in red ink in the course of time. Will any one interested in this communicate with the Editor?

The Editor is indebted to Prof. N. Gist Gee of Soochow for help in reading the proofs of the article on "The Agriculture, Botany and the Zoology of China."

The most interesting biography of Spencer F. Baird, by W. H. Dall, published by J. B. Lippincott Co., has been given to the Library. It does not concern China directly and we only mention it that readers may know the work can be seen in the Library.

Can any one explain the origin of the practice of the crossed toes of the Yunnanese? The country is still called the Chiao Chih Kuo (交趾). The Li Wang Chih says :—禮王制曰東方曰夷被髮文身又曰南方曰蠻雕題交趾西方曰戎被髮衣皮北方曰狄衣羽毛穴居. Han Wa Tsung Shu 白虎通禮樂

All communications and articles for the Journal should be addressed to the Editor.

Publishers and Authors who desire a review of their books should send them early. 2 copies of each work if possible : one for the Library ; one for review.

If any members have odd copies of Journals, Vols. III, IV, VI, VII, XV, XV, XXIII, the Secretary would be glad to purchase the same, as applications are occasionally made for whole sets for public libraries, and the numbers mentioned are out of stock. Will anyone who can put us in the way of securing copies of any or all of the volumes mentioned please communicate with the Secretary?

ADDITIONS TO THE LIBRARY.

JULY 1918—JUNE 1919.

(P)—Indicates Book presented.

052—F 44	The eighteenth Financial and Economic Annual of Japan, 1918.	(P)
059—Ch 8.1	Index to the China Review.	*Ferguson, J. C.* (P)
059—Ch 9	The New China Review.	*Couling, S. Editor*
059—Ch 15	The West China Missionary News.	
062—Ch 1	The China Bookman. (Issued quarterly).	(P)
128—C 51	Animism, the seed of religion.	*Clodd, E.* (P)
133.4—D 65	Recherches sur les Superstitions en Chine. Tome XIII.	*Doré, H.* (P)
172.4—C 11	Carnegie Endowment for International Peace. Year Book for 1917.	(P)
209—Ed 1	The Religious Condition of the Chinese.	*Edkins, J.*
215—T 78	The Creation and Sundry Pamphlets.	*Tse Tsan Tai* (P)
246—D 34	Studies in East Christian and Roman Art.	*Dennison, W. and Morey, C. R.* (P)
274.8—C 84	The Religion of Ancient Scandinavia.	*Craigie, W. A.* (P)
294.1—An 3	Buddhist Art in its relation to Buddhist Ideals with Special reference to Buddhism in Japan.	*Anesaki, M.*
294.1—R 34	Studies in Japanese Buddhism.	*Reischauer, A. K.*
294.1—Si 6	Esoteric Buddhism.	*Sinnett, A. P.* (P)
294.1—St 1	Korean Buddhism.	*Starr, F.*
297—M 11	List of Chinese-Moslem Terms.	*Mason, I.* (P)
297—T 34	Le Mahométisme en Chine et dans le Turkestan Oriental.	*Thiersant, P. D. de*
321.3—As 1.1	Some Aspects of Japanese Feudal Institution.	*Asakawa, K.* (P)
326.951—An 1	Slavery in China.	
336.2—H 86	The Land Tax in China.	*Huang, H. L.* (P)
338.6—M 84	The Guilds of China.	*Morse, H. B.*
341.2—C 95	Treaties, Regulations, etc., between Corea and other Powers, 1876-1889.	
398.3—L 11	Totemic Traces Among the Indo-Chinese.	*Laufer, B.* (P)
400—M 91	La Science du Language.	*Muller, M.*
495.1—G 59	Gramatica Chino-Espanola.	*Gonzalez, P. A.* (P)
495.1—M 13.11	Handbook of New Terms and Newspaper Chinese.	*Mateer, A. H.* (P)
495.1—St 3	Greek-Chinese-English Dictionary of the New Testament.	*Stuart, J. L.* (P)
495.11—H 52.1	An English-Chinese Dictionary of Peking Colloquial. (New Edition enlarged by S. Barton and E. Backhouse).	*Hillier, W.* (P)
495.11—H 52.11	The Chinese Language and How to learn it.	*Hillier, W.*
524—N 11	Chên-shan Meteorological Observatory of Nantung, Summary Annual 1917	*Nantung,* (P)
526—Un 1	Annual Report of the Superintendent U.S. Coast and Geodetic Survey to the Secretary of Commerce for the Year ended June 30, 1918.	(P)

551.52—G 11	La Temperature en Chine et á Quelques Stations Voisines. 3 Vols.	*Gauthier, H.* (P)
553.8—P 11	An Imperial Necklace.	(P)
589.2—G 27	Some Interesting Chinese Fungi.	*Gee, N. G.* (P)
591.9—An 1	Camps and Trails in China.	*Andrews, R. C. and Andrews, Y. B.*
591.9—So 9.1	Sport and Science on the Sino-Monogolian Frontier.	*Sowerby, A. de Cal.* (P)
593.16—Sk 9	The Flagellata of Manchuria, Part I, (in Russian).	*Skvortzow, B. W.* (P)
610—R 53	Index to Dr. F. Porter Smith's Materia Medica of China.	*Rosenbaum, S.* (P)
622—C 63	Mineral Enterprise in China.	*Collins, W. F.*
622—J 11	Jaarboek van het Mijnwezen in Ned. Oost-Indië. Jaargang 1915, 1916, Verhandelingen.	(P)
622—J 11.1	Jaargang 1914, 1915, Algemeen Gedeelte, and Atlas 1915.	(P)
652—L 12	Origin of Tibetan Writing.	*Laufer, B.* (P)
677—M 92	Rugs and Rug Making.	*Mumford, J. K.* (P)
677—M 92.1	Chinese Rugs.	*Mumford, J. K.* (P)
677—Od 2	Cotton Goods in China.	*Odell, R. M.*
691.3—En 3	Engineering Society of China, Report of the Special Committee on Reinforced Concrete.	(P)
737—D 11	Ancient Chinese Paper Money as described in a Chinese Work on Numismatics.	*Davis, A. McF.* (P)
738.51—L 36.1	Catalogue of a Collection of Ancient Chinese Snuff-Bottles.	*Laufer, B.* (P)
738.51—P 11	Chinese Pottery of the Han, T'ang, and Sung dynasties owned and exhibited by Parish-Watson & Co.	(P)
759.9—An 1	Treatise on Bamboo-drawing, (in Chinese).	
759.9—Ay 3.11	Chinese Painting.	*Ayscough, F.* (P)
759.9—G 37.1	History of Chinese Pictorial Art, Second Edition, 1918.	*Giles, H. A.* (P)
759.9—H 42	Ajanta Frescoes being Reproductions in Colour and Monochrome of Frescoes in some of the Caves at Ajanta after copies taken in the Years 1909-1911.	*Herringham, Lady*
890.521— 65	Roman Coréen.	*Hong-Tjyong-Ou*
895.1—Oo 1	Dictons et Proverbs des Chinois Habitant la Mongolie Sud-ouest.	*Oost, J. van* (P)
895.11—Ay 3	Poems from the Chinese.	*Ayscough, F. and Lowell, A.* (P)
895.11—G 38	Tiles from the Porcelain Tower.	*Gilchrist, Ed.* (P)
895.11—J 87	Contes et Apologues Indiens inconnus jusqu'a ce jour suivis de Fables et de Poésies Chinoises.	*Julien, S.*
895.11—W 12	A Hundred and Seventy Chinese Poems.	*Waley, A.*
895.18—T 32	La Piété Filiaé en Chine.	*Thiersant, P. D. de*
895.18—W 38	The Kan Ying Pien or Book of Rewards and Punishments.	*Webster, J. trans.*
913.51—J 11	The Chinese and Japanese Sculpture.	(P)
913.54—F 82	The Beginnings of Buddhist Art.	*Foucher, A.*
913.54—In 1	Archaeological Survey of India, Part I. Annual Report of Director-General, 1916-17.	(P)

913.54—In 1.1	Part II. Annual Report of Work in Progress, 1915-16.	(P)
913.54—K 11	The Astronomical Observatories of Jai Singh.	*Kaye, G. R.* (P)
913.54—M 11	A Guide to Sanchi.	*Marshall, J.* (P)
913.54—M 11.1	A Guide to Taxila.	*Marshall, J.* (P)
915.1—D 54	The New Atlas and Commercial Gazetteer of China.	*Dingle, E. J. Editor*
915.1—H 86.11	The Chinese Empire. 2 Vols.	*Huc, M.*
915.1—J 11	An Official Guide to Eastern Asia. Vol. I. Manchuria and Chosen.	
915.1—J 11.1	Vol. IV. China.	
922.3—J 57	Griffith John the Story of Fifty Years in China.	*Thompson, R. W.*
923—R 35	Rizal's own Story of His life. Edited by	*Craig, A.* (P)
923—R 35.1	La Religion de Rizal.	*Rizal, J.* (P)
923.7—C 34	Edouard Chavannes.	*Cordier, H.* (P)
925—B 11	Spencer Fullerton Baird. A Biography.	*Dall, W. H.* (P)
928—C 34	Edouard Chavannes.	*Laufer, B.* (P)
951—M 84.11	The International Relations of the Chinese Empire, Vol. II. The Period of Submission 1861-1893.	*Morse, H. B.* (P)
951—M 84.12	Vol. III. The Period of Subjection 1894-1911.	*Morse, H. B.* (P)
951—P 22.1	China : Past and Present.	*Parker, E. H.*
951.9—An 1.13	To Foreign Friends and Well Wishers of China.	(P)
951.9—An 1.14	The Sino-Japanese Crisis, 1915.	
951.9—C 57	The Far East Unveiled an inner history of Events in Japan and China in the Year 1916.	*Coleman, F.*
951.9—Ea 6	The English in China.	*Eames, J. B.*
951.9—G 26	La Mission en Chine.	*Gerard, A.*
951.9—H 66	Les Bases Conventionnelles des Relations Modernes entre la Chines et la Russie.	*Hoo Chi Tsai.*
951.9—Or 2	Foreign Financial Control in China.	*Overlach, T. W.* (P)
951.9—Sm 1.12	China in Convulsion. 2 vols.	*Smith, A. H.*
951.9—W 56	China and the World War.	*Wheeler, W. R.* (P)
952—W 12	The Romance of A Nation, A History of Japan.	*Warner, H. D. and Millard, F.*
957—G 56	Russian Expansion on the Pacific 1641-1850.	*Golder, F. A.*
959.7—G 36	L'Empire d'Annam.	*Gosselin, Ch.*
991.4—St 9	Relations of Philippine History of Times Preceding the Spanish Conquest.	*Stuard, Baron de* (P)
	The Wilson Bulletin. Vol. XXX, Nos. 1-4.	(P)
	Proceedings of the National Academy of Sciences of the United States of America. Vol. III, 1917.	(P)
	International Trade Developer, July 1918.	(P)
	The Nineteenth Century, (Bound) Vols. I—XLIII, XLV—L, and (Unbound Vols. LI—LXXVII) = Nos. 300, 303, 305, 309, 310, 312-322, 324, 326-334, 336, 338-351, 354, 357, 359-367, 369-374, 376-394 396-407, 410, 412-423, 425-431, 433-437, 439-442.	(P)

The Annals of the American Academy of Political and Social Science, Vol. XXXIV, No. 2, (1909), Vol. LIX, (1914), Vols. LXI, LXII, (1915), Vols. LXIII-LXVI, LXXVIII, (1916), Vols. LXIX-LXXIV, (1917), Vols. LXXV-LXXX, (1918), and Vols. LXXXI, LXXXII, (1919).		
Supplement to the Annals of the American Academy of Political and Social Science, 1916, 1917, and 1918.		(P)
Lectures in Biology (Chinese language).	*P. M. Bayne, M.A.*	(P)
The Chinese Isles of the Blest.	*W. P. Yetts*	(P)

Obituary.

EDOUARD CHAVANNES.

Sinology has suffered a great loss by the death of Edouard Chavannes. Our society, of which he was an honorary member for so many years, has keenly felt this bereavement and mourn him together with those who know to appreciate the very considerable work which Chavannes has accomplished with regard to the development of sinological studies during the last thirty years.

The ordinary reader is rather ignorant as regards this point and this is hardly to be wondered at considering the fact that even the most remarkable specialists rarely get into touch with the general public. It is, on the other hand, to be regretted, that a far too large proportion of those who write on things Chinese do not know all the claims which Chavannes has on their gratitude. His modesty, his horror of everything which resembled publicity and advertising have certainly something to do with this, but is it not necessary also to incriminate the indifference of some of those who make it a profession to take an interest in things Chinese?

As regards the Sinologues they at least know what to think of Chavannes. One of them, a worthy descendant of the Jesuit missionaries who in the 18th century laid the foundations of the sinological science, has said : "Chavannes is at the very pinnacle of sinology." Shortly before the war a German orientalist announced that "Chavannes had made sinology a French science." It is furthermore known that the famous explorer Sir Aurel Stein has chosen Chavannes, amongst all sinologues, to translate the wood slates which he had excavated from the sandy wastes of Turkestan—precious documents which date back to the beginning of the Christian era.

Chavannes could have gloried in these, and so many other proofs of admiration which he received in the course of a brilliant career.

Born in 1865 he entered when still quite young the "Ecole Normale" so as to prepare himself for his examination for the fellowship of philosophy. He had hardly left the school before he set out for China.

Let us now give the word of one of those who have lived near him and who have known him well—undoubtedly a pupil, certainly an enlightened friend, who has published in the "Temps" the following lines :

"His first works, published in 1890, announced the coming of a master. He returned from Peking at the age of 28 (in 1893) to occupy at the Collège de France the chair of Abel Rémusat and

Stanislas Julien. His colleagues had elected him confident that he was entitled to the position, without personally knowing him, even without having seen him, an exceptional privilege, even more surprising in the case of so young a man. Ten years later he entered the 'Institut de France.' In the interval the 'Société Asiatique' had invited him to take the place of Darmesteter as its secretary, a position which Darmesteter had himself occupied in succession to Renan. Loaded with all the favours of fortune he possessed in addition to all these honours the exquisite pleasures of the happiest of home-lives. Nevertheless, in 1907, at the age of 42 when his health had already suffered a serious setback, he tore himself away from the delights of his fire-side and of society to return to China; his voyage which had been carefully prepared by long researches, was crowned with splendid results.

"It is difficult to form an adequate idea of the labour which underlies the rapid stage of this brilliant career. Chavannes had from the beginning assigned himself as the maintask of his life to translate the historical memoirs of Sseu-ma Ts'ien, written during the second century before Christ, which contains in a brilliantly conceived monumental work all the classics of China and which has served as a model for all historians of later Periods. He has not been able to accomplish this heavy task, interrupted at the publication of the fifth volume, but it may be said, that all his other works, irrespective of their varied nature, have Sseu-ma Ts'ien as their centre of gravity.

The classical education had taught him that the narrations of the ancient historians, regardless of how scrupulous they may be, must be accepted with great caution and that means for their control are within reach of the conscientious scholar : the sculptured monuments and the inscriptions more especially furnish valuable evidence. The work might seem easy; the Chinese do not possess the historical sense which endeavours to establish positive connections between scattered facts and between the order of happenings, but they possess, on the other hand, a craving for historical knowledge which passionately attaches them to the monuments of the past. They have compiled enormous treaties on archeological and epigraphical subjects containing a wealth of material; but the scrupulous conscientiousness of Chavannes refused to rest satisfied with documents of doubtful authenticity; he would only make use of originals. His first sojourn in China resulted in a book which to-day is considered classical. Twenty years later, following another voyage, he published his 'Archeological Mission to Western China' which was hailed as a materpiece and which has caused a renaissance of our knowledge of Chinese art.

"Buddhism occupies an important place among the factors of Chinese art. Introduced in China during the first century of the

Christian era, Buddhism brought in its wake the traditions and the sciences of its Indian cradle, augmented by contributions from Greece and Iran which it had absorbed during its passage west and east of Pamir. It is by Buddhism that China definitely enters the history of the world; hazardous speculations have tried to connect her much earlier with the civilizations of the Near East, but it is only in connection with Buddhism that facts become obvious, numerous, continuous. Chavannes applied his diligent patience to map out the stages of this so fertile movement; he studied the biographies of the pilgrims who went from China to India and from India to China to seek or to propagate the divine revelation, defying all obstacles, braving the dangers of the mountain, the desert, the ocean. In a collection of three volumes he gathered together 500 tales and moral fables of Indian origin which the preaching of buddhists had made popular in the Middle Kingdom. He gathered in a volume which the Academy of Petrograd esteemed it an honour to publish, all the texts which throw light on the history of the western Tou-Kieue's, that Turkish people which was on equally good terms with Byzantium and Persia, the Indian Rajahs and the Son of Heaven, open to every influence, welcoming every creed, bonzes as well as monks, Nestorians as well as Manicheans. Gradually, almost without being aware of it, Chavannes had annexed Central Asia."

It is to this great savant that Sir Aurel Stein rendered hommage by handing him for publication his documents on Central Asia.

"It is impossible to pretend to mention here, even summarily, all the varied activities of this indefatigable worker. The savant who has the courage to consecrate himself to special studies too far removed from the public, must before entering his career, abandon all hope of becoming popular; a too great want of knowledge separates him from the ordinary reader. Nevertheless Chavannes had a right to aspire after social success, had he desired to do so; an article on Confucius in the 'Revue de Paris,' a lecture at the Academy on the rewards of virtue in China show what he would have been able to accomplish. An elegant teacher, a harmonious speaker, rich in broad vistas and ideas he could attract and fascinate vast audiences. He preferred to continue his daily task in solitude, supported by the estime of his peers and the respectful affection of his pupils.

"The explanation is this, that in Chavannes the man and the scholar were inseparable; the intelligence blended with the character. The blue limpidity of the eyes, the graveness, so easily unbent, of the handsome face revealed the perfect balance of a delicate sensibility and a vigorous rationality. Arrogance was unknown to him; he listened with a respectful attention to opinions which might save him from

errors or enable him to rectify them. Truth, truth alone mattered to him; no effort seemed too great to him to attain it. . . .

"Chavannes was not only the first sinologue of our days; by his powers of lucidity, order and simplicity, by the perspicacity of intuition combined with the stubborn researches of erudition he continued the lineage of savants as Abel Rémusat and Eugène Burnouf."

IN MEMORY OF ARTHUR EVANS MOULE.

Many of our readers will have heard with sincere sorrow of the death of Archdeacon A. E. Moule, who was for many years a well known, loved, and respected figure both at Shanghai and at Ningpo.

Arthur Moule, sixth son of the late Henry Moule, was born at Fordington Vicarage near Dorchester on 10th April, 1836, and like his brothers, of whom the two survivors are Charles, President of Corpus Christi College, Cambridge, and Handley, Bishop of Durham, was educated at first at home. Unlike his brothers he did not go to Cambridge, but continued his education at a College in Malta and then at the Church Missionary Society's College at Islington. In later life however the Archbishop of Canterbury conferred on him the degrees of B.D. (1881) and D.D. (1912) in recognition of his very distinguished missionary and literary work. In 1861 he married Agnes the daughter of J. H. Bernau, one of the noble band of pioneer missionaries who worked under the C. M. S. in its early years, and himself joined the C. M. S., reaching Ningpo in August 1861 when the T'ai-p'ing rebellion was at its height. He was in the city of Ningpo on the eve of its capture (8th December, 1861) and in the Settlement during its occupation by the rebels till May the next year. This exciting beginning to his life in China made a lasting impression on his mind, and to the end he delighted to tell the story of those far off days. He stayed at Ningpo, with one furlough (1869-1871) until 1876, when for about two years he was put in charge of the mission work at Hangchow. During those two years he made the acquaintance of a man named Chou, and through him began the mission work in the District of Chu-chi, one of the most interesting and successful fields in the Chekiang mission. While at home in 1879 he was offered the new bishopric of Mid-China, formed out of the vast diocese then vacant by the death of Bishop Russell. With a fine sense of propriety which was at once characteristically Christian, Chinese, and his own, he refused to be Bishop of a diocese in which his elder brother would be a simple

priest; and in 1882 he followed that brother, made Bishop in his place, to China as Archdeacon.

The next thirteen years, broken by a short furlough, were spent at Shanghai, where the Archdeacon won for himself a position among both English and Chinese which will not soon be forgotten. A serious break-down of health compelled him to return to England in 1894, and it was not until 1902 that he was able to come back to China. He then settled again at Ningpo, and pursued his beloved work of preaching the Gospel with a zeal and physical energy which many a younger man might envy. In 1908, however, he accepted the living of Burwarton in Shropshire; though still to pay one last visit to China in 1909-10; and indeed he was ready to go back there if necessary until the return of his illness in 1917. Old age had compelled him to resign his living in 1915, and the last years were spent with his youngest son at Weymouth, with many journeys at first to speak and preach for the missionary cause, and long visits to another son at Damerham Vicarage in Wilts. It was in this latter house that he peacefully passed away at noon on 26th August, 1918; and on the 29th he was laid to rest in the churchyard there within sight of the woods of his loved Dorset and of Wiltshire Downs.

No account of Arthur Moule would be at all just which did not praise his wife, his absolutely inseparable companion and never-failing helper in his work and in his home, in sickness and in health, through fifty-seven years, and his children too, of whom six sons and three daughters survive him,—Walter, principal of Ningpo College and Archdeacon in his Father's room, Arthur (the eldest son) and Willie, famous at Shanghai as missionaries and cricketers, Horace in the translating and editorial department of the Bible Society's House in London, Herbert, Vicar of Damerham, and Ernest at Weymouth College, the two last formerly in Japan, and their sisters well-remembered in Shanghai. For those who knew him no words are needed and for those who did not know him no words are really able to describe his eager manner, his kindliness and humour, his way with little children, his look, his walk, his smile.

The Archdeacon was for some years a member of our Society, but did not contribute to the *Journal*. Though a fluent and able speaker of Chinese and a contributor of many hymns as well as commentaries and other books to Chinese Christian literature, he never did very much in the way of technical or antiquarian Chinese study. In English he was a most eloquent and persuasive preacher and speaker, and a prolific writer both of verses, of which he published several small volumes, and of the most readable and valuable books on China of which several are quite certain long to survive their author.

The following is a complete list of his published works in English :—

Four Hundred Millions. London, 1871 [1870]

The Service of Song. Dorchester, 1871.

The Joyful Sound. Dorchester, 1871.

The Opium Question. London, 1877.

The Use of Opium. Shanghai, 1877.

The Story of the Che-kiang Mission. London, 1878, 1879, 1885, 1891.

Songs of Heaven and Home. London, 1879, 1890, 1905.

Chinese Stories. London, 1880.

'Ask, and it shall be given you'; a sermon preached in Lincoln Cathedral. London, 1881.

China as a Mission Field. London, 1881, 1891.

The Responsibility of the Church as regards the Opium Traffic with China. London, 1881.

Personal Recollections of the T'ai-p'ing Rebellion. Shanghai, 1884.

Reasons for the Hope that is in us. Shanghai, 1884; London, 1891.

The Credibility of the Miraculous. Shanghai, 1885.

Twenty-five years in East and West. Shanghai, 1885.

'Fear God and honour the King'; a sermon preached in Holy Trinity Cathedral, Shanghai, at the Jubilee Thanksgiving Service. Shanghai, 1887.

Reminiscences of Mission Life in China. Shanghai, 1890.

The Glorious Land. London, 1891.

New China and Old. London, 1891, 1902.

The Value of Attention to Chinese Etiquette. Shanghai, 1892.

Looking Backwards. Shanghai, 1902.

The World's Famine; a sermon preached before the University. Cambridge, 1893.

Medical Missions in China. London, 1894.

The China Mission. London, 1902.

Tufts and Tails. London, 1903.

The Story of the Mid-China Mission. London, 1904.

Verses. Tokyo, 1907.

Young China. London, 1908.

Ningpo (Ancient and Modern; under the T'ai-p'ings); Confucius. Shanghai, 1909.

Half a Century in China. London, 1911.

The Splendour of a Great Hope. London, 1911.

Poems 1907-1913. Dorchester, 1913.

The Chinese People. London, 1914.

City Hill and Plain, 1917.

And many articles in books, magazines, and journals.

TIMOTHY RICHARD.

A familiar figure has disappeared from our meetings; and a representative man from foreign life in China. Dr. Timothy Richard died suddenly in London on April 17th after an operation, in the 74th year of his age. He spent much time on his father's farm in his youth, gaining such education as the state of the country then offered, which was very different from the opportunities of the present day. Later he entered the Baptist College at Haverfordwest to prepare for the ministry. This somewhat incomplete scholastic preparation was compensated for by native genuis, and by the romantic impressions of the Tao stamped on his mind by nature as he communed with the hills and valleys of his native place. Whether it arose from this harmony and peace of nature or was a development of his religious training there appeared early in his career the desire of the immediate application of the Kingdom of Heaven to earthly needs. The grinding at the dead languages was not long persevered in. They seemed purposeless to an eager spirit. This showed that Dr. Richard had the poineer spirit. This compelled him, as it did John the Baptist, to go forth into the Wastes of the world. When he arrived in China the same spirit led him to abandon the rendezvous of missionary societies, who located themselves in the Treaty Ports, and to enter the Interior,— and get to the people. When he did get there he again departed from the usual custom and went out of the beaten track—he sought the Worthy, the spiritually elect of the people : and once more he broke away from routine and custom by appealing to leaders in authority. In all this he was following apostolic injunctions and historical examples as he thought. Another new idea took possession of his mind, arising from the premises offered by the foregoing, and that was Conversion by the Million. It was not quite easy to say what this really meant, except that if the Chief is induced to accept the Gospel, he would see to the rest. This did not necessarily abandon the individualistic idea of evangelicalism. These departures are mentioned to show Dr. Richard's trend of mind. The same tendency is seen, although it appears from a different point of view, in his Catholic spirit. He would include all. Possibly in this he was different from the disciples that penetrated and captured the Roman Empire. They were intolerant of anything else because of a great purpose and love in their own message. Dr. Richard was most tolerant of all religions that had tried to comfort humanity. They were exclusive in face of the immorality of the Roman religions, he was inclusive because he saw a benevolence and morality in the great religion of the East. His last booklet was an appeal to Buddhists on common grounds. His final article was a League of Religions. He

saw the good in all; there was no incongruity in flowers of different hues growing together in the garden of God. His understanding was nature trained and lacked the strict logic of the human mind.

This general attitude of mind made him a worthy Representative man. The approach was easy for him, the reception sincere from them. A broad sympathy broke down barriers. The difficulties of colour, language, custom, civilization vanished. There remained the cardinal virtues and common sentiments. These were enough to begin and end with. There was a great deal of the Tao idea in Dr. Richard's mind and manner. Without pinning him to that sect in any way, there was something of the true Taoist about him. Yet whilst he believed that truth would spread by inaction nevertheless he was a man of immediate action. The Kingdom of God therefore was for immediate possession. He was not concerned with theology as such but the immediate possession of the benefits of the Kingdom was an urgent necessity. Let it be planted at once. Other great ideas followed, one of which was International Peace. War was of the savage age. A United States of the World and the Parliament of man was a favourite idea. The savage state of the world was fed by ignorance. Therefore education should be encouraged. That was the great panacea. Therefore such an institution as ours would appeal to him. It was a link between East and West: it was a centre of information and enlightenment. It cherished the past and sought guidance for the future from it. Possessing this temperament it is easy to see that he was also an International man. This he was in feeling, in purpose, and knowledge. He knew the leading men of Japan, and other countries. He was a strong link in this human brotherhood. An official is an official, a merchant a merchant, and the missionary is concerned with a propaganda; all these are hampered by their professions. Dr. Richard without losing his missionary identity in any way, yet soared beyond—the Taoist Spirit again taking possession, and thus he became a valuable international asset. The Chinese appreciated Britain all the more through knowing him. He was an ornament to his nation; he was a commender of the Christian faith. Thus without possessing dogma he became a valuable factor in the work of mediation.

He was a lover of Books. They were his friends. This arose from his catholic spirit, I imagine. He liked to hear other opinions. Books spoke to him. They supplied him with fertile ideas. He had always new ideas on hand. This catholicity and receptivity helped to increase the comprehensiveness of his mind without anchoring him to any fixed dogma.

EVAN MORGAN.

NORTH-CHINA BRANCH
OF THE ROYAL ASIATIC SOCIETY

LIST OF MEMBERS 1919

Members changing address are earnestly requested to inform the Secretary at once.

Name	Address	Year of Election

Honorary Members.

Cordier, Prof. Henri	Ecole speciale des Langues orientales vivantes, Paris	1886
Couling, S., M.A.	Medhurst College, Shanghai	1894
De Groote, Dr. J. J. M.	Leyden, Holland	1887
Ferguson, Dr. John C.	91 Arlington St. Newton, Mass. U.S.A.	1896
Giles, Prof. Herbert Allen	Selwyn Gardens, Cambridge ...	1880
Hirth, Prof. F.	Columbia University, New York City	1877
Hosie, Sir Alexander, K.C.M.G. ...	Foreign Office, London	1877
Lanman, Prof. Charles B.	Harvard University, Cambridge, Massachusetts	1908
Lockhart, Sir J. H. Stewart, K.C.M.G.	Weihaiwei	1885
Morse, H. B., LL.D.	Arden, Camberly, England	1888
Parker, Prof. E. H.	14 Gambier Terrace, Liverpool ...	1877
Putnam, Herbert	Library of Congress, Washington	1908
Sampatrao, H. H. the Prince ...	Gaekwar of Baroda, India	1898
Satow, Rt. Hon. Sir E., G.C.M.G.	Beaumont, Ottery St. Mary, Devon	1906
Warren, Sir Pelham, K.C.M.G. ...	Woodhead & Co., 44 Charing Cross, London	1904

Name	Address	Year of Election

Corresponding Members.

Fryer, Prof. John	University of California, Berkely, California	1886
Gardner, C. T., C.M.G.	Foreign Office, London	1900
Jamieson, George, C.M.G.	110 Cannon Street, London	1868
Little, Mrs. Archibald	150 St. Jame's Court, Buckingham-gate, London	1906
Volpicelli, Z. H.	Italian Consulate, Hongkong ...	1886
Williams, E. T.	Washington	1889
Williams, Prof. F. W.	135 Whitney Avenue, New Haven, Connecticut	1895

Members.

(*The asterisk denotes Life Membership*)

*Abraham, R. D.	36 Peking Road, Shanghai	1914
Acheson, Guy	Inspectorate General of Customs, Peking	1908
Adamson, Mrs. A. Q.	8 Jessfield Road, Shanghai	1919
Adolph, W. H., PH.D.	Shantung Christian University, Tsinan Fu	1917
Alway, Mrs. C.	*c/o* Butterfield & Swire, Tsingtao	1917
Ancell, Rev. B. L.	Am. Church Mission, Yangchow ...	1911
Archer, Allan	British Consulate, Tsinanfu, Shantung	1915
Arlington, L. C.	Chinese Post Office, Hangchow ...	1917
Arnold, Julean H.	American Legation, Peking	1904
Ayscough, Mrs. F.	20 Gordon Road, Shanghai	1906
Bahnson, J. J.	G. N. Telegraph Co., Shanghai ...	1909
Bahr, P. J.	165A N. Szechuen Road, Shanghai	1909
Bahr, A. W.	Montross Gallery, 550 Fifth Avenue, New York	1909
Barrow, E. P. Graham	Cathedral School, Shanghai	1915
Barton, S., C.M.G.	British Legation, Peking	1906
Bateman, Rev. T. W.	C. M. M. Chungking, Sze.	1916
Bates, J. A. E.	3A Yü Yuen Road, Shanghai	1919
*Bayne, Parker M.	West China Union University, Chengtu	1911
Bazin, J. Hervé	Aurora University, 55 Avenue Dubail, Shanghai	1917
*Beauvais, J.	Consul de France, Canton	1900
Beebe, Dr. R. C.	5 Quinsan Gardens, Shanghai ...	1889
Belcher, H. B.	Foochow	1917
Beltchenko, A. T.	Russian Consulate, Hankow	1918

Name	Address	Year of Election
Bendixsen, N. P.	G. N. Telegraph Co., Peking ...	1913
Bennett, E. S.	4 Devonshire Villas, North Parade, Belfast	1918
Benjamin, Mrs. M.	25 Avenue Edward VII, Shanghai	1919
*Bessell, F. L.	Customs, Tientsin	1905
Beytagh, L. M.	Ilbert & Co., Shanghai	1910
Billinghurst, Dr. W. B.	8B Peking Road, Shanghai	1908
Bishop, C. W.	University Museum, Phila. Pa. U.S.A.	1919
Black, S.	G. N. Telegraph Co., Peking ...	1910
Blackburn, A. D.	H.B.M.'s Consulate-Gen., S'hai ...	1917
Blake, C. H.	3 Route Ghisi, Shanghai	1914
Blickle, K.	Slevogt & Co., 11 Soochow Road, Shanghai	1911
Bois-Reymond, Prof. Dr. C. du	41 Seymour Road, Shanghai	1907
Bondfield, Rev. Dr. G. H.	B. and F. Bible Society, Shanghai	1900
Bosworth, Miss S. M.	18 Peking Road, Shanghai	1919
Bowra, C. A. V.	Chinese Maritime Customs, Peking	1897
Bowser, Miss H. C.	143 N. Szechuen Road, Shanghai...	1914
*Box, Rev. Ernest	Medhurst College, Shanghai	1897
Bradley, H. W.	Chinese Maritime Customs, Hankow	1912
Brandt, Carl T.	*c/o* Sweetmeat Castle, Shanghai ...	1896
Bremner, Mrs. A. S.	*c/o* The Chartered Bank, Shanghai	1909
Bristow, H. B.	H. H. Bristow, British Consulate-Gen., Hangchow	1897
Bristow, H. H.	British Consulate, Hangchow ...	1909
Bristow, J. A.	Standard Oil Co., Shanghai	1914
Brooke, C.	Nestle's Milk Co., 8 Nanking Road, Shanghai	1918
Brooke, J. T. W.	Davies & Brooke, Shanghai	1915
Browett, Harold	22 Yuenmingyuen Road, Shanghai	1891
*Brown, Sir J. McLeavy, C.M.G.	Chinese Legation, 59 Portland Place, London, W.	1865
Brown, Thomas	La Roque, Sutton, Surrey	1885
Bruce, Col. C. D.		1900
*Bruce, Edward B.	80 Wall St., New York, U.S.A. ...	1918
Bruce, Rev. J. P.	Shantung Christian University, Tsinan	1916
Brune, H. Prideaux	British Legation, Peking	1914
Bryant, P. L.	6 Kiukiang Road, Shanghai	1917
*Buckens, Dr. F.	21 Minami Yamato, Nagasaki ...	1915
Burdick, Miss S. M.	Baptist Mission, West Gate, S'hai	1909
Burkill, A. W.	2 Kiukiang Road, Shanghai	1912
Burkill, Mrs. A. W.	2 Kiukiang Road, Shanghai	1912
Burns, Mrs.	*c/o* Am. Trading Co., 319 Avenue Joffre, Shanghai	1916
Cambiagi, Miss Y. G.	*c/o* Mrs. Levy, 16 Route des Soeurs, Shanghai	1918
Carl, Francis A.	C. M. Customs, Canton	1906
Carter, J. C.	Mactavish & Co., Shanghai	1912
Cassat, Rev. Paul C.	Shantung Christian University, Tsinan	1916
Chatley, Herbert	450G Avenue Joffre, Shanghai ...	1916

Name	Address	Year of Election
Chatley, Herbert, D.Sc.	450c Avenue Joffre, Shanghai	1916
Ch'ên Kuo-ch'uan	403 Hardoon Road, Shanghai	1913
Christiansen, J. P.	G. N. Telegraph Co., Nagasaki, Japan	1913
Claiborne, Miss Elizabeth	4 Thibet Road, Shanghai	1908
Clark, J. D.	Shanghai Mercury, Shanghai	1895
*Clementi, C.	Govt. Secretary's Office, George Town, British Guiana	1905
Coales, O. R.	British Consulate-Gen., Chengtu	1906
Cockell, Capt.	20 Kiukiang Road, Shanghai	1919
Cole, Rev. W. B.	M. E. M. Hinghwa	1917
Commys, A. J.	Custom House, Shanghai	1919
Couling, Mrs. S.	Medhurst College, Shanghai	1916
Coursier, Mme	54 Route Doumer, Shanghai	1915
*Cousland, Dr. P. B.	16 Bluff, Yokohama, Japan	1908
Craig, A.	The University, Manila	1914
Crow, C.	17 Museum Road, Shanghai	1913
Cunningham, Rev. R.	C.I.M., Takutang, Kiangsi	1913
Cupelli, M.	Maritime Customs, Shanghai	1918
Cushnie, G. S. B.	North China Insurance Co., S'hai	1916
Danton, G. H.	Tsing Hua College, Peking	1918
*D'Anty, Pierre Bons	French Consulate, Chungking	1889
*Davidson, R.	*c/o* Mrs. Frew, 66 Leamington Terr., Edinburgh	1914
Davis, Dr. Noel	Municipal Offices, Shanghai	1910
Dent, V.	203 Avenue de Roi Albert, S'hai	1912
*Deas, W. S. P.	Butterfield & Swire, Shanghai	1919
Denham, Mrs. J. E.	30 Connaught Road, Shanghai	1919
Dingle, Edwin J.	Far Eastern Geographical Establishment, Shanghai	1917
Dingle, Lilian M.	Box 323, B. P. O., Shanghai	1917
Dodson, Miss S. L.	St. Mary's Hall, Jessfield	1917
Donald, William H.	Far Eastern Review, Shanghai	1911
Dorsey, W. Roderick	U.S.A. Consular Service, Rangoon, India	1911
Dovey, J. W.	Mission Book Co., Shanghai	1918
Dowie, Robert G.	Ellis Kadoorie School, Shanghai	1906
Drago, G. D.	350 Park Avenue, New York	1918
*Drake, F. E.	Peiyang University, Tientsin	1911
*Drake, Noah F.	Fayetteville, Arkansas	1905
*Drew, E. B.	Cambridge, Massachusetts	1882
Du Monceau, Comte L.	Russo-Asiatic Bank, Yokohama	1909
Duyvendak, J. J. L.	Leiden University, Holland	1915
Edgar, Rev. J. H.	*c/o* China Inland Mission	1910
Edmondston, David C.	Hongkong and Shanghai Bank, Harbin	1917
Edmunds, Dr. C. K.	Canton Christian College, Canton	1916
Eliot, Sir Charles, K.C.M.G.	Hongkong University, Hongkong	1913
Ely, John A.	St. John's University, Shanghai	1917
Ely, Mrs. J. A.	St. John's University, Shanghai	1917

Name	Address	Year of Election
Engel, Max. M.	105 Avenue Road, Shanghai	1911
*Eriksen, A. H.	Telegraph Dept., Ministry of Communications, Peking	1915
Essex Institute, Librarian	Salem, Massachusetts	1906
Evans, Edward	Missionary Home, 38 Quinsan Road, Shanghai	1917
Evans, Joseph J.	Evans & Sons, 30 North Szechuen Road, Shanghai	1916
Exter, Bertus van	Netherlands Harbour Works, Chefoo	1916
Fardel, H. L.	Municipal School for Boys, S'hai	1918
Fearn, Mrs. J. B.	30 Route Pichon, Shanghai	1911
Ferguson, J. W. H.	Inspectorate General of Customs, Statistical Department	1910
Ferguson, T. T. H.	C. M. Customs, Peking	1900
Fergusson, W. N., F.R.G.S.	B. & F. B. S., Chengtu	1916
Fischer, Emil, S.	Tientsin	1894
Fisk, G. W.	British Emigration Bureau, Weihsien	1919
Fitch, Robert F., D.D.	Hangchow	1918
Flemons, Sidney	4 Monkham's Terrace, Shanghai	1917
Fletcher, W. J. B.	British Consulate, Hoihow	1916
Fowler, J. A.	*c/o* Wagons Lits Hotel, Peking	1913
Fox, Harry H., C.M.G.	British Consulate-General, S'hai	1907
Fraser, Sir Everard, K.C.M.G.	British Consul-General, Shanghai	1907
Fraser, Miss Jean	1 Yates Road, Shanghai	1912
Freer, Charles L.	Detroit, Michigan	1910
Fryer, George B.	4 Edinburgh Road, Shanghai	1901
Gage, Rev. Brownell	Changsha	1915
Gale, Esson M.	Chinese Salt Rev. Administration, Hankow	1911
Gardner, H. G.	Hongkong and Shanghai Bank, Hankow	1906
Garner, Dr. Emily	Margaret Williamson Hospital, West Gate, Shanghai	1911
*Garritt, Rev. J. C.	Nanking	1907
Ghiselin, Rev. C.	A. P. Mission, Taichow	1918
Ghisi, E.	Via Kuintino, Salla No. 4, Milano, Italy	1893
Gibson, H. E.	12 Weihaiwei Road, Shanghai	1915
Gilchrist, Edward	C. M. Customs, Ningpo	1918
Gilliam, J.	22 Museum Road, Shanghai	1915
Gillis, Captain J. H.	American Legation, Peking	1911
Gimbel, C., M.Sc.	Hailar, (Mixed Court Assessor)	1914
Gish, Rev. E. P.	Nanking	1919
Gladki, P. M.	C. E. Railway, Control Dept., New Town, Harbin	1915
Godfrey, C. H.	Municipal Offices, Shanghai	1909
Grant, J. B.	11 Wayside Road, Shanghai	1916
Graves, Bp. F. R., D.D.	St. John's University, Shanghai	1918
Grierson, R. C.	C. M. Customs, Shanghai	1918

Name	Address	Year of Election
*Grodtmann, Johans	10 Kiangse Road, Shanghai	1898
Green, J. R.	*c/o* Mustard & Co., Shanghai ...	1918
Grosse, V.	Russian Consul-General, Shanghai	1912
Grove, F.	Nanking-Hunan Railway, Nanking	1915
Gull, E. Manico	British Chamber of Commerce, Shanghai	1915
*Gunsberg, Baron G. de	9 Rue Pommera (XVI), Paris ...	1908
Gwynne, T. H.	Directorate General of Posts, Peking	1913
*Hackmann, H.		1903
*Hall, J. C.	49 Broadhurst Gardens, Hampstead, N.W.	1888
Hamilton, A. de C.	Andersen, Meyer & Co., Tientsin	1918
Hammond, Miss Louisa	A.C.M., Wusih	1917
Hancock, H. T.	Standard Oil Co., Shanghai	1914
Handley-Derry, H. F.	British Consulate, Tientsin	1903
Harding, H. I.	British Legation, Peking	1914
Hardstaff, Dr. R. J.	C.A.M.C. *c/o* Army Post Office, London	1918
Hardy, Dr. W. M.	Box 884, Cincinnati, O., U.S.A. ...	1912
Harpur, C.	Municipal Offices, Shanghai	1901
Hays, Mrs. John	125 Route Prosper Paris, Shanghai	1911
Healey, Leonard C.	Public School for Chinese, S'hai	1913
Heeren, Rev. J. J., PH.D.	Shantung Christian University, Tsinan	1915
Heidenstam, H. von	6 Kiukiang Road, Shanghai	1916
Henke, Frederick G., PH.D. ...	747 Baldwin St., Meadville, Pennsylvania, U.S.A.	1912
Hers, Joseph	Lunghai Railway, Peking	1907
*Hildebrandt, Adolf		1907
Hinckley, F. E., PH.D.	Merchants Exchange Building, San Francisco	1907
Hindson, A. E. C.	20 Foochow Road, Shanghai	1914
*Hippisley, A. E.	Hongkong and Shanghai Bank, London	1876
Hobson, H. E.	St. Michaels, Glastonbury, England	1868
Hodges, Mrs. F. E.	16 Ford Lane, Shanghai	1915
*Hodous, Rev. L.	Foochow	1913
Hoettler, A.	111 Avenue Road, Shanghai	1910
Hogg, E. Jenner	4 Jinkee Road, Shanghai	1908
Hogg, J. D.	British Legation, Bangkok	1917
Houghton, Charles	3 Peitaiho Lane, Shanghai	1908
Howell, E. B.	693 Great Western Road, Shanghai	1909
Howells, W.	N. Szechuen Road Police Station, Shanghai	1917
Hudson, Mrs. Alfred	Ningpo	1909
Hughes, A. J.	China United Assurance Society, Shanghai	1909
Hughes, E. R.	London Mission, Tingchow, via Amoy	1918
Hummel, A. W.	Fenchow, Shansi	1919
Hummel, R. Ure	Bisset & Co., Shanghai	1911

Name	Address	Year of Election
Huston, J. C.	American Legation, Hankow	1917
Hutchison, J. L.		1916
Huston, Rev. J.	*c/o* China Inland Mission	1914
Hynd, R. R.	Hongkong & Shanghai Bank, S'hai	1913
Hynes, A. C.	Hongkong & Shanghai Bank, S'hai	1919
Ironside, William	Butterfield & Swire, Hankow	1919
Irvine, Miss Elizabeth	39 Arsenal Road, St. Catherine's Bridge, Shanghai	1910
Irvine, D. A.	Chungking	1913
Islef, J. P.	G. N. Telegraph Co., Shanghai	1917
Jamieson, J. W.	British Consul-General, Shanghai	1888
Jenks, Prof. J. W.	13 Astor Place, New York	1903
Jensen, C. A.	G. N. Telegraph Co., Peking	1918
Jernigan, T. R.	3 Hongkong Road, Shanghai	1906
Jessel, W.	Giesel & Co., Shanghai	1912
Jesus, C. Montalto de		1902
Johnson, N. T.	*c/o* Department of State, Washington, D. C.	1912
Johnston, R. F.	Weihaiwei	1907
Joly, P. B.	C. M. Customs, Moukden	1913
Jones, J. Frank	66, Szechuen Road, Shanghai	1916
Jong, Th. de J. de	Netherlands Legation, Peking	1914
Jorgensen, O.	G. N. Telegraph Co., Copenhagen, Denmark	1913
*Jost, A.	Sulzer, Rudolf & Co., Shanghai	1912
Justesen, M. L.	*c/o* R. Martens & Co., 1 The Bund Shanghai	1913
Kahn, Gaston		1913
Kano, Dr. N.	Kyoto University, Kyoto	1902
Kanzaki, S.	Mitsui Bussan Kaisha, Shanghai	1906
Karlbeck, O.	Chuchow, Anhui	1914
Kashiwada, T.	1 Balfour Road, Shanghai	1918
Keeler, Henry B.	Standard Oil Co., Soochow	1916
Kellogg, W. R.	Foochow	1919
Kemp, G. S. Foster	Public School for Chinese, S'hai	1908
Kennet, W. B.	British Cigarette Co., Shanghai	1918
Kent, A. S.	*c/o* Chinese Post Office, Moukden	1913
*Kern, D. S.	C.M.M. Chengtu, Szechuen	1912
Kilner, E.	Municipal Offices, Shanghai	1909
King, G. W. P.	4 Monkham's Terrace Wayside, Shanghai	1917
King, Louis M.	British Consulate, Chungking, Sze	1911
King, Paul H.	26 Old Queen St., Westminster, London, S.W.	1886
King, Dr. G. E.	Lanchow, Kansu	1919
Kinnear, Henry R.	*c/o* Gibb, Livingston & Co., S'hai	1907
Klein, Darré	20 Kiukiang Road, Shanghai	1917
*Kliene, Charles, F.R.G.S.	C. M. Customs, Shanghai	1916

Name	Address	Year of Election
Klubiem, J.	C. M. Customs, Wuhu	1913
Klubiem, S. A.	C. M. Customs, Swatow	1917
Kopp, E. C.	6 Kiukiang Road, Shanghai	1919
*Kranz, Rev. Paul	Grünenwald Str., 6 Steglitz, Berlin	1897
Krapf, Dr.	119 Avenue Road, Shanghai	1912
*Krebs, E.		1895
Krill, Joseph		1912
Krisel, A.	17 Yuenmingyuen Road, Shanghai	1914
Krumling, Dr. F.	Tungjen, Kweichow	1912
Kulp, D. H.	Shanghai College	1915
*Kunisawa Shimbei	270 Hyakunin-cho, Ohkubo, Tokyo	1917
Lacy, Rev. Dr. W. H.	10 Woosung Road, Shanghai	1909
Laforest, L.	C. F. Tramways, Shanghai	1917
Lake, Capt., P. M. B.	*c/o* Jardine, Matheson & Co., Shanghai	1916
Lambertz, H.		1915
Landesen, Arthur C. von	H.I.R.M.'s Vice-Consul, Kobe	1909
Lanning, George	14 Medhurst Road, Shanghai	1908
Lanning, V. H.		1916
*Latourette, K. S.	Denison University, Gronville, Ohio	1912
*Laufer, Berthold, Dr.	Field Museum of Natural History, Chicago	1901
*Laver, Capt. H. E.	*c/o* Messrs. W. Stupledon & Sons, Portsaid, Egypt.	1912
Lay, W. G.	Commissioner of Customs, Swatow	1902
Leach, W. A. B.	Municipal Offices, Shanghai	1914
Leavens, D. H.	Yale College, Changsha	1917
*Leavenworth, Chas. S.	313 Norton St., Newhaven, Conn., U.S.A.	1901
Leete, W. Rockwell,	Fenchu, Shansi	1918
Leslie, T.	445c Honan Road, Shanghai	1914
Lester, Miss E. S.	McTyeire School, Hankow Road, Shanghai	1919
Leveson, W. E.		1905
Liddell, C. Oswald	Shirenewton Hall, near Chepstow, Monmouthshire	1908
*Lindsay, Dr. A. W.	Chengtu, Szechuen	1910
*Little, Edward S.	12 Kiukiang Road, Shanghai	1910
Lobenstine, Rev. E. C.	5 Quinsan Gardens, Shanghai	1916
Loehr, A. G.	American Consulate, Shanghai	1916
Lockwood, W. W.	2 Barchet Road, Shanghai	1913
Lord, Rev. R. D.	Tsinan Fu, Shantung	1918
Lucas, S. E.	Chartered Bank, Peking	1906
Lütgens, Alfred		1913
Luthy, Charles	7 Jinkee Road, Shanghai	1910
*Luthy, Emil	17 Yuen Ming Yuen Road, S'hai	1917
*Lyall, Leonard A.	C. M. Customs, Shanghai	1892
Lyon, Dr. D. W.	4 Quinsan Gardens, Shanghai	1919
Mabee, Fred C.	Baptist College, Shanghai	1912
Macbeth, Miss A.	9 Wong Ka Shaw Gardens, S'hai	1915

Name	Address	Year of Election
MacDonell	6 Kiukiang Road, Shanghai	1918
MacGillivray, Rev. Dr. Donald	143 N. Szechuen Road, Shanghai	1908
Macleod, Dr. N.	8B Peking Road, Shanghai	1915
McNulty, Rev. Henry A.	A. C. Mission, Soochow	1918
Matzokin, N. P.	Russian Orientalists' Society, Harbin	1917
Macoun, J. H.	C. M. Customs, Nanking	1894
McRae, J. D.	Changte fu, Honan	1910
MaGrath, C. D.	*c/o* John A. Lane, Esq., 46 Maiden Lane, New York City, U.S.A.	1910
MaGrath, Mrs. C. D.		
Main, Dr. Duncan	Hangchow	1900
*Marsh, Dr. E. L.	8B Peking Road, Shanghai	1908
Marshall, R. Calder	32A Nanking Road, Shanghai	1908
Marsoulies, A. du Pac de	67 Route Vallon, Shanghai	1917
Martin, C. H.	Russia-Asiatic Bank, Shanghai	1918
Martin, Mrs. W. A.	Bridge House, Nanking	1916
*Mason, Isaac	143 N. Szechuen Road, Shanghai	1916
Mather, B.	Yung Ching, Peking	1918
Mathieson, N.	Butterfield & Swire, Shanghai	1915
Maxwell, Dr. J. Preston	31 Hammelton Road, Bromley, Kent, England	1917
Maybon, Charles B.	247 Avenue Joffre, Shanghai	1911
*Mayers, Frederick J. F.R.G.S.	C. M. Customs, Chinkiang	1917
Mayers, Sydney F.	The British and Chinese Corporation, Ltd., Peking	1907
McEuen, K. J.	Municipal Offices, Shanghai	1908
McFarlane, Rev. A. J.	London Mission, Hanyang	1915
McInnes, Miss G.	Municipal Offices, Shanghai	1913
McNeill, Mrs. Duncan	The Chestnut, Tangbourne, England	1915
Mead, E. W.	British Legation, Peking	1916
Mell, Rudolf		1911
Mencarini, J.	1B Kiukiang Road, Shanghai	1884
Mengel, E.	Supt. Chinese Telegraphs, Yunnanfu	1913
Mennie, D.	A. S. Watson & Co.	1916
Menzies, Rev. J. M.		1914
Merriman, Mrs. W. L.	15 Ferry Road, Shanghai	1910
Merrins, Dr. E. M.	St. John's University, Shanghai	1916
Mesny, H. P.	*c/o* H. & W. Greer, Ltd., 20 Kiukiang Road	1911
Mesny, General W.	Hankow	1914
Milhorat, A. T.	508, 2nd St. Carlstadt, New Jersey, U.S.A.	1919
Millard, T. F.	The China Press, Shanghai	1911
Miskin, Stanley C.	Asiatic Petroleum Co., Hankow	1913
Moninger, Miss M. M.	A.P.M. Kachek, Hoihow, Hainan	1916
*Moore, Dr. A.	Municipal Offices, Shanghai	1913
*Morgan, Rev. Evan	143 N. Szechuen Road, Shanghai	1909
Morris, Dr. H. H.	St. Luke's Hospital, Shanghai	1914
Morriss, H. E.	118 Route Père Robert, Shanghai	1919
Morrison, Dr. G. E.	Peking	1917
*Morse, C. J.	1825 Asbury Avenue, Evanston, Illinois	1901
Moule, Rev. A. C.	Littlebredy, Dorchester	1902
Münter, L. S.	G. N. Telegraph Co., Peking	1910

Name	Address	Year of Election
Neild, Dr. F. M.	3A Peking Road, Shanghai	1916
Newbery, Miss E. E.	Cathedral School, Shanghai	1918
Newcomb, Capt. Frank	*c/o* Butterfield & Swire, S'hai	1917
Nicholson, J. B.	American Consulate, Changsha	1919
Nicholson, William	Butterfield & Swire, Hongkong	1919
*Nielsen, Albert	C. M. Customs, Kashing	1894
Norman, H. C.	The China Press, Shanghai	1912
Oakes, W. L.	W. M. S., Changsha	1919
*O'Brien-Butler, P. E.	British Consulate, Moukden	1886
Ogilvie, Rev. C. L.	American Pres. Mission, Peking	1913
*Ohlmer, E.		1885
Ottewill, H. A.	H.B.M. Consulate, Chinkiang	1913
Ouskouli, M. H. A.	126 Szechuen Road, Shanghai	1917
Paddock, Rev. B. H.	Yen Ping Fu, Foochow	1916
Pagh, E. K.	G. N. Telegraph Co., Shanghai	1908
*Palmer, W. M.	Changchun, Manchuria	1914
Papini, E.	52 Boone Road, Shanghai	1916
Parker, Rev. Dr. A. P.	Anglo-Chinese College, 19 Quinsan Road, Shanghai	1901
Parsons, E. E.	12 Hankow Road, Shanghai	1916
Partington, T. Bowen	Kingsclere Private Hotel, H'kong	1917
Patrick, Dr. H. C.	22 Whangpoo Road, Shanghai	1912
Pearson, C. Dearne	69 Kiangse Road, Shanghai	1908
Peet, Alice L.	6 Jinkee Road, Shanghai	1918
Peet, Gilbert E.	6 Jinkee Road, Shanghai	1918
*Peiyang University Librarian	Tientsin	1911
Penfold, F. G.	32A Nanking Road, Shanghai	1916
Perkins, M. F.	American Consulate, Shanghai	1914
Perntzsch, Dr. Gerhard		1910
Perry, E. W.	A.P.M. South Gate, Shanghai	1919
Petersen, A.	East Asiatic Co., Hankow	1913
Petersen, V.	Chinese Telegraphs, Peking	1906
Petersen, V. A.	G. N. Telegraph Co., Shanghai	1915
*Pettus, W. B.	Y.M.C.A., Peking	1915
Pfeffer, Nathaniel	China Press, Shanghai	1918
Phillips, H.	British Consulate-Gen., Shanghai	1912
Phillips, Rev. L. Gordon	London Mission, Amoy	1917
*Plancey, C. Colin de	12 me de Varize, Paris XVIe	1877
Platt, Robert	Chicago University, Chicago, Ill.	1917
Polevoy, S. A.	38 Davenport Road, Tientsin	1917
Polk, Dr. Marget. H.	110 Range Road, Shanghai	1915
Pott, Rev. Dr. F. L. Hawks	St. John's University, Shanghai	1913
Pott, W. S. A.	St. John's University, Shanghai	1914
Pousty, F. E.	Ningpo	1915
Powell, J. B.	Millard's Review, 113 Avenue Edward VII	1918
Pratt, J. T.	British Consulate, Tsinanfu	1909
Prentice, John	47 Yangtszepoo Road, Shanghai	1885
Price, Mrs. Maurice	30 Szechuen Road, Shanghai	1919
*Pye, Rev. Watts O.	Oberlin, Ohio, U.S.A.	1917

Name	Address	Year of Election
Quien, F. C.	Netherlands Harbor Works, Peking	1913
Quin, Mrs. J.	77 Avenue de Roi Albert, S'hai	1916
Raaschou, T.	Danish Consul-General, Shanghai	1912
Raeburn, P. D.	C. M. Customs, Shanghai	1916
Rankin, C. W.	18 Quinsan Road, Shanghai	1915
Rees, A. H. Hopkyn	Asiatic Petroleum Co., Shanghai	1917
Rees, Rev. Dr. W. Hopkyn	143 North Szechuen Road, S'hai	1914
Reid, Rev. Dr. Gilbert		1907
Reinsch, Dr. Paul	United States Minister, Peking	1916
Richert, G.	Whangpoo Conservancy Board, Shanghai	1919
Ritchie, W. W.	Postal Commissioner, Shanghai	1907
Roberts, D.	St. John's University, Shanghai	1916
Robinson, F. Alan	British Supreme Court for China, Shanghai	1914
Robinson, Mrs. F. A.		1918
Rogers, J. M.	179 North Szechuen Rd., Shanghai	1918
Roots, Rt. Rev. L. H.	American Church Mission, Hankow	1916
Ros, G.	Italian Consulate-Gen., Hankow	1908
Rose, Archibald, C.I.E.	British Legation, Peking	1901
Rowe, E. S. B.	Municipal Offices, Shanghai	1907
*Sahara, T.	Shanghai Mercury, Shanghai	1908
Sammons, Hon. T.	American Consul-Gen., Shanghai	1915
Sanders, Arthur H.	U. E. Mission, Chaling, Hunan	1917
Sargent, G. T.	*c/o* Ningpo Hotel, Ningpo	1917
*Sarkar, Prof. B. K.		1915
Sawdon, E. W.	Friends' High School, Chungking, Sze.	1916
Schab, Dr. von	20 Whangpoo Road, Shanghai	1901
Schmidt, K.	28 The Bund, Shanghai	1888
Schröder, H.	Chee Hsin Cement Works, Tangshan	1916
*Segalen, Dr. Victor	5 Cite d'Antin, Brest, France	1917
*Shaw, Norman	C. M. Customs, Shanghai	1912
Sheartone, T. W.	8 Museum Road, Shanghai	1918
*Shelton, Dr. A. L.	Batang, via Tachienlu, Sze.	1918
Shengle, J. C.	23 Ferry Road, Shanghai	1905
Shipley, J. A. G.	Bedford City, Va. U.S.A.	1911
Silsby, Rev. J. A.	Presbyterian Mission, South Gate, Shanghai	1911
Simpson, B. Lenox	Peking	1916
Sites, F. R.	U.S. Steel Product Co., Shanghai	1916
Skinner, Dr. A. H.	Hankow	1919
Skvortzow	*c/o* C. M. Customs, Foochow	1918
Smallbones, J. A.	M. C. Electricity Department, 66 Szechuen Road, Shanghai	1913
Smith, J. Langford	British Consulate, Ichang	1908
Sophoxloff, G. A.	Chinese Eastern Railway, Chiao-she-chü, Harbin	1915
Sowerby, A. de C.	8 Gordon Road, Tientsin	1893
Spiker, Clarence J.	U. S. Consulate-Gen., Shanghai	1918
*Stanley, Dr. A.	Municipal Offices, Shanghai	1905

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St. Croix, F. A. de	The Gables, East Blatchington, Seaford, Sussex, England	1912
Stapleton-Cotton, W. V.	Directorate General of Posts, Peking	1916
Stedeford, E. T. A.	Blyth Hospital, Wenchow	1919
Stephen, Alex. G.	Hongkong & Shanghai Bank, S'hai	1911
Stevenson, Spencer B.	*c/o* J. H. & C. K. Eagle, Shanghai	1917
Stewart, Rev. J. L.	Union University, Chengtu	1916
Stewart, K. D.	Maitland & Co., Shanghai	1912
Stockton, G. C.	American School, Shanghai	1914
Strehlneek, E. A.	45 Haskell Road, Shanghai	1909
Streib, U.	Rohde & Co., Shanghai	
Stursberg, W. A.	17 Hart Road, Shanghai	1919
*South Manchuria Railway Co. Library	Dairen	1910
Sykes, E. A.	Reiss & Co., Shanghai	1909
Tachibana, M.	Kiaochow Customs House, Tsingtau	1881
Talbot, R. M.		1915
Tanner, Paul von	C. M. Customs, Kiukiang	1885
Tayler, A. Ll.	Arts and Crafts, Ltd., Shanghai	1885
*Taylor, C. H. Brewitt	Commissioner of Customs, Mukden	1885
Teesdale, J. H.	3A Peking Road, Shanghai	1916
Tenney, Dr. C. D.	American Legation, Peking	1913
Thellefsen, E. S.	G. N. Telegraph Co., Shanghai	1913
Thomas, J. A. T.	Mustard & Co., Shanghai	1890
Throop, M. H.	St. John's University, Shanghai	1912
Ting I-hsien	C. M. Customs, Shanghai	1902
Toller, W. Stark	British Consulate, Chungking	1907
*Tochtermann, Karl	C. M. Customs, Shanghai	1900
Touche, J. D. la	C. M. Customs, Shasi	1911
Toussaint, G. C.	Consulate Général de France, S'hai	1917
*Trollope, Rt. Rev. Bishop M.N.	Seoul, Korea	1911
Tucker, G. E.	5 Peking Road, Shanghai	1915
Tucker, Mrs. G. E.	5 Peking Road, Shanghai	1915
Turner, R. C.	Municipal Offices, Shanghai	1915
Turner, Skinner, Judge	British Supreme Court for China, Shanghai	1916
Twentyman, J. R.	24 Yuenmingyuen Road, Shanghai	1894
Tyler, W. F.	C. M. Customs, Shanghai	1915
Unwin, F. S.	The Angela, Victoria B. C. Canada	1914
Upham, F. S.	S.M.C., P.W.D., Shanghai	1919
Van Corback, T. B.	*c/o* A. E. Algar, Shanghai	1913
Van der Woude, R.	8 Nanyang Road, Shanghai	1915
Van Norden, Warner M.	Lotos Tea Concern, Wall & South Street	1910
Verbert, L.	20 The Bund, Shanghai	1913
Veryard, Robert K.	Y.M.C.A., Changsha	1917
Vizenzinovitch, Mrs. V.	1 Kiangwan Road, Shanghai	1914
Wade, R. H. R.	C. M. Customs, Shanghai	1918
Waller, A. J.	Kelly & Walsh, Ltd., Shanghai	1916

Name	Address	Year of Election
Wang Chung-hui, Dr.	142B North Szechuen Road, S'hai	1913
Ward, F. Kingdon	116th Mahrattas, Z. E. F. D. *c/o* Postmaster, Bombay	1910
Warren, Rev. G. G.	Wesleyan Mission, Changsha ...	1909
Washbrook, H. G.	6 Shih Ta Jen Hu t'ung, Peking ...	1908
Watkins, Miss J.	Soochow	1914
Weatherall, M. E.	52 Ta Fang-chia Hu t'ung, Peking	1919
Webb, Mrs. C. H.	Astor House, Shanghai	1919
Webster, Rev. James	*c/o* Wesleyan Missionary Society, 24 Bishopsgate, London, E.C. 2	1911
Werner, E. T. C.	Liang Kuo Ch'ang, Peking	1915
Westbrook, E. J.	Asiatic Petroleum Co., Shanghai	1916
Wheeler, Rev. W. R.	A.P.M., Hangchow	1919
Wheelock, T. R.	Wheelock & Co., Shanghai	1914
White, Rev. H. W.	Yencheng, Kiangsu	1915
White, Miss Laura M.	30 Kinnear Road, Shanghai	1916
White, Rt. Rev. Wm. C.	Anglican Bishop of Honan, Kaifengfu	1913
Wilde, Mrs. H. R.	15 Ferry Road, Shanghai	1915
Wilden, H. A.	French Consulate, Rue du Consulate, Shanghai	1917
Wilhelm, Rev. Dr. Richard ...	Tsingtau	1910
Wilkinson, E. S.	P.O. Box. No. 41, Yokohama ...	1911
Wilkinson, F. E.	British Consulate, Foochow	1909
Wilkinson, H. P.	3 Balfour Buildings, Shanghai ...	1909
Williams, C. A. S.	Inspectorate General of Customs, Peking	1919
Williams, Capt. C. C.	*c/o* Butterfield & Swire, Shanghai	1918
Wilson, R. E.	6 Jinkee Road, Shanghai	1918
Wilton, E. C.	British Legation, Peking	1900
Witt, Miss E. N.	16 Queensborough Terr., Hyde Park, London, W.	1912
Woets, J.	Credit foncier d'Extreme Orient, Shanghai	1919
Wood, A. G.	Gibb, Livingston & Co., Shanghai	1879
Wood, Dr. Julia N.	*c/o* H. P. Mohnk, West Falls, Eric Country, New York	1914
Wright, Rev. H. K.	143 North Szechuen Rd., Shanghai	1919
*Wright, S. F.	29 Medhurst Road, Shanghai ...	1916
*Wu Lien-teh, Dr.	Customs Buildings, Harbin	1913
Wu Ting-fang, Dr.	3 Gordon Road, Shanghai	1913
Yetts, Dr. W. Perceval	Junior United Service Club, London	1909
Yokoyama, R.	Tokyo Mercantile Agency, S'hai	1918
Young, R. C.	Municipal Offices, Shanghai	1912
Zwemer, Rev. Samuel M., D.D., F.R.G.S.	5 Imad id din, Cairo	1917

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