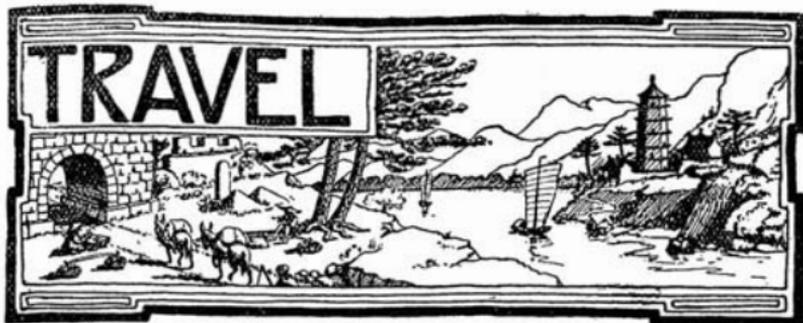




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TRANSPORTATION ON THE YANG-TZE KIANG

BY

H. FOOTE CAREY

Strictly speaking, this is not the correct name for the river. The natives are parochial in their habits, and different localities have different names for it, and though among foreigners the name "Yang-tze" has been generally adopted, this really refers to only a small portion of the river in the vicinity of Yangchow.

The Yang-tze is only navigable for about half its length, namely from Pingshan Hsien, in Szechuan, to the sea, a distance of 1,620 miles, but nearly all of its numerous tributaries are also navigable, and some of them are of great length and size. The area of the navigable part of the basin extends through some 8° of latitude and 18° of longitude, comprising about 520,000 square miles of what is probably the richest soil in the world; and, since by far the greater part of it is workable, the produce must be immense. Yet throughout it roads, as known in Occidental countries, are practically unknown, and the only means of communication are by the innumerable waterways.

Like all river basins it is hilly or mountainous on the margin towards the watershed, and flat towards the middle or main bed. On the margins all the streams have the usual characteristics of mountain streams, rapids and swift currents, which render the navigation of them difficult, though in most cases feasible, while the main bed is really comprised of a chain of lake basins which have been more or less filled up by silt from the various streams, and it now consists of innumerable lakes and lakelets joined by an intricate net-work of creeks and canals extending from Shasi to the sea. In this area navigation is easier, though handicapped by shifting channels.

Undue stress should not be given to the main stream, for in many cases tributaries discharge nearly as great a volume, notably the Yalung, Min Ho, Chia-ling and Han Ho. At Hankow, where all streams

converge to one channel, a rapid rise of the main river at Ichang has less effect on the water-level than on its tributary, the Han.

The feature of greatest importance to the navigation of the river is the annual rise and fall of water-level. This is large, being about 40 feet at Hankow and 70 feet at Chungking. Generally speaking, the water-level is at its highest during August and at its lowest in February. There appear to be some very childish notions current as to the regularity of this rise and fall. Actually there is much irregularity both in the amounts and the time, for at Hankow the height may vary by ten feet more or less than 40, and the times of occurrence may vary by two months. As a general rule, Hankow is "open" for ocean steamers for some eight and a half months in the year, from the middle of March to the beginning of December, and Chungking for the larger class of "upper-river" steamers about the same period.

Transport, both freight and passenger, is effected by two methods, native and foreign. The native method is by the many types of native-designed craft, which are mostly wind-driven, and rafts, of which the larger types merely drift with the current and so are seldom seen below the limits of the tidal current. Foreign transport is by steamer, that is, vessels propelled by machinery, whether steam or internal combustion, and the design of these vessels is entirely Occidental. Many foreign craft are, however, owned and operated by natives, and some native craft by foreigners.

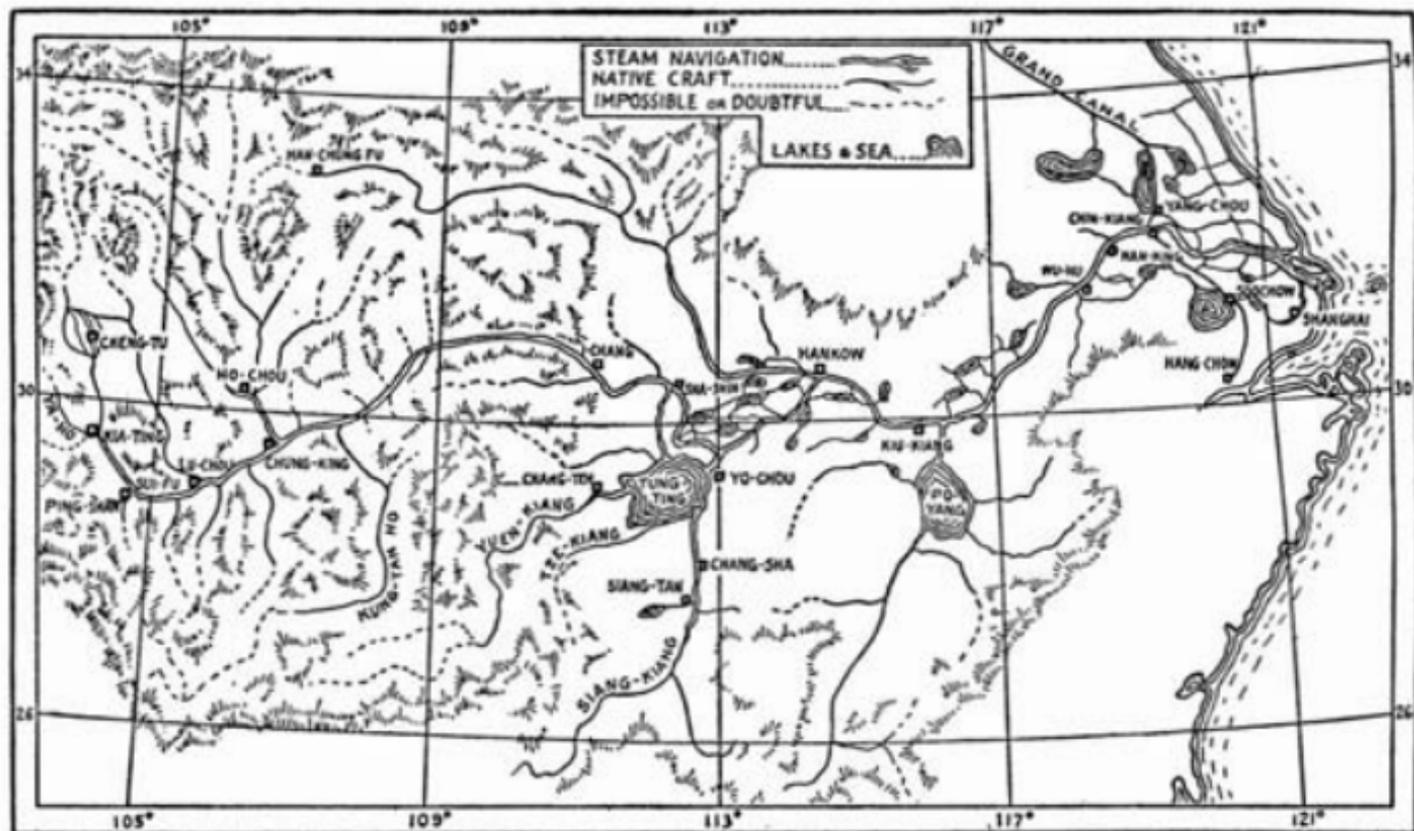
Native transport is mostly designed for service on the river, and, owing to the numerous different conditions prevailing, is correspondingly varied. There are also a few sea-going junks to be met with, though these usually only penetrate short distances.

The sea-going types are few, principally the "Ningpo" junk with its wide-winged bow and watchful eye on either side, and the curious "turret-deck" junk with its low hull and five irregularly disposed masts. These are usually seen only on the estuary, and rarely further than Chinkiang.

A remarkable type is the lorch, which, strictly speaking, belongs to the foreign type of craft, for it has a foreign hull but Chinese rig, three-masted. Before the introduction of steamers foreign commerce on the river was carried on in small schooners, where, as native crews replaced the foreigners, the advantages of the Chinese rig, which was thoroughly understood by them, soon became apparent. The persistence of the foreign hull is undoubtedly due to the greater robustness of this design, as the Chinese junk is relatively very flimsily built. The lorch is still in use between Shanghai and Hankow, which trade its parent type, the schooner, was brought out to serve.

In the estuary transport falls mostly to a type of native-owned small steamer, which, owing to the quantity of poultry they carry, are known as "chicken boats"; and native transport is restricted to ferrying, which is done by small undistinctive single-masted craft, sometimes known as "drag boats."

At Chinkiang one meets two very interesting types, the salt junk, or *kuan chuan*, and the jointed canal boat. The salt junk is a lordly



Map of the Yang-tze Basin showing Navigable parts of the River and Tributaries.

craft of great size, two-masted, stoutly built, with spacious cabin space, very popular with the former Mandarins for travelling in.

The jointed canal boat is a small, shallow, light-draught boat, designed as a single hull in two halves which are lashed together. This is for convenience in hauling over the weirs which constitute locks on the Grand Canal.

Throughout the alluvial area a small two-masted type is very common. These are used for penetrating the vast network of canals to the inland towns, and among them, as indeed among all river craft as distinct from sea-going junks, there is a noticeable feature, the relatively greater height of mast and narrowness of sail. Owing to the great annual rise and fall of level on the inland waterways, the banks would often be higher than the masts, and the boats would be becalmed except at high river if they had short masts.

In the vicinity of the entrance to Poyang Lake, what is called the Poyang junk is encountered. This is also curious, for though the lower-river craft are more or less rectilinear in plan, the Poyang Laker is relatively sharp stemmed and very full bellied. It is said that they very often have to lie aground on the mud flats, and that this sinuosity of form expedites the process of "wriggling" them off again.

All the foregoing, or lower-river types, are relatively heavily built craft, suitable enough for the placid waters of the alluvial plains, but, as we progress towards the mountainous regions, with stronger currents, violent eddies and rapids, either greater motive and manœuvring power is necessary or less weight.

The first of these types to be met with is what is known as the Tungting Lake junk. This is small, lightly built, and can readily be distinguished by its upturned gondola-like stern. It is the "*Shen po-tzu*" of A. J. Little, and contends with the rapids of the Yuen Kiang and Tze Kiang.

On the lower river the timber-rafts are encountered. For steamers these constitute one of the greater perils, and fortunately can only progress during the high-water period. They consist of pine poles, made up in sections, some 40 feet wide, which are lashed together end-to-end, and frequently exceed 300 feet in length and draw 13 to 16 feet of water. Thus they often exceed the displacement of large ocean steamers, and should they get out of control and fall across the stem of a steamer at anchor would cause endless trouble and damage. Actually they merely drift down with the current and are manœuvred by means of a very clever though somewhat inefficient system of anchors, so that getting out of control must be almost a continuous occurrence with them. During latter years the number of floating aids to navigation has been greatly increased, and the damage by rafts to such aids correspondingly increased, so that it has been possible to enforce the employment by them of tugs. Actually to control such an unwieldy mass would need an exceedingly powerful tug, and the trifling native-owned steam launches hired for the purpose are somewhat ineffective; still, the effects of the enforcement have been very satisfactory.

Quite a feature of the timber-rafts is the semi-permanent village built on each of them, and it is amusing to see a regular village drifting



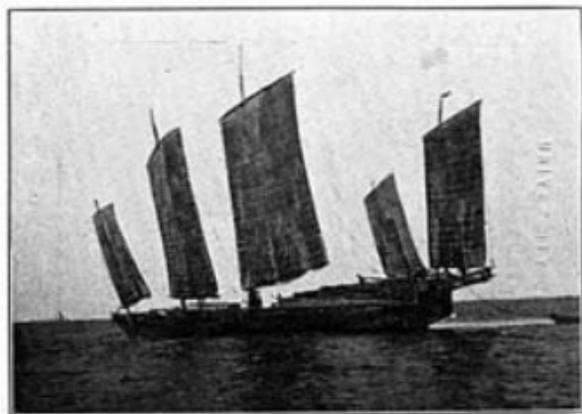
A Foochow Trader.



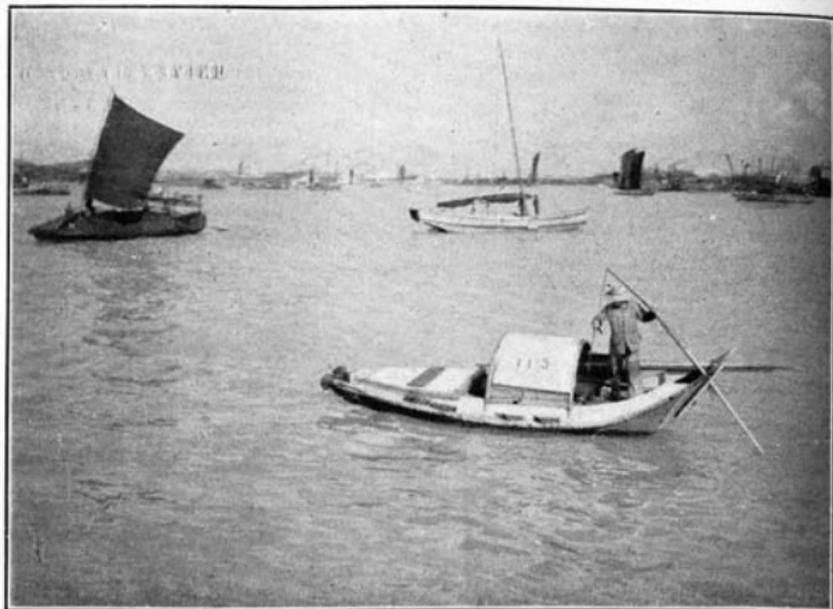
A Ningpo Junk.



A Tsung Ming Island Fishing Junk,



Photos by Mactavish, Shanghai.
The Five-masted Pechili Trader.



A Small Sampan on the Whangpoo.



Photos by Mactavish, Shanghai.

Native Boats on the Whangpoo.



Barges and Sampan Traffic on Siccawei Creek, Shanghai.



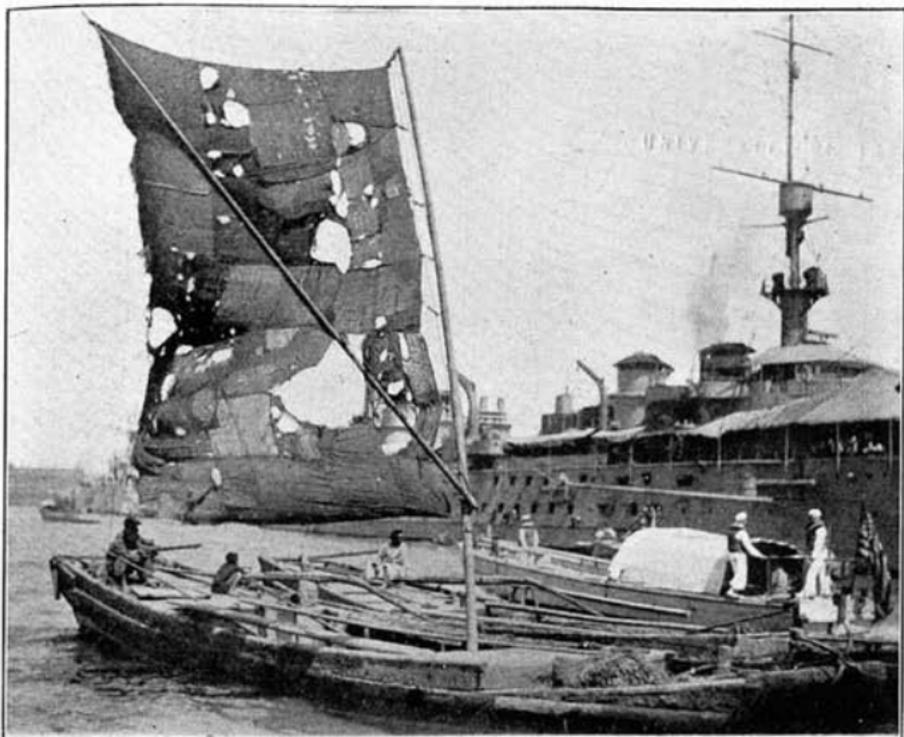
Photos by Mactavish, Shanghai.

Water Gypsies of China, Kiangsu.



Photo by Donald Mennie.

One of the many picturesque inland Waterways of China. The Watergate at Sungkiang to the South of Shanghai, Kiangsu.



A contrast on the Whangpoo, A French War Vessel and Chinese Barges. Note the Sail of the latter.

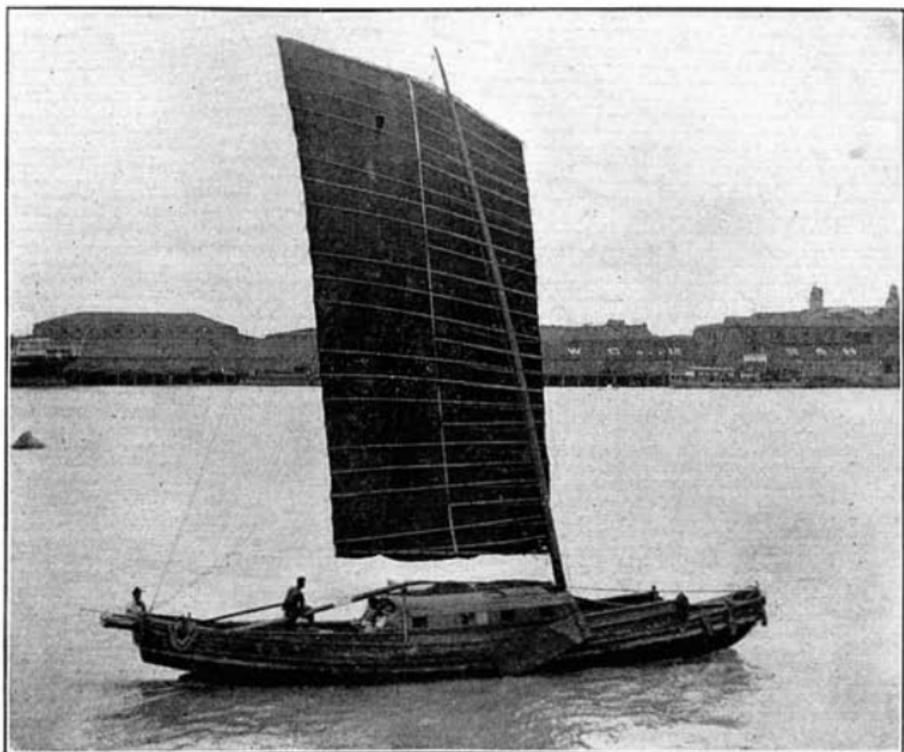
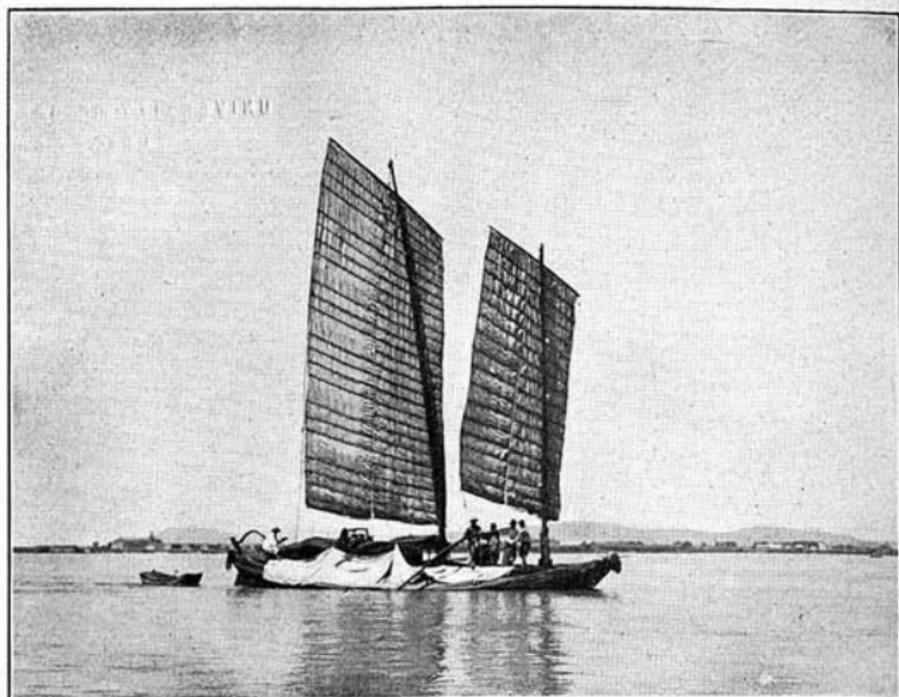
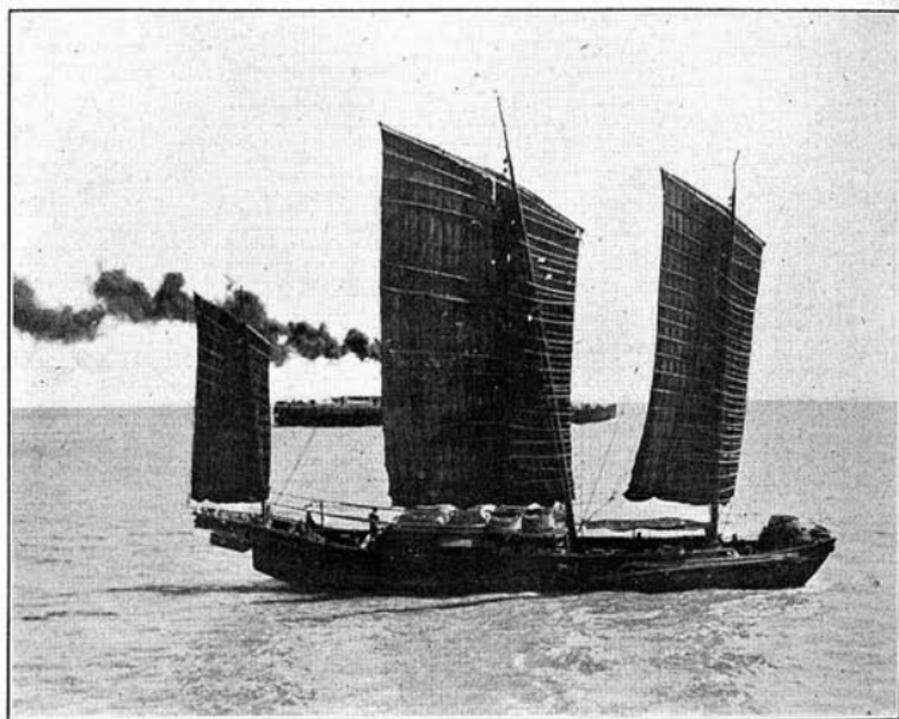


Photo by Meri La Voy.

A Chinese Houseboat on the Whangpoo. Note the tall Mast and big Sail.



A Two-masted Chinese River Boat.



Photos by Merl La Voy.

A Three-masted River Junk putting out into the Yangtze Estuary from Woosung at the Mouth of the Whangpoo.

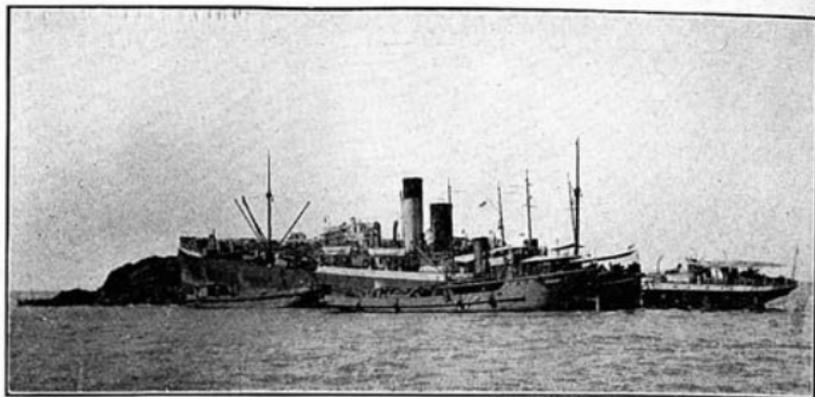


Photo by Clark Expedition.

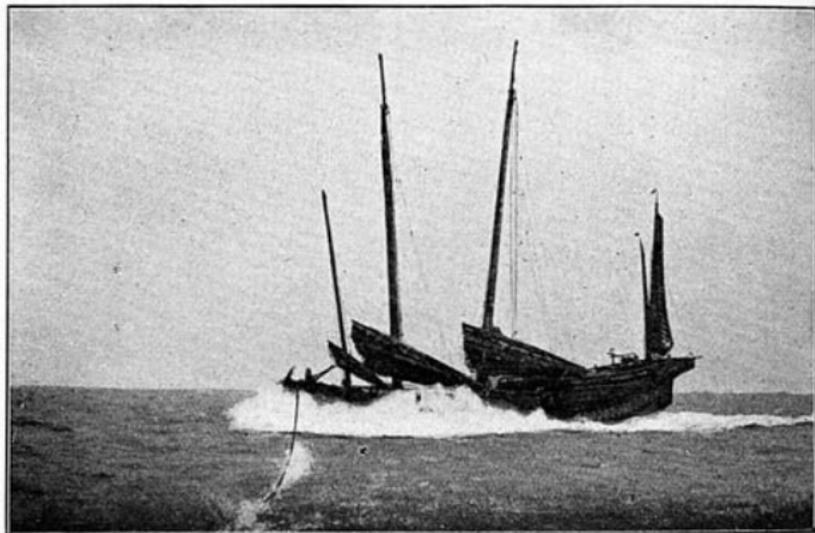
A Chinese sea-going Junk at Hankow on the Yangtze.



What may happen on the Yangtze. A French Gunboat that has run on a Rock and been left in the Air as the Water in the River fell.



The "Pakling" which went aground on Button Rock outside the Yangtze Mouth and was salvaged by the Shanghai Tug and Lighter Company. Note the Company's Tugs alongside.



Bringing in a Chinese Junk whose Steering Gear had been smashed. This Junk was loaded with Sycee and Silk, a rich haul for Pirates. She was rescued by the Shanghai Tug and Lighter Company.

towards one, replete with pigs, chickens and dogs, and occasionally with goats.

The timber comes from the remains of forests in Hunan and Kuei-chow, and is reported to be three years in transit. It has to wait up country for the annual rise of the rivers down which it is brought in small rafts, but cannot get out of the Tungting Lake before the following low-water, and lies on the mud till the next year, when it is taken to Hankow, where it is actually sold and may lie indefinitely. Lower-river dealers purchase their timber in Hankow, make it into these big rafts and bring them down to their ultimate destination. The big rafts are not brought into the region of the tidal stream. The lowest point at which they are broken up is at K'ou-an, about 130 miles above Wusung.

At Ichang and upwards types of native craft completely change, for at this point the worst section of gorges and rapids on the upper river commences. They are all relatively more lightly built and use a bow sweep to augment the steering power of the rudder. The principal types are the cargo junk, passenger junk, *wu-pan*, and the *hua-tzu* or *sampan*.

The cargo junk of the upper river is a noble craft. It is capable of carrying some 50 tons of freight, and, in order to compete with the ordinary river current, requires a crew of up to 70 men, which at bad rapids require the assistance of two or three hundred more. The 365 miles to Chungking usually take six weeks to accomplish, and it has been computed that ten per cent. of the freight and lives of the crew are annually lost in the process. From which the reader may form his own conclusions of the difficulties of navigation.

The passenger junk, or *hua-tzu*, is a smaller and lighter edition of the cargo junk with increased cabin accommodation. Both of these have deck-houses on the after part. The *wu-pan* has no deck-house and is a still smaller craft with a crew that seldom exceeds fifteen in number.

The Chinese Post Office evolved still another type which is used exclusively by this service. It is a large *sampan* with a cabin which is more or less water-tight to protect the mails from rain and the spray of the rapids. They have a blue and white sail.

There are three other types on the upper river, but only used in their respective localities. Two of them are coal boats. Immediately above the Mi-tsiang gorge is a small affluent called the Hsiang-ch'i, a short distance up which is a seam of passably good coal, and to bring the latter down this very swift stream a small *hua-tzu*, built very like a Canadian canoe, with upturned stem and stern, is used.

Above Chungking there are many coal mines. From the one at Ping-shan Hsien it is brought down in a flimsily-built type of *wu-pan*, purposely poorly built of inferior timber, so that on arrival at its destination it can be broken up for firewood. This saves the trouble and expense of hauling the craft up river again, the strain of which, indeed, it would not be likely to stand.

Very different to this is the *wai-piku*, or twisted-stern junk, that has been evolved to meet the very violent eddies of the Kung-t'an Ho, which joins the Yang-tze at Fu-chow, Szechuan. This is stoutly built,

of less length than the cargo junk of the main stream, and has one side of the stern raised much higher than the other. On the horn of this is swung a large sweep, which is worked from a 'thwartship bridge near the mid-length, while there is a smaller sweep on the lower horn worked from aft. There is, in addition, a bow sweep.

Flowing into the Min Ho at Kia-ting is the Ya Ho, a mountain torrent too short and dangerous for hulled craft. The lower reaches of this are navigated by rafts about 50 or 60 feet long, made of bamboos about five inches in diameter. At intervals are fittings for oars, and between them small amounts of cargo are carried. They are occasionally seen as far down as Lu-chow.

The *hua-tzu*, or *sampan*, is ubiquitous on the Yang-tze, and, on the whole, the type varies very little; but it must not be confused with the Shanghai *sampan*, which is unique.

Foreign transport is of two classes, sea-going craft and those designed to meet the special conditions that occur on the river. Of the sea-going vessels there are two main classes, ocean-going and "coasters," and the difference between these is simply that the ocean-going vessels are larger than the "coasters." All the sea-going vessels are essentially cargo vessels, for the passenger traffic is almost entirely in the hands of the river-craft. There is nothing distinctive among the sea-going vessels except that some of them are tank steamers employed in the extensive trade in kerosene and petroleum products, and also occasional refrigerating vessels for the egg products and meat traders.

River-vessels are all of lighter draught and construction than sea-going craft and are far more varied in type owing to the more varied conditions they meet. Broadly, they are in two classes, low and high powered, the first of which are used in the delta and alluvial regions, and the latter in the higher reaches among the rapids and swifter currents. And each of these again are of larger and smaller types to suit the different channels they are designed to navigate.

The estuary is served by a small type of low-powered steamer which has been nick-named "chicken boat," whose region extends to Yangchow by a branch known as the Sien-niu Miao Ho. Some of these are indeed old "Hankow boats," but as experience of the river has been acquired larger vessels have been built.

The region from Shanghai to Hankow is served by the larger type of low-powered steamer, and there are many very fine vessels among them. They have a loaded displacement of up to 4,000 tons, and are well fitted for passenger traffic of several classes, from their luxurious saloons to the native deck or coolie passenger. They are known as "Lower River" steamers.

Beyond Hankow, though 10,000 ton ocean steamers can reach Yochow, the channels become narrow and smaller, and the smaller type of low-powered river steamers connect that port with Ichang and with Changsha and Siang-t'an on the Siang-kiang. They also cater for the different classes of passengers, though their size militates against their being as luxurious as the larger vessels. These are "Middle River" steamers.

TRANSPORTATION ON THE YANG-TZE KIANG

All the alluvial regions are also served by fleets of tugs and lighters. These lighters are both of the dry-goods type and tank-lighters which have been developed for the wood-oil and kerosene trades. Also the alluvial regions are served with a native-owned passenger service of small launches that call at small towns and villages not served by the larger vessels. This extends not only on the main river from Chinkiang to Ichang, but up all the numerous tributaries and creeks where navigable, notably in both the Poyang and Tungting Lakes and up the Han Ho.

The section above Ichang is known as the "Upper River," and is navigable up to Pin-shan Hsien, but through lack of inducement the actual head of steam navigation is at Sui-fu, 565 miles from Ichang. It is at the junction of the Ming Ho which flows past Chengtu and Kiating, and steamers ascend the 97 miles to the latter port. The Chia-ling Kiang joins the main stream at Chungking, and its practicability has only lately been utilised by steamers that now ascend it to Hochow, a distance of 40 miles.

Only high-powered steamers can be used on the Upper River, and of these the larger types are impractical during the low-water season, though at high levels they have been used up to the limit at Suifu.

Generally they are used between Ichang and Chungking, and the smaller types upwards and on the tributaries, but at low levels even the smaller steamers cannot use the upper channels, and they then usually replace the larger ones on the Ichang-Chungking section.

In addition to these types there are large numbers of "harbour launches" in use at the various ports, and an adaptation of this type of craft, larger and fitted with permanent dwelling accommodation, used by the River Inspectorate of the Chinese Maritime Customs, the Yang-tze River Commission and the Salt Gabelle, are to be met, all of which in their respective spheres are connected with transportation.

Each of these many types of craft is especially suited and necessary for the special conditions under which it operates, and from this short description it can be seen that the problem of transportation over the whole Yang-tze Basin is one of no little complexity.
