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## Japanese Whaling Culture

Continuities and Diversities

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**ABSTRACT** This paper outlines the historical background of pre-modern and modern whaling in Japan and describes the three main types of whaling practiced in Japan in recent decades – large type coastal, pelagic and small type coastal whaling. By comparing these types, we are able to show that there are two distinct sets of activities concerned with production which show remarkable continuity within the catching and processing spheres respectively. At the same time, the differences between these spheres are also bridged by a number of social and cultural institutions (which are particularly apparent in STCW where whaling is closely integrated with local community life). These continuities and similarities, and the several bridging mechanisms, enable us to argue for existence of an integrated whaling culture in Japan.

### Introduction

In this paper we examine the practices involved in whaling in Japan from pre-modern times to the 1980s. We rely upon a concept of culture as an integrated and coherent system of specific tools, techniques, skills, and the attendant bodies of knowledge and forms of social organization that are necessary to locate, identify, harvest, process, distribute, and consume particular resources that are found in specific ecological niches. As such, our definition of the culture of whaling, which centers on catching, processing and consuming whales, necessarily includes the social structure of communities that sustain and are sustained by whaling, and the knowledge, beliefs, and values that are present in those communities.<sup>1</sup>

Within the Japanese whaling culture, it is important to note that various forms of whaling have been practiced – net whaling in the pre-modern period, and

more recently, pelagic whaling, large-type coastal whaling (LTCW), and small-type coastal whaling (STCW). We will argue that, for each of these forms, there are two sets of activities – one related to hunting and the other to processing – and that there is a remarkable pattern of similarities in these activities in all forms of Japanese whaling. Moreover, on the production side of the whaling culture, the fundamental cognitive, technological, and organizational dissimilarities between catching whales and processing whale carcasses are sufficiently significant to enable us to distinguish hunting and processing as separable subcultures.

This, of course, begs a question: how can we explain the existence of an integrated whaling culture which in itself comprises two sub-cultures? Our argument will be that in fact the spheres of knowledge belonging to each sub-culture are not isolated, but are bridged by a number of important linkages such as the structure of the whaling companies, the ways in which such companies have cooperated, career patterns, and the dissemination of knowledge itself.

It is partly the nature of these linkages which in fact sets the Japanese whaling culture apart from the whaling cultures of various Western nations. At the same time, there are other important factors that serve to sustain the distinctiveness of Japan's whaling culture – in particular, the extremely variegated use of whale meat (including blubber and entrails) as food, the elaborated forms of reciprocity in which whale meat is used in gift exchanges, and the development of an extensive set of rituals and beliefs related to whaling activities (Akimichi et al. 1988; Hardacre and Manderson n.d.; Iwasaki 1988; Kalland 1989a). Given the extensive treatment of these aspects of Japanese whaling, we will here focus on the social organization of production which, in our opinion, is sustained by the Japanese pattern of whalemeat consumption.

Unlike Norway, the Soviet Union, and other whaling nations, which used most of the whale for oil extraction only, in Japan there were markets for other products that were more valuable than oil, and which thus made it financially rewarding for whaling enterprises to diversify their output. The complex nature of Japanese cuisine has given rise to an equally complex price structure which affects the way in which the whale is processed.<sup>2</sup>

It is the nature of food consumption which has allowed for continuities between forms of whaling over time. Hence, for example, the work organization on a Japanese pelagic whaling mother vessel is in some respects more similar to the organization of a pre-modern land station than it is to, say, the work organization of Norwegian or Russian mother vessels.

## Historical Background

### Pre-modern Times

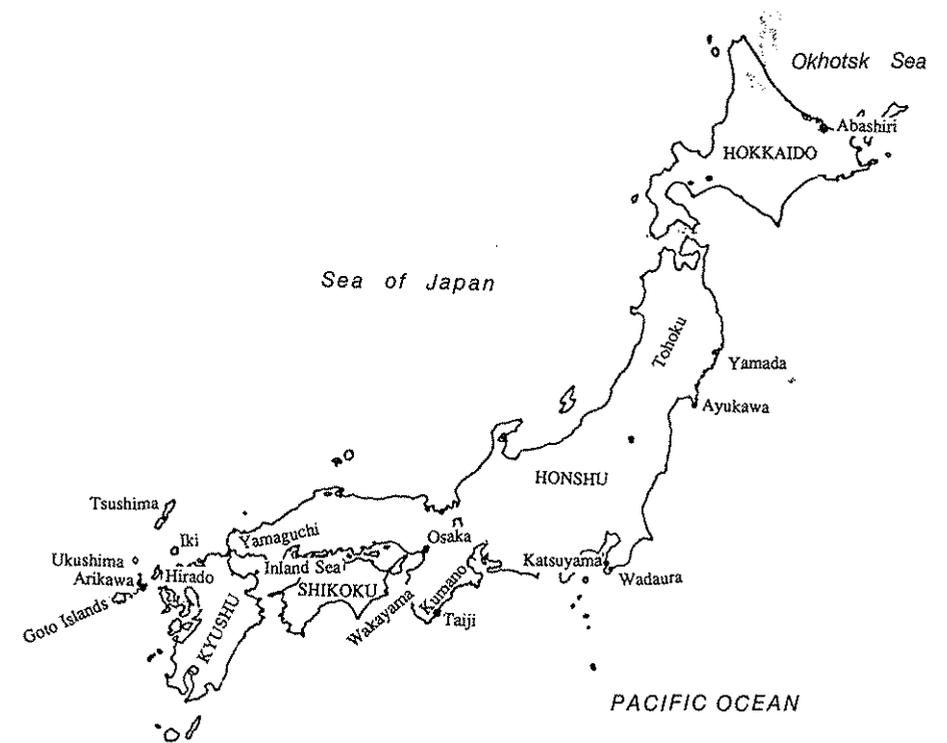
Whaling has been carried out in Japan for many hundred years, during which time there have been many changes in technology, in species caught, in hunting grounds, and in the location of whaling communities. It is the purpose of this

section to outline the historical processes leading up to the days of modern whaling. In particular, we will describe the social organization of pre-modern whaling in order to provide background material for an understanding of the continuities which, we will argue, exist in the ways whaling activities are still carried on.

Fukumoto (1960) has divided the development of whaling in Japan into five stages. In the first, lasting well into the sixteenth century, whaling was not yet established as a business. Whales occasionally were hunted with bows and ordinary fishing nets, but most whales taken were either dead or wounded whales that were caught as they drifted in the seas nearby. This kind of whaling has been labelled 'passive whaling', in contrast to 'active whaling' in which hunters pursued healthy animals (Hidemura and Fujimoto 1978).

Active whaling is thought to have started in the sixteenth century, but it was only towards the end of that century that whaling developed into large-scale enterprises, thereby marking Fukumoto's second stage. Here whalers rode in several boats and made use of harpoons in the hunt, a technique that has come to be known as the harpoon method (*tukitori-hō*). Killed whales were brought back to specially established processing facilities on shore. This technique was practiced in Wakayama, Shikoku, Northern Kyushu, and on the coast of Yamaguchi facing the Sea of Japan (see map).

Some communities such as Taiji (Wakayama Prefecture) and Katsuyama



(Chiba Prefecture) continued until recent times to specialize in using harpoons to catch small cetaceans such as dolphins, pilot whales (*Globicephala macro-rhynchus*) and Baird's beaked whales (*Berardius bairdii*), a tradition which has had, as we will shortly see, an important bearing on the development of modern small-type coastal whaling. But toward the end of the seventeenth century, Japanese whaling entered its third stage through the invention of the net method (*amitorihō*) in 1675 by Wada Kakuemon in Taiji. In this method, large whaling groups were organized to drive whales (mainly slow moving species like right (*Balaena glacialis*) and humpback (*Megaptera novaeangliae*) whales) into large nets set around processing facilities on shore. This method spread rapidly throughout most of southwestern Japan and continued to dominate Japanese whaling until the end of the nineteenth century. Net whaling of this form involved substantial capital (including investment by Osaka merchants) and the proprietors themselves frequently moved their operations from one whaling ground to another, bringing skilled workers with them. Rights to exploit particular whaling grounds were granted by feudal fiefs (*han*) in exchange for fees to the authorities and compensation to local communities for the inconveniences whaling operations caused them.<sup>3</sup> Moreover, regulations often extended to the distribution of meat in the form of payment to the whalers and compensation to the villages affected by whaling operations (Fujimoto et al. 1984).

Given that the organization of these net groups was in many ways similar to the organization of modern whaling, we will briefly outline here the main features of the net method. The operations fell into three separate stages – preparations for a new season, hunting and processing the whale – with each of these stages requiring special skills and modes of organization.

The preparations for a new season (*maesaku*) usually started in September and included a range of activities centered on the land station (*nayaba*). Large quantities of hemp were brought in, often from a considerable distance, as raw material for ropes made by women living in the host and neighbouring villages. Male experts (*ami-daiku*) used the ropes to make new nets since many of the old nets had to be replaced every year. These experts were usually recruited from villages that specialized in this trade, often from distant provinces. Every year some of the oldest boats had to be replaced by new ones built by specially employed boat builders (*funa-daiku*), while harpoons, knives, containers and so on were made by smiths and coopers. The working sheds had to be repaired or rebuilt, new furnaces made and firewood collected.<sup>4</sup>

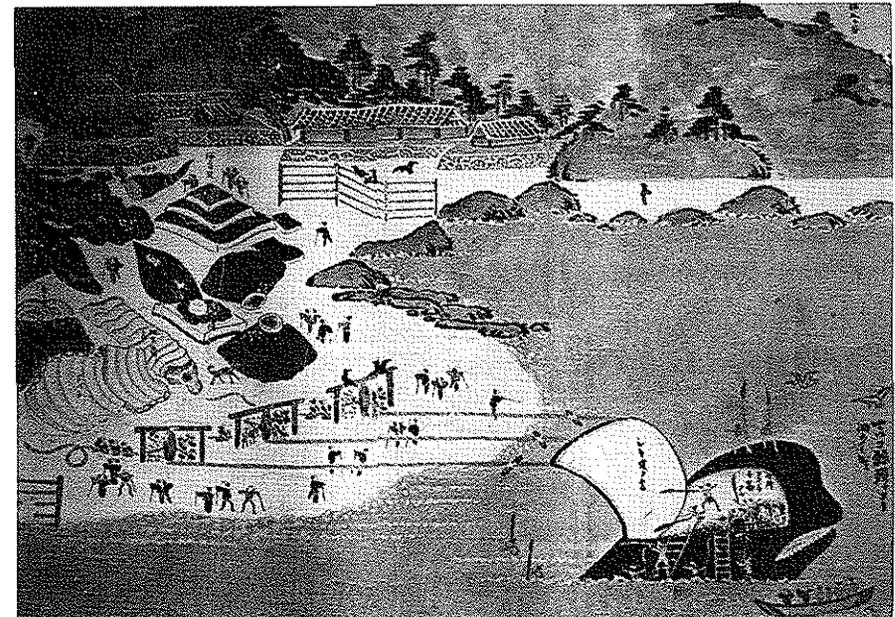
Next, several activities were involved in the hunting of whales. First, once the weather was regarded as suitable for the whaling season to begin, the search was initiated. Lookout posts on hilltops, commonly manned by five persons, sent smoke or flag signals to convey information to the land station about whales that they had spotted. In areas where there were no suitable lookout points, search boats were used to look for whales and the land station was informed of sightings by means of flag signals.

Once a whale had been spotted and the land station was informed, between ten and twenty swift hunting boats (*seko-bune* or *oi-bune*), each carrying a crew

of about twelve persons under the command of an expert harpooner (*hazashi*), set out in pursuit of the whale. The boats split into three groups each led by a chief harpooner (*oyaji*). By surrounding the whale on three sides and by beating the sides of the boats, they managed to frighten the whale in the desired direction. Meanwhile the net-boats (*sōkaisen*) and their assistant boats (*amitsuke-bune*) had arrived at the scene and the nets were lowered under the direction of a commander-in-chief (*mito-oyaji*) through signals to the net-boats which worked in pairs – one pair for each of the nets.<sup>5</sup>

As soon as the whale was entangled in the nets and its speed had been slowed down, the hunting boats approached the animal and the harpoonist threw harpoons secured with ropes toward the whale. The first harpoonist who managed to spear the whale was financially rewarded. The most daring task was accomplished by one harpoonist who had to climb onto the whale's back, cut a hole near the whale's nose, and thread a rope through this hole to secure the whale. Another daring operation was to dive under the whale with ropes and tie the whale to two beams laid between two boats that served as floats (*mossō-bune*). Only after this had been done was the animal killed by a sword and the whale towed to the land station by the *mossō-bune*, leaving the hunting boats to chase other whales that might have been spotted in the area.

Whale processing was carried out at land stations containing a number of working sheds (known as *naya*), living quarters, offices, and winches – all centred around the beach up which the whale was dragged. The land stations



A sperm whale is flensed, Tokugawa period (1600-1868).

varied somewhat in their physical lay-outs, but the different stages in the processing of the whales were mostly the same. These involved, firstly, bringing the whale from the sea onto shore by means of a handpowered winch (*rokuro*) which was then used to strip the blubber from the whale as the main flensing (*uo-kiri*) began. This *uo-kiri* (lit., 'fish cutting') consisted of rough hewing of the whale's carcass and simultaneous separation of the blubber from the meat. This was followed by 'middle cutting' (*naka-kiri*), in which the meat and blubber were cut into smaller pieces capable of being carried by two men with a pole. Because of the special requirements of Japanese cuisine, both *uo-kiri* and *naka-kiri* were carried out by highly skilled flensers.

All of these activities were conducted outdoors, before the meat and blubber were carried indoors into separate sheds. Although there were some variations in the organization of these sheds between land stations, we find that there was a frequent separation of sheds where meat, blubber or entrails were further cut into smaller pieces and processed independently. The major part of the meat was used fresh or salted as food. The blubber was mainly boiled and used to extract oil which was in great demand as insecticide. The entrails, for their part, were used both as food and for oil production. The whale's bones were taken to a separate shed where they were crushed and processed into oil or fertilizer. In many *nayaba*, sinews were also processed in a separate shed, as were sperm whale teeth and baleen. Processed sinew was used in a wide range of products such as musical instruments and bow strings; sperm whale teeth and baleen were also utilized in a variety of crafts, including the making of *bunraku* puppets; *shamisen* plectrums were produced from whale jaw bones. There was thus virtually total use of the whale.

### Modern Whaling

Early in the nineteenth century whaling boats from the United States and other western powers began to appear in Japanese waters to exploit the rich whaling grounds off her coasts. Their activities coincided with – and are widely believed to have caused – a drastic reduction in the number of whales caught by the Japanese in their nets, so whalers found themselves having to cope with the situation in several ways. Some tried to open up new catching grounds using their established net methods, while others tried to introduce the American-type whaling, using handheld guns and bomb lances. Neither had much success and Japan entered a new age in whaling only with the introduction of the Norwegian method, characterized by a bow-mounted harpoon gun on a steam-powered, ordinarily steel-hulled ship.

The Norwegian method was first used in Arikawa (Gotō Islands) in 1897, but ended in failure. Two years later, however, Oka Jūrō who had been on a study trip to Norway, established a company that was to become known as Tōyō Hogeī. Using catcher boats bought or chartered from Norway and manned by Norwegian gunners, this company managed to survive the troubled years as it learned the new technologies. By acquiring new Russian catcher boats captured

during the Russo-Japanese War, in 1906 the company was able to start catching whales in the waters off Ayukawa in Miyagi Prefecture. This successful attempt marked a turning point in Japanese whaling, and many new whaling companies and land stations were established in the following years along the Pacific Coast of Japan. This ushered in the start of modern Japanese large-type coastal whaling, discussed in more detail below.

Japanese whalers were soon active throughout Japan, the Kurile islands, Korea, Taiwan, and Ogasawara, catching large whales and bringing them to processing stations on land. In 1934, however, a mother ship was bought from Norway and Norwegian supervisors were employed, to allow the first Japanese fleet to be sent to the Antarctic. Within a few years, fleets had also been sent to the North Pacific and pelagic whaling had surpassed large-type coastal whaling (LTCW) in economic importance (Tatou 1985).

During this same period other pre-modern forms of whaling also influenced the development of modern whaling, particularly of small-type coastal whaling. In pre-modern times, the net whaling operators along the Kumano coast (including Taiji) often allowed their whalers to catch small cetaceans such as pilot whales and dolphins outside the net whaling season. This hunting of small cetaceans was different from net whaling operations in that it involved individuals, rather than organized groups, who worked independently as and when they felt like it, and who used hand harpoons from individually owned boats crewed by small groups (generally no more than seven men, a considerably smaller crew than that of the net whaling boats). After the collapse of net whaling in Taiji following a disaster in 1878 when 111 whalers lost their lives (cf. Taiji 1982), this traditional form of pilot whaling became of greater importance in Taiji. Attempts were made at driving pilot whales into nets, but without much success. After the introduction of the semi-diesel engine and the invention of the Maeda five-barreled harpoon gun in 1904 (probably stimulated by the development of LTCW harpoon guns), traditional vessels (in Taiji called *tentosen*) were outfitted with these innovations and pilot whaling became a viable form of whaling which continued into the 1970s.

In the early 1930s a seven ton pilot whaling vessel was brought to Ayukawa from Taiji, and by outfitting this boat with a newly introduced 26 mm Norwegian harpoon gun it became possible for the first time to hunt minke using a small vessel. The Norwegian gun was mounted behind the Maeda gun which was used to fire the first harpoon; the 26 mm gun was used to fire the second, and fatal, shot. Experimentation in Ayukawa led to modifications of boat design, and eventually the Maeda and 26 mm guns were replaced with a more powerful 50 mm harpoon gun of Norwegian design. The new designs thus developed proved their worth and led to the general adoption of small-scale whaling boats (generally 15 to 20 tons) used for catching minke (Ōmori n.d.).

By about 1935, therefore, three distinct types of whaling had emerged: large-type coastal whaling (LTCW), pelagic whaling, and small-type coastal whaling (STCW). In scale and mode of operation, these three forms were quite distinct. Until 1976, when they were merged into a single company (Nihon Kyōdō Hogeī),

there were three main companies involved in pelagic whaling: Taiyō Gyogyō, Nihon Suisan (usually abbreviated to Nissui), and Kyokuyō Hogeï. These companies operated whaling fleets, each consisting of a mother ship, several catcher boats, refrigerator ships, and various supply vessels. They were large industries for whom whaling was just one of many activities, and for historical reasons they tended to recruit personnel from specific areas (Kalland 1989b).

Besides these three major companies, there were a number of smaller companies – some of them subsidiaries of the 'Big Three' – which participated in LTCW. These operated several catcher boats which landed their catches of large baleen and sperm whales at their own landing stations for processing. With the contraction of coastal whaling in the 1970s, an agreement was reached whereby the 'Big Three' concentrated on pelagic whaling, leaving LTCW to be conducted by Nihon Hogeï, Nittō Hogeï, and Sanyō Hogeï. Each of these companies developed reasonably close relations with the communities in which they operated their landing stations (e.g. Nittō Hogeï in Yamada and Wadoura, and Nihon Hogeï in Taiji and Ayukawa). Some of the STCW boats were at one stage owned by the LTCW and pelagic whaling companies, but nowadays all the nine STCW boats are operated by locally based, small, independent companies (Akimichi et al. 1988:18-20).

In the following section we will be taking a closer look at each of the forms of whaling practiced by these companies. We intend to show that, in spite of certain differences between them, there are striking similarities in the three forms (LTCW, pelagic and STCW) and that they complement each other in such a way that we feel justified in talking about the concept of an 'integrated whaling culture'.

### The Organization of Production

With few exceptions (such as, for example, STCW until 1947), Japanese whaling operations have been strictly regulated by government bodies. These regulations have applied to licences, quotas, seasonal limitations, catching grounds, species of whale, the size of whale, use of technologies, and the size of boats. The government has also defined the various categories of whaling conducted by Japanese whalers.

Any form of whaling can be broken down into a series of distinct components which represent stages of production. In this section we will attempt to outline the main features of each of the three modern types of whaling defined above, in order to bring out structural similarities and historical continuities among different forms of whaling that have existed in the past and still exist today. In particular we will show that there is a sharp division between activities involved in hunting and processing in all types of whaling – a division which transcends differences among the three types of whaling under discussion.

### Large Type Coastal Whaling (LTCW)

Large type coastal whaling is characterized by the species it pursues – sperm whales (*Physeter macrocephalus*) and the larger baleen whales (excluding minke (*Balaenoptera acutorostrata*)) – by the scale of the boats (which were often the same as those catcher boats used in pelagic whaling), by its reliance on landbased processing, and by the absence of mother ships.

In LTCW, each catcher boat (varying from 100 to just over 600 tons in size, with crews of roughly 20) was a separate unit able and expected to make all decisions connected with hunting whales, including decisions about where and when to initiate a hunt. Within seasonal and geographical limitations imposed by the authorities, the gunner on the catcher boat decided the whaling grounds to be worked for each trip, basing his decision on his extensive knowledge of seasonal migration patterns, as well as on information obtained from such natural phenomena as tides, currents and wind. He would also observe the activities of fishing boats.

Once the boat reached the hunting ground, the actual search could begin. In general four men headed by the bosun (boatswain) gathered at the masthead to keep a look out for whales. Constantly monitoring the water temperature, as well as changes in water colour and wave patterns, the crew searched for where different currents met, knowing that that was where whales satisfied their appetites on fish, krill, squid, and other creatures. Sighting of sea birds was of great importance (as could be the presence of dolphins) since these signified the presence of whales in the area.

The next step was to look for the spout of a whale. An experienced whaler could tell from the spouts what species had been sighted, the direction in which the whales were moving, and, in some cases, how many were present. If the whale could be hunted, the catcher boat would then embark upon the chase. Here traditionally there was very close cooperation between the bosun at the masthead and the gunner who stationed himself initially on the bridge of the catcher boat. The bosun sent instructions verbally (via the voice pipe or by microphone) to the ship's engineer relaying orders about the speed and direction of the boat. However, it is important to point out that it was in fact the *gunner* who was in charge of the catcher boat throughout the hunt, even though he might delegate authority to the bosun in the early phase of the chase. As the catcher boat closed in the gunner moved forward to the harpoon platform and took over firm control of the final approach to the whale.

In the past, both the gunner and bosun needed to have as near perfect as possible a knowledge of whale behaviour for the pursuit to be successful. Their roles were, however, modified by the invention of an echo sounder known as the *geitanki* (lit. 'whale searching device'), introduced on all types of catcher boats from about 1960. The *geitanki* is both a sonar-like device that can be used to actively locate whales through returned echoes and an apparatus that can also simply passively receive the sounds of whales. The device was of use only after a whale had already been visually spotted and the boat had approached to within

catching distance. If turned on too early, the signals emitted by the *geitanki* would scare the whale away. Once the whale was in range, catcher boats equipped with a *geitanki* could pinpoint precisely the presence of a whale, together with its direction and distance from the vessel. It was particularly useful when the whale dived and became invisible to the bosun, since – by tracing the path of the whale under water – it permitted the gunner to position his vessel perfectly for the final approach to the whale. The innovation also allowed catcher boats to follow whales throughout the night and hence enable them to take up the final stages of the hunt the moment daylight returned.

More importantly, however, the invention of the *geitanki* affected the role of the gunner aboard the catcher boat during the chase, in that his detailed knowledge of whale behaviour and the likely movements of the type of whale being pursued were no longer as important as they used to be. This made the difference between good and bad gunners less obvious than it had previously been. Moreover, whereas in the old days it was the relation between gunner and bosun that was vital for a successful pursuit, a new line of communication was now set up between the gunner, bosun and the sonar apparatus operator (*geitanshi* or *tsuigeishi*), who was himself a new addition to the composition of the catcher boat's crew.

Indeed, the decline of the authority of the gunner on the catcher boats mentioned by informants appears to have coincided with the introduction and adoption of the *geitanki*. The fact that considerable care was taken to ensure that the sonar operator did not infringe upon the sphere of influence hitherto wielded by both gunner and bosun indicates that this technological innovation brought about a potential source of conflict in crew organization aboard the catcher boats. For example, *geitanshi* were careful not to make any statements that might suggest they were issuing orders about the vessel's course, and instead restricted themselves to reporting simply the location of the whale. Moreover, the fact that the operator now gave information about the whale's movements over the boat's loudspeaker system meant that what was once secret knowledge and one of the main sources of power supporting the gunner's authority now became shared knowledge, allowing other crew members to assess the performance of the gunner and of the bosun.

In order to shoot a whale, the catcher boat had to pursue it to within a range of 40 to 60 metres, after a chase of perhaps several hours before this close an approach became possible. In the final stages the gunner manoeuvred his vessel so that it approached the whale at an ideal angle of about thirty degrees. Depending on the species, the gunner may have had as little as two to three seconds in which to take aim and fire, but he also had to take into account such factors as the distance between the catcher boat and the whale, the absolute and relative speeds of the two, wind and wave conditions (preferred timing being when the bow of the boat is rising), and acquired knowledge of the behaviour of the whale itself (for a gunner's account of shooting techniques, see Tanaka 1987). Before the invention of the exploding harpoon, the whale was not killed instantly, and a second harpoon (*niban mori*) – sometimes aimed by the apprentice gunner

– had to be fired. The introduction of the explosive harpoon made a second harpoon unnecessary in most cases, and in this respect modified the on-board training of new gunners to some degree.

The next stage was marking and securing the dead whale. Large baleen whales such as blue (*Balenoptera musculus*), fin (*B. physalus*) and sei (*B. borealis*), were in general pumped full of air to keep them from sinking – , something which was not necessary for whales rich in oil content such as right and sperm whales. The carcass was secured to a buoy and marked by a flag and, in later years, a radio transmitter.

Finally, the whale was brought back to land. It was the gunner's task to decide when to collect the whales and bring them back to the land station, marking the end of a hunt that may have lasted several days or may have been concluded in a single day if the hunting was successful. Here again the species of whale had an important influence on his decision. Baleen whales, for example, had to be brought back to the land station promptly since they were primarily consumed as fresh meat, and prices fell sharply with deteriorating quality; sperm whales, on the other hand, which were prized mainly for their oil, or used for preserved meat – either salted or canned – did not need to be towed to land so quickly. Moreover, in some places like the East China Sea, where the water temperature is comparatively high and the carcass thus decomposes quickly, baleen whales were first bled by an incision in the neck and then in addition had their entrails removed. In deciding to convey the whales back to land, other considerations included sea conditions, speeds of currents, the distance of the whales from the land, and of course the number of whales caught.

On being secured to the side of the catcher boat, whales of all species had the corners of their flukes cut both to make their handling easier and to ensure that the carcass was not lost should wave action snap the tail of the carcass. All species of whales were also bled at this stage if this had not already been done.

In LTCW the whale had to be processed on specially designated land stations, and the station operators had to pay compensation to the local fishing associations for the inconvenience caused to fisheries by whaling operations. They also made frequent donations to the local community institutions as a good will gesture. In this respect there was continuity between LTCW and pre-modern net whaling practices.

Seven main processing activities were carried out at these land stations, although some of the tasks were sometimes subcontracted elsewhere: flensing, oil extraction, salting, icing of fresh meat, crushing of bones for fertilizer production, drying of sinews, and boiling of entrails for food. Subsidiary tasks occasionally undertaken by employees at land stations included the cleaning of sperm whale teeth and baleen, for use in craft production, and maintenance and repairing of the tools and facilities.

When the catcher boat reached the harbour, it was met by a small tow-boat that came out to take the whale in tow as far as the slipway. There it was winched up on shore, tail first, the winches being operated by experienced workers who were not, however, exclusively specialists in this task alone. Flensers (*kaibōin*)

would often start their work while the whale was being dragged up by the winches onto the slipway, since they could thereby exploit the movement of the carcass in making the first cuts lengthways in it. Otherwise, they would wait until the carcass had been winched right up the slipway before making long cuts along its sides and, as soon as the carcass came to a rest, along the whole of the topside of the whale before cutting its tail off. (The fluke was put aside to be sliced up later, and then salted or transported to salting facilities if these were not available at the same station.) The winches were also used to peel off the blubber while the flensers carefully separated the blubber from the meat. The blubber was put to one side, while the winch operators proceeded to peel the meat from the carcass and the flensers carefully trimmed the meat from the bone.<sup>6</sup> The meat was then cut into blocks 30 centimetres across, before it was further cut up into smaller chunks (sometimes by less skilled workers locally hired on a daily basis during especially busy periods) and placed in an ice tank for cooling. For meat scraps, tendons and other tough parts were carefully removed, and the meat was cooled with crushed ice.

Next, the blubber was then cut up in a similar manner into 30 centimetre wide strips. Since blubber had different uses, depending on the species of whale from which it was taken, some was used for salting and some for oil extraction. In the latter case, the large blocks were taken to the boiler section of the land station, where they were further cut up and placed in the boilers and prepared for oil.

Other portions, including the ventral grooves, dorsal fin, flukes, flippers (in the case of the humpback whale) skin of the whale, and – in the days before refrigeration enabled large quantities of red meat to be consumed as fresh meat – red meat in general, were all sliced and salted.

The remaining skeleton was sawn into pieces, before being taken from the land station to nearby fertilizer plants, which were often operated by local people, where it was crushed, dried and made into fertilizer. The sinews were also removed by a subcontractor who washed, stretched and dried them in preparation for musical instruments, tennis rackets, etc.

Fresh intestines and other organs such as the heart, liver, esophagus, and kidney were boiled, either on the land station, or elsewhere by a subcontractor. If these entrails were not fresh, or those employed on the land station had no time to treat them, they were sent with the bones to be made into fertilizer.

### *Pelagic Whaling*

In pelagic whaling, a similar procedure to that described for LTCW was followed, but there were certain important differences in the search and carcass collecting phases, on the one hand, and in processing, on the other. These differences were reflected in the composition of the pelagic whaling fleets, which varied somewhat from fleet to fleet, between catching grounds and over time. During the 1951-52 Antarctic season, for example, the (Taiyō operated) Nisshinmaru fleet consisted of a total of 23 vessels: the mother ship (*bosen*), two salting freezing ships, two freezing ships, four transport carriers, one tanker carrying

diesel oil for the fleet, ten catcher boats, two towing boats, and one search vessel (Maeda and Teraoka 1952). In 1976, on the other hand, the Nihon Kyōdō Hogei fleet operating in the North Pacific, consisted of a mother ship and 9 catchers only. Both freezing and salting were done on the mother ship, and no other support vessels were needed because the hunting grounds were relatively close to Japan.

A major difference between LTCW and pelagic whaling, so far as hunting is concerned, was that the hunting phase of whaling was closely coordinated and directed by a commander-in-chief (*sendanchō*) from the mother ship. Basing his decisions on international whaling regulations and information on whale behaviour and sea conditions accumulated from previous years' whaling trips, the commander-in-chief first decided on the general area in which his fleet would pursue their whaling activities, and then sent out his search vessel to move ahead of the mother ship (*bosen*), reporting back by radio when sightings of whales were made. Another search strategy, especially before the official hunting season for the economically more important baleen whales opened, was to hunt for sperm whales, using the hunting as an opportunity to carry out general reconnaissance. On the basis of these various kinds of information, the commander-in-chief deployed his catcher boats, ordering them to maintain a certain distance between themselves and to proceed towards the area in which whales were sighted. From this point, the catcher boats took over the hunt and the search, pursuit and killing of the whales proceeded in exactly the same way as that described above for LTCW.

The manner of securing and retrieving the carcass, once a whale had been killed, was another major difference between LTCW and pelagic whaling. This concerned the bringing of the carcass back to the processing facilities. As in LTCW, the dead whale had to be secured with floats or pumped with air in order to prevent it from sinking, while the catcher boats proceeded with the hunting of other whales in the area, leaving the carcass to be collected and taken back to the mother ship by special towing boats. Before a catcher boat left the whale however, its gunner made sure to attach a long bamboo pole to the carcass with a flag on top to identify ownership and which catcher boat was responsible for the successful killing. A radio transmitter attached to the carcass enabled the collecting vessel to identify the whereabouts of the whale and tow it back to the mother ship for processing.<sup>7</sup>

A pelagic fleet operated on the open ocean for months at a time. This influenced the range of products into which the whales were processed, as well as the work organization of the processing fleet, which included the mother ship for flensing and oil processing, and other ships where fine cutting, salting, and freezing were carried out. And such things as bones, which on land would have been processed into fertilizer or other products, were as much as possible, on shipboard, processed into oil. And, of course, at sea sub-contracting and employment of extra workers during busy seasons were impossible. The work on the fleet nevertheless resembled that of the LTCW land station.

The persons working on mother vessels were organized into two main groups:

the crew (*ōgata sen'in*) of roughly 90 operating the ship, and a additional 250 managers and processing workers (*jigyōin*), who were further subdivided between flensing section and factory (mainly oil extraction) section (Nihon Suisan 1966). There were two flensing decks on a mother ship, one at the stern where rough flensing was done and one in the center of the ship where secondary cuts (*saikatsu*) were made.

As processing of a whale began, the carcass was winched tail first up the slipway at the stern of the boat by workers who were specially employed for this task. Then the flensers (*kaibōin*) cut off the tail which was winched to the second flensing deck where it was cut up later by the butchers (*saikatsuin*) into smaller pieces for salting. The flensers, at least one on top and one on each side of the whale, cut the blubber along the length of the whale, before it was stripped off the meat by the winch operators.

The blubber was hauled by the winch to the front of the flensing deck where butchers cut it up in blocks 30 centimetres wide with the help of *kagihiki* ('pullers') who used hooks to spread the blubber as it was cut open by the butchers. Sometimes, the latter then separated the skin from the blubber so that the skin could be further cut up into 3 by 30 centimetre pieces for salting by other specialists (*enzo kakari*), either on the mother ship or on special salting ships. Most of the blubber was sent down through the deck for processing in a Hartmann-type boiler by those employed in the boiling section (*saiyubu*).

The next step in processing involved the flensing of whale meat. Since the *onomi* is particularly important in Japanese dietary tastes, the flensers were particularly careful when cutting this kind of meat, found near the whale's tail. They then separated the meat from the bones, an extremely skilled operation, after which the butchers proceeded to cut the meat up with the help of the pullers, who would ensure that the membrane covering the meat was always turned upside so that cutting was easier (again using hooks to help with the cutting). Until the late 1940s, the meat was then shipped by dories from the mother vessel to a separate boat (*fuzokusen*) where it was further cut up into smaller pieces before being salted by about 180 workers employed there. From the late 1940s, efficient freezing ships were gradually introduced, but freezing did not entirely replace salting. As whaling operations contracted in the late 1970s, mother ships were refitted so that, in addition to their previous functions, they were also able to freeze, salt and store meat, blubber, ventral grooves and entrails until these were taken back to Japan by the transport ships that came to meet the Antarctic fleets.

As a final stage in the flensing operation, the remaining meat scraps were scraped off the skeleton by specialists, before the bones themselves were handed over to another set of workers who cut them into small pieces with chain saws. They were then crushed and, unlike in LTCW land stations, put into a Kvaerner type boiler operated by people from the boiler section. The remaining entrails were also processed into oil.

It should be emphasized that the relative importance of the various products prepared by a pelagic fleet changed over the years as a consequence of changes in the market for whale products. In the 1960s the demand for whale oil

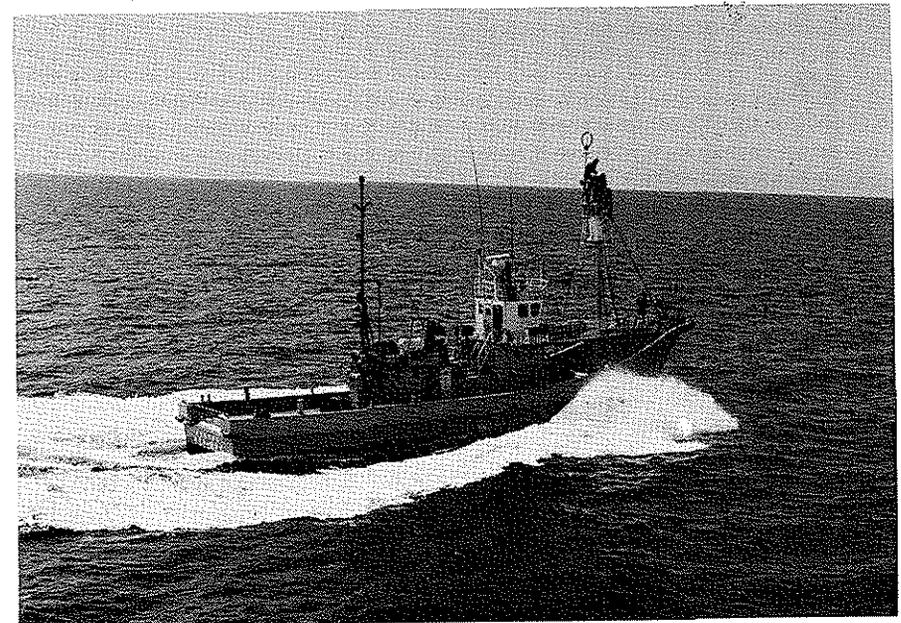
decreased. At the same time the number of captured whales also declined, which caused a higher price for whale products processed for human consumption. This led to a marked shift in the use of the blubber from oil extraction to freezing and salting for food.

#### *Small-Type Coastal Whaling (STCW)*

As we have seen above, hunting of small type cetaceans has been practised in Japan in some form or another for many centuries, but the origins of what is now commonly referred to as Small Type Coastal Whaling (STCW) can be found in the beginning of minke whaling off the Japan coasts in the 1930s. This type of whaling is characterized, firstly, by the species of whale caught (minke, Baird's beaked and pilot whales), and secondly, by the small size of the whaling vessel (between 15 and 50 tons) (see Akimichi et al. 1988).

Although the hunting season is now fixed by Japanese government regulations, STCW has in fact been carried out when whales are close to the coast. This means that the administratively regulated season has also been an ecological season. At the same time, the fact that the boats are small means that STCW has been essentially a single day hunting operation, for the boat leaves its harbour in the morning on a clear day when the sea is calm and returns in the evening after dark. Only very rarely, when the sea is very calm, does it stay out overnight.

The crew of each whaling vessel is small compared with other types of whaling



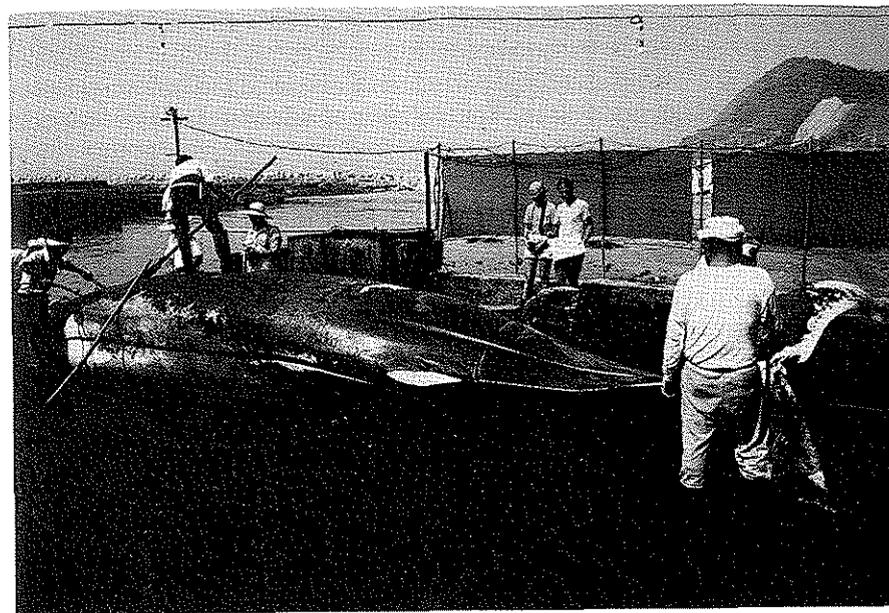
*A STCW catcher boat during the search phase. Photo Sasaki Tsuneo.*

catcher boats, consisting of between five and eight persons (compared with between 16 and 23 crew on a pelagic fleet catcher boat). Here the gunner has had greater influence than was the case in the LTCW and pelagic operations, and may often be gunner, captain and owner of the boat all at once. Other crew members consist of an engineer and deckhands only, there being no specialized communications officer employed, even though there is, of course, advanced radio communications equipment on board of the whaling vessel. It will be appreciated that this lack of specialization among other members of the crew contributes greatly to the overall authority of the gunner who takes over complete control of the vessel once it leaves port.

As in LTCW, the gunner first decides the general area in which he will conduct his daily search. This will be based on past experience, seasonal variations of currents, whale migrations and general availability of food for the whale, together with information supplied daily by local fishermen. As in LTCW and pelagic whaling, he pursues his search carefully monitoring the temperature of the water and the flow of the currents, while looking for other clues which also indicate the possible presence of whales – like the activities of birds, dolphins, and large fish. At the same time, he has to have a more specialized knowledge of the topography of the seabed than is the case in LTCW or pelagic whaling, since the STCW boats operate closer to shore and in shallower waters, the depth of which also affects the behaviour of the whales sought, especially the Baird's beaked whales. A whale will either be sighted directly or be tracked on the basis of information received from fishing vessels at sea which will relay news of sightings directly by radio to the whaling vessel with the expectation of reward of whale meat should the information lead to a kill.

In STCW, both the structure of the whaling vessels and the type of whales hunted affect the way in which the chase is carried out. For example, a slow boat in search of minke whale may launch a small power boat which it sends out to slow down the whale and drive it eventually towards the whaling vessel.<sup>8</sup> A fast boat, on the other hand, obliges the whale to swim very fast and so prevents it from diving – in which case it is overtaken by the whaling vessel on its own. Unlike minke whales, Baird's beaked whales dive as deep as 1200 metres and for up to 45 minutes at a time. This means that the gunner had to try to work out where the whale would resurface and position his vessel accordingly. It is important to note that the echo sounder used in LTCW and pelagic whaling was not used in STCW as a tracking device, in part because the beaked whale is extremely sensitive to its signals, and hence easily scared by it.<sup>9</sup> Therefore, the gunner's traditional – and secret – knowledge remained extremely important to success in the pursuit of the whale. Moreover, his skills are tested much more fully when it comes to shooting the whale, since the target is smaller and the whaling vessel itself is much less stable (because of its small size) than were LTCW and pelagic catcher boats.

Once the whale has been caught, and provided there are no other whales in the vicinity, the whaling vessel will usually secure the carcass by tying its tail to the side of the boat, bleed it, and then tow it back to the landing station. There



*The master flensers make the first cuts in the whale, Wadoura. Photo J. Takahashi.*

are two exceptions to this rule. Firstly, if there are other whales nearby which the whaling vessel wishes to pursue, it will attach a radio buoy to the carcass, before continuing its hunting activities. Secondly, in Hokkaido waters, rough flensing of minke whale is permitted on board the whaling vessel, in part because there has been in recent years only one authorized land station in Hokkaido (at Abashiri). Since minke whale meat requires prompt flensing to preserve its freshness, on board flensing is essential to meet demand, though whalers point out that there is some trade-off in terms of shrinkage of the meat after on-board flensing occurs. The crew first winches the whale up onto the flensing deck situated in the stern of the boat, before the expert flenser (a land-based specialist from Honshu, who is added to the normal crew when boats operate in Hokkaido waters) flenses the whale with the help of other members of the crew. The flensing operation usually goes as far as the second stage only, in which the 30 centimetre chunks of meat and blubber are prepared prior to finer cutting up into smaller blocks, which will be undertaken on land.

With the exception of minke taken in Hokkaido waters, however, all whales taken in STCW must – according to law – be taken back to designated land stations for flensing. The STCW flensing stations are generally smaller and simpler in layout than those used in LTCW. Since nowadays whale blubber is used for food and not for extraction of oil, there are no boilers operating.<sup>10</sup> Though some whaling operators, like those in Abashiri, may process some whale meat and blubber themselves in small workshops, most processing such as the salting

and drying of meat, as well as the preparation of fertilizers and so on mentioned for LTCW, are carried out by other processors who specialize in such activities and who purchase their necessary raw materials either directly from whaling operators or through middlemen. The methods of sale vary from port to port and among different species.

The smallness of scale of the STCW landing stations thus gives rise to a structure of organization in which very few full-time specialists are employed. The only experts are the chief flensers who separate the meat from the blubber, and cut the meat from the skeleton of the carcass. Other tasks may be carried out by women and old people, who from the bulk of the work-force and are employed on a casual part-time basis, coming from the locality in which the station is found. Middlemen and distributors may lend a hand with flensing, and when necessary catcher boat crews may work on flensing as well. Not surprisingly, perhaps, the speed with which the work is conducted is slower than on pelagic whaling mother ships or on LTCW land stations.

### Similarities and Contrasts

It can be seen from the above description of net, large type coastal, pelagic, and small type coastal whaling that there are invariably two main *sets of activities* common to all types of whaling. One set relates to *catching* the whale; the other to *processing* it. Within each of these sets of activities there are certain similarities, as well as dissimilarities, among the four types of whaling described above. Let us start with the main dissimilarities in activities connected with catching.

First of all, there is an obvious disparity between pre-modern net whaling and modern methods of whaling in the selection of hunting area, which was subject to local feudal government permission in the case of net whaling, but not in that of coastal whaling today: in the generally static nature of the search phase in net whaling, whereby whalers had to wait for the whales to pass by rather than actively go out and look for them; and in the use of several boats to drive the whale towards the net, as opposed to modern methods of using fast, powered equipped with harpoon guns.<sup>11</sup>

Secondly, there are disparities between the various types of modern whaling methods. For example, in pelagic whaling a special vessel searched the area for whales and relayed information back to the mother ship, whereas in coastal whaling (both large and small) catcher boats worked totally independently. Moreover, whereas, in STCW, the echo sounder is used as a device to bring the minke whale to the surface, in LTCW and pelagic whaling it is used to help the catcher boat keep track of all types of whales (ASDIC). Finally, in pelagic whaling, specialized boats were used to collect whales and take them to the processing unit, whereas in coastal whaling, the catcher boat itself performed this task. However, it should be noted that the use of specialized craft to tow the dead whale to be processed was also found in net whaling in pre-modern times.

This point brings us to a discussion of the similarities to be found in the catching set of activities. Many of these will have been apparent from our description

of the four types of whaling outlined above, but it should be stressed that in all types we can break down the set of catching activities into five distinct phases: deciding on hunting grounds, search, chase, killing, and securement.

In deciding on hunting grounds, the gunner in the case of LTCW and STCW, or the commander of the fleet in pelagic whaling, relies on his knowledge of whale behaviour accumulated through long experience, and on information obtained from recent hunts or supplied by other vessels in the same waters. Considerations of fuel consumption and time factors enter into his decision.

Similarities in the search phase include use of look-outs and signals (which may be secret, as in pelagic whaling), the monitoring of natural environmental phenomena, and the identification of the species of whale sighted. The same set of abilities, which includes good vision, concentration and keen senses, is considered to be essential to be a good whaler in all types of whaling.

In the chase phase, we find close cooperation between the harpooner/gunner and his crew, the supreme authority of the harpooner/gunner on board his vessel and the prestige accruing to his position. In addition, the harpooner/gunner necessarily requires a good knowledge of the whale's behaviour in order to anticipate its movements and reactions.

We find that in the killing phase, the skill of the harpooner/gunner in bringing his vessel to within range of the whale, his accuracy in shooting it, and the timing of the shot itself are all essential. All types of whaling make use of harpoons equipped with ropes. The fact that one harpoon was usually insufficient to kill a whale (before the introduction of the exploding harpoon) has meant that new harpoonists/gunners could be trained by allowing them to fire subsequent shots.

Finally, in the securement phase, the whale has to be prevented from sinking, either by being pumped with air, or by having floats attached to it, before it can be towed away to the processing unit. Great care was taken in order to prevent the damage or loss in quality to the meat of the whale caused by the waves and high water temperature while it was towed back to the port.

In the processing set of activities, there are more similarities than dissimilarities among types of whaling, and the disparities are fairly minor. On a land station, for example, bones tend to have been used for fertilizer and entrails for food, whereas on a mother ship they have both been boiled to extract oil. Some land stations, too, may subcontract part of the processing (bones, sinews, and intestines) rather than carry out all aspects as on the mother ship.<sup>12</sup> In other technological respects, however, the processing that takes place in the mother ship and the other non-hunting ships of the pelagic fleet is for all practical purposes identical to the land station, so that the processing fleet can be conceptualized as a floating land station.

The use of the whale as such has changed very little over time. With very few exceptions, the Japanese - unlike whalers in many other nations - have sought to make *total* and variegated use of the whale. In addition to the full utilization of red meat for food and blubber for oil and food, the fact that various usages were found for the skin and flukes (as salted food), the bones (fertilizer or oil), entrails (fertilizer, oil or food) and for baleen, teeth and sinews (for craft produc-

tion) has affected the processing of the whale to such an extent that this set of activities is very distinct from those found among other whaling countries. This is true, moreover, for all the four types of whaling described. That the Japanese are very conscious of this difference can be seen in the way in which Oka Jūrō, the founder of one of the whaling companies (Tōyō Hogeī), as far back as the beginning of the century stressed that, when it came to Norwegian technology, Japan should adopt new technologies in the *catching*, not the processing of the whale (Tōyō Hogeī Co. 1910).

The point to be made here is that, because each part of the whale is put to different uses and because various types of red meat are differently valued on the market, the various flensing activities have to be done with great care. This means that the early stages of flensing require great skill and that local casual day labour can only be employed, if at all, for the later stages of processing. We should note that all those employed in the hunting and processing of whales in whatever form of whaling, received payment partly in kind. This led to the development of a unique system of gift exchange and to a rich local food culture based on whale meat (Akimichi et al. 1988).

Another remarkably persistent feature of whaling in Japan from pre-modern times to the present day is to be found in the recruitment of personnel. There are three aspects of this. Firstly, those who man the whaling vessels have been recruited from specific, occupationally specialized villages that have been widely dispersed geographically. Just as, in pre-modern net whaling more than a dozen villages in Kyushu would provide crews for the hunting boats<sup>13</sup>, so in recent times have crews on mother ships and catcher boats, and workers on mother and refrigerator ships, tended to come from different but specific areas of Japan (Kalland 1989b:5). Secondly, just as the pre-modern whaling harpoonist (*hazashi*) recruited his own crew, mostly from his own village (Hidemura and Fujimoto 1978:167; Hidemura 1952:88; Kalland 1986:37-39), so in modern times have personal connections with the gunner (or his wife) been a vital means of recruitment – particularly in STCW. Finally, in both pre-modern and modern whaling, the village in which the landing station was located has not necessarily contributed many of the personnel employed in hunting, but has been more concerned with the processing stage of whaling<sup>14</sup>.

In fact, in processing, we generally find different types of recruitment patterns. In net whaling, for example, specialists (particularly flensers) were often employed from a wide geographical area, whereas unskilled labourers tended to be casually employed on a day to day basis from local communities. With the opening up of land stations for LTCW in the early part of this century, the story was repeated as expert flensers were brought in from villages in the south of Japan that had traditionally specialized in processing, while unskilled labour was locally recruited<sup>15</sup>. In the same fashion as was true for catching activities, particular villages tended to have specialised knowledge of processing skills.

## Linkages

What we find in both pre-modern and modern Japanese whaling, then, are two sets of activities centering on catching and processing, which are accompanied by two sets of knowledge. Not surprisingly, the career patterns of those employed in each set of activities are different. There is career mobility between LTCW, pelagic whaling, and STCW types, but not generally between activities relating to catching and processing. This might seem to imply that there are two isolated spheres of knowledge, but in fact this is not the case because there are a number of important linkages that serve to bridge the gap between them, and which thus justify the concept of an integrated *whaling culture*.

One of the main links, especially in pelagic whaling and LTCW, is that of the whaling company which acts to enclose its own employees in an identifiable group (cf. Clark 1979; Nakane 1970; Rohlen 1974, and others). Each company makes use of certain strategies such as rituals, songs, company newspapers, and former employees' associations (*OB kai*), to create the kind of in-group feeling that is so often a feature of Japanese society.<sup>16</sup> In Arikawa, for example, whalers employed in the same company would go on a pilgrimage to one or more shrines before leaving for, and after returning from, a whaling trip (Kalland 1989a). While the whalers were away, their wives would form informal groups based on company affiliation and make a monthly pilgrimage to the same shrines to pray for their husbands' safety and good catches.

At the same time as creating and 'in group' atmosphere that separates one company's employees from another's, there are certain linkages between companies that should not be ignored. There are, for example, industrial associations like the Japan Whaling Association and Small Type Whaling Association which link companies, as well as a trade union (the All Japan Seamen's Association) that has, since 1976, encompassed all those employed in pelagic whaling. We have also mentioned the way in which companies in LTCW and STCW have been related by capital linkages, but the system of licensing developed by the Japanese Government after the Second World War also obliged different companies to cooperate in the operation of the North Pacific whaling fleets. Thus, we find that, between – for example – 1954 and 1961, the mother vessel of one fleet was operated by Kyokuyō Hogeī, while the other was operated by Taiyō Gyogyō and Nissui in alternate years. The catcher boats of each fleet were provided by five companies: Taiyō, Nissui, Kyokuyō, Nittō Hogeī and Nihon Kinkai (later renamed Nihon Hogeī) (Grande et al. n.d.)

Another way in which the whaling companies acted as a linking institution can be seen in the methods of informal recruitment practiced by the whalers. As mentioned above, there is clear evidence that personal connections were vital in the recruitment of labour and that such connections allowed members of a whaler's family to enter into the same company, without necessarily being employed in the same set of activities (of hunting or processing) as the relative already employed there. This meant that there could be intergenerational differences in specialized knowledge within the same family, so that, whereas a father

would be working on a catcher boat, a son might become a flenser (or vice versa); where an uncle worked as a boiler man, a nephew could be employed as a mechanic on a catcher boat; or brothers might be employed in a wide variety of occupations within the same company. The existence of different specializations within a family group, however, enabled the free communication of specialized knowledge adhering to each of the two sets of activities emphasized above.

A persistent characteristic of Japanese whaling from pre-modern times has been the great mobility found among most types of whalers. This mobility has involved not only personnel, but skills and capital, as whaling groups moved from one locality to another, giving rise to widespread communication among whalers. Even as early as the 17th century, whalers made trips to other regions specifically to learn new technologies, and were invited by whaling and non-whaling settlements to teach those techniques. These conscious efforts to diffuse technology throughout pre-modern times, encouraged further mobility which in this century contributed to the building of whaling stations in various parts of Japan. Ayukawa is a prime example of this pattern. Thus, we find that there was, and still is, a shared knowledge and common background of whaling, transcending the locality in which any particular operation may be taking place, and based on the technology required to catch and process whales. A recent example of such mobility, entrepreneurship, and communication of technology is to be found in the way in which one whaling company, based in the north of Japan, has decided to establish a land station in the south west of the country, bringing in skilled workers from various parts of Japan for both catching and processing.

Another linkage which concerns knowledge in a broader sense is that of rituals and beliefs. The role of ritual in Japanese communities in general is, of course, important since the local shrine in many respects defines both geographical and social perimeters of the local community (Yamamoto 1978; Bestor 1989a). In whaling communities, there are many rituals involving shrines. Before the STCW season starts, for example, whaling crews in Ayukawa visit Kinkazan to pray for a good catch and safety at sea, and during the whaling season itself there may well be daily visits to the local shrine by female members of the whalers' families. Other festivals involve thanksgiving ceremonies and the dramatization of whaling techniques (cf. Akimichi et al. 1988:63). Similar practices existed among pelagic and LTCW whalers in Arikawa and Ukushima.

Apart from these Shinto ceremonies, there are also Buddhist rites in local whaling communities. There are two main rites. The first involves a 'memorial service' (*kuyō*) designed to appease the soul of the dead whales and to permit them to rest in peace and not torment whalers in future as 'hungry ghosts' (*gaki*). The second is for the soul of the whalers, to forgive them and compensate them for their karmic demerit acquired by taking life. This *kuyō* is particularly important for gunners, of course, but the whole community may be involved in the memorial rites.

### Special Features of STCW

Although we have argued strongly for the unity of a single whaling culture on the basis of the continuities and shared elements that may be found among the several forms of Japanese whaling discussed above. It is important to note as well that STCW has certain characteristics that set it apart as a distinctive form within the larger Japanese whaling culture today. For a start, STCW is more egalitarian and more flexible in its organization and activities than LTCW, in part because it originates historically from pilot whaling rather than from net whaling of large cetaceans, and in part as a result of its small scale.

Thus, the bridges both within and across the two sets of activities, catching and processing, mentioned earlier are particularly apparent in STCW. In the first place, the crews on board vessels and processing teams are much smaller in STCW than in LTCW or pelagic whaling. This means that they are not confined to carrying out single tasks within each set of activities, but perform a number of different tasks therein. For example, the STCW gunner can be both captain and owner of his vessel. Moreover, anyone can go up the masthead on a STCW vessel, whereas this is forbidden in pelagic whaling. On the land station, there is no specified winch operator, which means that this task may be performed by a flenser or even a sales manager, and the latter may act as unskilled labour in the final stages of cutting up the whale meat and blubber. A particularly good example of this kind of bridging across otherwise distinct sets of activities can be seen in the way in which crew members of the minke STCW vessels will help in on-board flensing of whales taken in Hokkaido waters. Again, in pelagic fleets, we find that there were separate sleeping and eating quarters for gunner and the catcher boat officers, on the one hand, and for crew members on the other. On some STCW vessels, however, officers and crew share the same quarters and on one boat they all sleep in the same cabin. Thus the rigid social hierarchy found in pelagic fleets and LTCW catcher boats does not exist in STCW.

A second distinctive feature of STCW is the close ties between those working aboard the whaling boats and those on the land stations. Since whaling vessels are continually making day trips to and from a particular land station during the whaling season, members of both processing teams and whaling vessel crews are always in contact with one another. When a whale is taken, of course, they find themselves working in proximity to one another. But when the weather is too bad for vessels to put to sea, crew and flensers may often socialize together during the day, as they may commonly do in the evenings. The social distance between the two groups brought about by their specializations – which is most obvious in pelagic whaling where members of catcher boats will not visit the mother ship for weeks on end – is less pronounced in STCW.

Such close working and social relations are naturally transformed into ties between whalers and the local community in which the land station is situated. Informants frequently spoke of the way in which local villagers, including retired whalers and women, would gather down by the waterfront when whales were brought in to carry out miscellaneous tasks in return for gifts of whale meat.

Indeed, the non-commercial distribution of whale meat among relatives and neighbours of those involved in whaling is remarkable. Not only was meat distributed widely every time a whale was taken, but on special occasions – such as the launching of a new whaling vessel, or the completion of the first catch of the season, for example – there was an extensive chain of gift giving involving whale meat and *sake*. Indeed, throughout the year, gift giving was a major activity in whaling communities like Ayukawa, and frequently involved exchanges between local residents and shrines and temples (cf. Akimichi et al. 1988:41-51).

The commercial distribution of whale meat from STCW has, until recently, been very different from that practised in LTCW and pelagic whaling. In pelagic whaling, frozen whale meat used to arrive at various major ports before being nationally distributed via the central wholesale markets. In LTCW, too, although whale meat was processed in various local land stations, it was then generally shipped to the national central wholesale markets as and when thought fit by corporate managers in major cities. The distribution of products from STCW, on the other hand, has generally passed through *local* market institutions and thence into the hands of local brokers and middlemen who distribute the products locally and regionally. In this way, not only has the STCW distribution system satisfied *local* demand reflecting *local* tastes; it has also provided, as in Ayukawa, significant financial support for local market institutions, thereby benefitting the maritime community as a whole (Bestor 1989a).<sup>17</sup>

The merging of specializations that we have discussed in STCW is underlined by certain ritual activities (of the kind alluded to earlier) which bring together those involved in separate sets of activities – owners, whalers, and distributors. In Ayukawa, for example, female relatives of STCW whalers are accompanied to a local shrine by the wife or daughter-in-law of the company owner – thereby revealing one more way in which the patterns of hierarchy are broken down in this form of whaling. Another event – of which the ritual eating of whale meat is an essential part – involves a visit to the important shrine of Kinkazan. This is organized by the main local distributor and is attended by the community at large. Such activities serve to strengthen the sense of community, thereby making STCW somewhat different from LTCW and pelagic whaling.

### Conclusion

In this paper, we have outlined the historical background of pre-modern and modern whaling in Japan, before describing the three main types of whaling practised in Japan in recent decades – large type coastal, pelagic and small type coastal whaling. By comparing these types, we were able to show that there are two distinct sets of activities concerned with production which show remarkable continuity within the catching and processing spheres respectively. At the same time, the differences between these spheres are also bridged by a number of social and cultural institutions (which are particularly apparent in STCW where whaling is closely integrated with local community life). These continuities and similarities, and the several bridging mechanisms, have enabled us to argue for

the existence of an integrated whaling culture in Japan.

In conclusion, we may ask what it is that makes Japanese whaling an integrated culture. In spite of the co-existence of three forms of whaling and two distinct sub-cultures based on hunting and processing, there are a number of features at the institutional and ideological levels which serve to link both the different forms and the separate sub-cultures. In this paper, we have focussed on the social organization of whaling production and have pinpointed certain similarities and linkages – such as technology, the utilization of the whale, recruitment of whalers, their career patterns, mobility and diffusion of knowledge, as well as the overall industrial structure – which all perform this integrating function. There are, however, other elements that need to be considered.

Firstly, there is a consistent and diversified usage of whale products which has changed little over the centuries. Different parts of the whale have been used for food, oil, fertilizer and handicrafts both in pre-modern and modern times, and meat in particular is classified into a wide variety of products. Such fine categorization is accompanied by a diversified knowledge of cooking, which means that the whale itself has to be processed very carefully and in particular ways. Consequently, Japanese whalers are confronted with a number of technical and organizational problems, common to all three types of whaling, but not found in other whaling cultures. As a consequence of this persistent tradition in the use of the whale as food, we find that there is a strong sense of continuity in the organization of activities relating to the catching and processing of whales.

The organizational continuity found in whaling is not confined, of course, to whaling alone, but is a pervasive feature in other spheres of Japanese culture as well. For example, there is the customary concept of sea rights and tenure systems, which have over the centuries regulated relations both between producers and host villages and between producers and authorities. With few exceptions, whaling has since pre-modern times been strictly regulated and taxed by government bodies (e.g., feudal fiefs, prefectural governments, and the national government). Furthermore, producers have always made payments to host villages as a form of compensation for causing local people inconvenience, and we find that whaling operators have made similar payments and (in the case of SCTW) have distributed their products through the local fish market, thereby serving the important function of subsidizing other activities in the host communities.

We have also seen that those working in the whaling industry received payments in kind, as well as in cash. Because of this, we find that there are elaborate patterns of gift exchange in whaling communities (Akimichi et al. 1988), and that these concord with customary notions of give and take and the general sense of reciprocity found in Japanese society as a whole (Befu 1968). Whale meat is widely distributed as gifts among the friends and neighbours of whalers and thus becomes a strong stabilizing force between whalers and non-whalers in whaling communities, and also gives each community a distinct identity vis-a-vis other communities in the area.

Reciprocity is also apparent in certain rituals which, as we have seen, help to integrate the whaling community as a whole. By revealing their indebtedness to

the host villages in such ritual activities, the whaling operators themselves become integrated more totally in community affairs. Although this tendency is strongest in STCW, it was also found in other types of whaling in the past.

The characteristics that we have here outlined – the consistent and diversified usage of whale products, the systems of compensation associated with tenure systems and location of land stations, reciprocity and distribution of whale meat, and rituals – are found to some extent in all forms of whaling described in this paper, and hence act as linking mechanisms between pelagic whaling, LTCW and STCW. In this respect, they supplement and reinforce the similarities and linkages on which we focussed earlier in our discussion of the organization of production. It is the existence of all these similarities and linkages between whaling forms and across whaling sub-cultures which have enabled us to argue for the existence of an integrated whaling culture in Japan.

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### Notes

1. The partial definition of culture presented here owes much to the work done by anthropologists interested in the relation between society, culture and environment (e.g. Barth (1956) on the concept of 'ecological niche'), and variously referred to as 'cultural ecology' (Steward 1968), 'ethnoecology' (Frake 1962), 'cultural materialism' (Harris 1968) (or 'vulgar materialism' (Friedman 1974)), 'anthropological ecology' (Anderson 1973), 'ecological anthropology' (Rappaport 1971, Orlove 1980), and so on. We have based our approach, however, on the interrelationship between production and variables affecting consumption – such as the market demand for whale products, on the one hand, and government and international regulations, on the other.

2. According to Kumano Taiji-ura Hogeishi Hensan I'inkai (1969: 465-72), there were in 1832 seventy named edible parts of the whale, including meat, blubber, organs and bones. Food preferences are closely connected with the history of whaling in particular communities. In Taiji, for example, people prefer pilot whale; in Wada-ura they have a particular liking for Baird's beaked whale; in Ayukawa and Abashiri, minke is the favourite type; in the Tōhoku region, sperm whale was preferred and in the northern part of Kyushu, fin whale is widely eaten.

3. During the feudal period (1189-1868) a system of sea tenure developed which in general gave fishing communities the exclusive right to exploit the resources within their allocated fishing territories. Any infringement of these rights – such as occurred with the establishment of a coastal whaling industry – required payments of compensation to the village affected. This system of sea tenure has survived until the present day and has been encoded in the Fishery Law of 1949. For an extensive discussion of the emergence of the Japanese sea tenure system, see Ruddle (1987) and the volume edited by Ruddle and Akimichi (1984).

4. 8.165 working days were spent during this stage by one net group consisting of 61 identified artisans plus an unspecified number of firewood cutters and female rope makers at Tsushima in 1802 (see Takeno (1979) or Kalland (1986:34) for details).

5. Usually there were three nets set outside each other, but some smaller groups had only two nets.

6. In the case of baleen whales, the *onomi* tail meat was removed first since it is considered a great delicacy in Japan (see below for further discussion of flensing techniques for different types of whale).

7. When the scale of pelagic whaling contracted, the number of catcher boats was reduced and both search and collecting vessels were eliminated. This meant that the hunting operations in pelagic whaling became very similar to that of LTCW.

8. This innovation in fact resembles in some important respects the way in which whales were driven towards nets in pre-modern whaling by special fast boats (*seko-bune*).

9. STCW vessels do make use of a transmitting device which frightens minke whales, making them surface and swim fast. This device does not, however, have a receiver of the kind employed in LTCW and pelagic whaling catcher boats.

10. The blubber of Baird's beaked whale used to be used for oil extraction in STCW, but this was stopped in the early 1980s for market and environmental reasons.

11. The technique of chasing whales in this manner is not unknown today. In STCW, for example, fast powered boats are used to bring the whale towards the whaling vessel, while in certain communities in the south west of Japan groups of small fishing boats are occasionally used to herd dolphins and pilot whales into bays, where they are trapped by nets placed at the entrance of the bay.

12. It should be noted that over time the new processing technique of freezing (introduced in the late 1940s) allowed a shift in preparation of whale meat from salting to freezing. Moreover, changes in market demand have brought about a shift in the use of blubber which is now mainly eaten rather than made into oil. These changes apply, however, to all three types of modern whaling.

13. In pre-modern net whaling, for example, it is known that the Misaki net group (in Hirado) employed crews for 33 boats from 22 villages, while the crews of the 44 boats in the Katsumoto group (Iki) were recruited from 22 villages, all in the northern Kyushu area (Kalland 1986:37-39).

14. In the two examples cited in Note 13, only one boat from the host village for the whaling group participated in the former group, and none in the latter. Most of the net groups in Kyushu employed net makers from several villages in the Inland Sea area, and these workers also crewed on the net boats. Similarly, only six out of 44 men employed as crew on Nihon Hoge's LTCW catcher boats operating from Ayukawa, came from that township in 1987.

15. It is known that, throughout the history of whaling, this casual employment was welcomed by local farmers during the slack winter season, and even in pelagic whaling most of those working on mother ships were recruited from farming households.

16. These employees' associations both separate people at the lower level, while uniting them at higher one. In most large whaling companies, the Old Boys Associations are organized according to whether former employees worked on catcher boats, as crew on mother ships and other support vessels, or as processing workers (Taiyō Gyogyō 1984). Each regional branch of the association is organized hierarchically on a national grid, however, and this allows members from different specializations – both at the national and local levels – to gather together on certain occasions. In Taiji, however, a universal *OB kai* was formed in 1982 as a reaction to the IWC's moratorium decision which was seen as an attack on the whaler's culture and identity. This *OB kai* includes the membership from all companies of all types of whaling.

17. In recent years, the reduced quota on the number of whales to be taken, together with restrictions on international trading in whale products, have created a scarcity of supply which has itself brought on a sharp increase in prices. This has led to products from STCW being distributed through regional wholesale markets and thence possibly to the national central wholesale markets, thereby bringing the system as a whole more in line with the LTCW distribution system. However, in STCW, the commercial distribution flow is still initiated locally

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