mercury at -10°C and a cold wind is not something one prefers or looks forward to but does not do any harm to healthy dolphins as we demonstrated twice on Kennedy Airport. Once with three Lag dolphins out of Los Angeles in December 1966 and again in January 1971 with 5 Tursiops and one shark out of Florida. Not even the slightest sneeze developed in both cases.

e. The sling (fig. 6)

This is essentially the sling as devised by Wilkie c.s. Ours is modificated slightly. The tail end is suspended by weaving a piece of nylon string through the eyes and around the handle bars. The flipper and shoulder have all freedom of movement that is possible and there is easy access from above. A hole for the anus can be cut on the last minute on the appropriate spot.

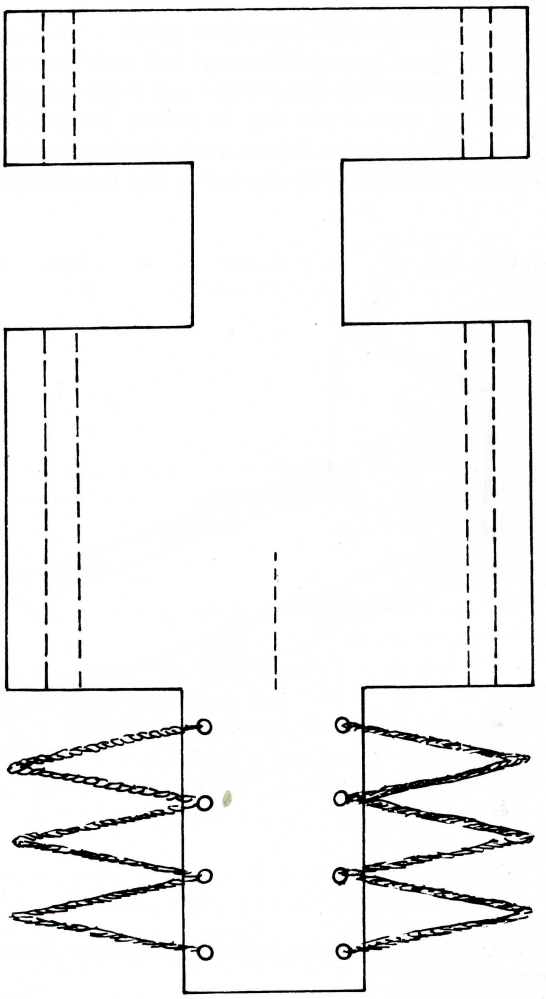

Fig. 6
The sling. See text.

The sling is made of heavy canvas with all seams at the outsides. This gives a complete smooth inside on which the animal is placed. Cushioning or padding is not necessary and never we had, in a properly made sling, any chafing on the skin.

In my opinion the use of nylon, dacron or terylene and cushioning or padding is very bad practice and it should never be applied (to be discussed in the paragraph on wetting).

Each sling has two open seams through which the handle bars pass. On transport with new animals we use both outward seams. Animals we know are quiet are placed in slings which are shallower by putting the handle bars through the inward seams. In this way a dolphin has somewhat more freedom to move which helps bloodcirculation.

f. Miscellaneous

Besides the webbing straps mentioned above – three per dolphin – the only extra stuff we carry are some pieces of half inch foam plastic.

Some dolphins have very long flippers and extra wide flukes. They may touch the bottom and sides of the bag. To prevent chafing we put the foam plastic underneath. Although the airlines strap the frames on the pallets some nylon and/or hemp string comes in very handy and should be carried.

B3. The sling in a frox. (fig. 7)

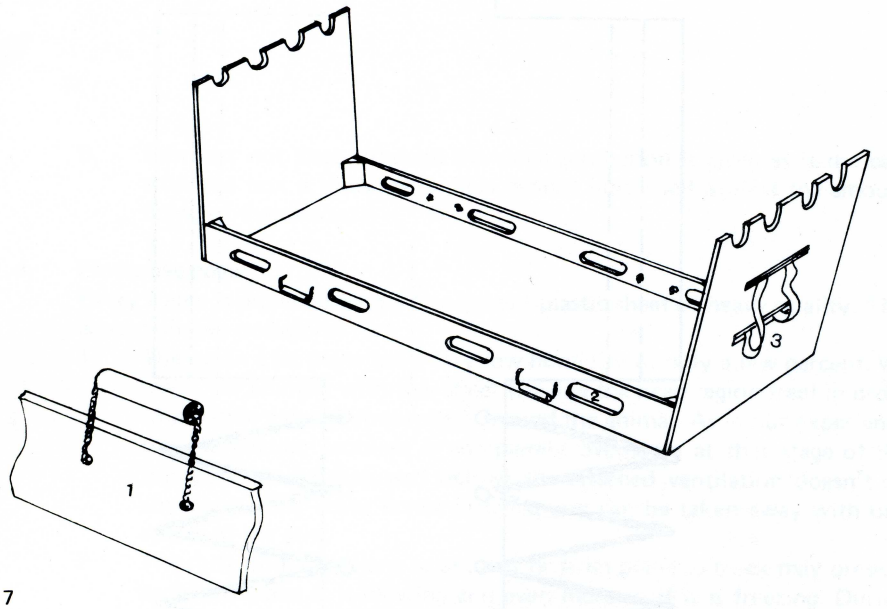

Fig. 7
The frox.
1. Rope handle for carrying frox should be long enough to prevent knuckles form chafing.
2. Holes for passages of straps.
3. Rubber straps to hold battery.

In our transport system we virtually carry the animals with a negligible amount of water to be discussed below and use no sprinkling system.
We have proved the sprinkling system can be used effectively in our bag without the fear of water leaking into the plane. However, some people are afraid the bag can chafe through and therefore accept the drawbacks of the box and use it.
We designed and tested the frox which combines the few advantages of the box and those of the frame for those people who want to use the sprinkling system.
The frox is a tapered box for easy and inexpensive shipping without dolphins. The sides are almost completely cut away. The box is made of the cheapest and roughest plywood available, 8–10 mm thick, and covered with a few millimeters of fibreglass. The frox has been successfully tested for strength under very rough trucking condition with a load of 500 KG. The bag, cover etc. are used as mentioned under B2. The battery is fastened with two rubber straps at the outside of the frame.

Wetting

It is common knowledge that cetaceans are adapted to a life in water to such a degree that they have lost the mechanisms of their terrestrial ancestors to withstand the dehydration effect of wind. Moreover their temperature regulation is less effective in air than it is in water.
The resulting effect in a dolphin, left on dry land without proper care, sums up to cracking of the skin, blisters and even raw patches – "burns" – which lead to infections and ultimately, death through excessive loss of water.
Therefore it is of utmost importance to prevent dehydration.
The common practice nowadays is that after the animal has been placed in the sling a piece of cloth is spread over the dolphin. A linen or cotton sheet should not be used. Under a fold blisters can emerge easily. I prefer cheap bathtowel cloth as it is not too heavy. If the cloth, heavy of water, is resting on the dorsal fin the latter will bend and stay so forever. Therefore a slit is cut in the cloth to allow passage of the dorsal fin. A separate piece covers the dorsal fin. This piece is kept in place by pushing the sides through the slit. Some people cover the head of the dolphin completely cutting a second hole in the cloth to prevent obstruction of the blowhole. I prefer to stop short just behind the blowhole and leave the head free. In this way the animal is able to see a little bit of what is going on and in my opinion they feel better. The forward corners of the cloth are pulled down and draped loosely over the flippers. The cloth is also folded around the flukes. If long body pieces are not available we use separate pieces around the tail end. Practice is to grease the animals with lanoline around the blowhole, the eyes and the base of the flippers.
In early days we used a lot of water and sponged the animals down to keep sling, cloth and animal wet. We did not need to bother about the supply as KLM kindly put hundreds of liters of fresh water in steel milk cans at our disposal at their own expense. I should like to emphasize it was right from the beginning and it still is my thorough conviction that water once it is used to wet an animal should never be used again. In this way we kept our water supplies clean and used separate sponges to clean a dolphin. Water which drips underneath is very quickly contaminated with urine and faeces and especially in a hot climate like Florida an ideal breeding place for bacteria and fungi. I'll dwell on this more extensively in the paragraph on medicine.
When dolphin transports became more frequent the airlines got used to it in a way. Accidents and bad handling were observed and even serious damage to planes has been inflicted. So facilities grew less and those who transported dolphins have to pay for every kilo. Most people then did away with the handwork of wetting and a sprinkling system was developed using the same water over and over again although it became filthier with the hour. As said before I distrust the sprinkling method completely on account of its infectuous qualities and therefore have kept to the bucket with clean water and the sponge. With mounting experience the amount of water used became less.
Everybody who has transported Tursiops has seen how the animals discolour within a few hours after being placed in the sling to a very dark grey close to black although they are wetted properly. This also occurs on the spots which have been greased with (anorganic) vaseline. We always use lanoline, as it has a healing effect on sores, and found that the skin did not or scarcely discolour even after some 24 hours out of water and also stayed soft and supple. Our procedure now is as follows.

Prior to transport the heavy canvas slings are completely soaked and so are the covers. The dolphins are placed in the slings and the frames. When catching the animals to this end care has to be taken that no water enters the lungs. This greatly increases the chance of lung infection. As soon as they start to dry superficially they are greased all over with lanoline until they look like beluga's. The soaking covers are spread over them, the final adjustments are made and the protective bags rigged. The whole operation for 5 or 6 dolphins takes about 1½ hours. We leave immediately for the airport.
The first few hours are the most critical ones of the total transport. The nervousness of most dolphins in this period is the main cause of overheating. As the lanoline prevents dehydration the soaking sling and covers take care of the overheating. The water in the canvas and the cloth evaporates and so cools down the animals. It is therefore imperative that the sling is not padded at all nor made of nylon, dacron or terylene. This destroys the cooling effect of the wet sling. *Therefore my method is not to be used in connection with a padded sling or a sling made of artificial fibres.* People who insist on using a padded sling or a mattress have to wet their animals regularly or even continuously either with the sponge or with a sprinkling system.
The sprinkling system (fig. 8) consists of a dry battery (continuous running of 5 hours, so carry enough spares) and a little bilgepump on the bottom of the container. A few inches of water underneath the dolphin is enough. The water is pumped to a Y piece from where a tube pierced with holes at 2″ intervals forms a loop over the length of the animal. It is convenient to tie the tubes to the handle bars. The animals are wetted adequately and with a cover over them a damp atmosphere around them is created.
However, from experience related to me by qualified colleagues who have shipped many dolphins and whales succesfully with this method, overheating always is much on their conscience. Padded slings, mattress and lack of ventilation around the animal all offset largely the cooling effect of the water. Because the lanoline takes care of the dehydration completely, we need very little water on transport. When we travel from the Florida Keys to Holland with 5–6 dolphins, we start with soaking textiles. On Miami airport after the animals are adjusted on the pallets and ready for loading we control everything, wash away excessive faeces, restore the lanoline cover where needed and wet again, using about 8–10 liter of water (2–2½ US gallons) for all animals together. On Kennedy airport the same procedure. No more water is usually needed until the animals are lowered into the

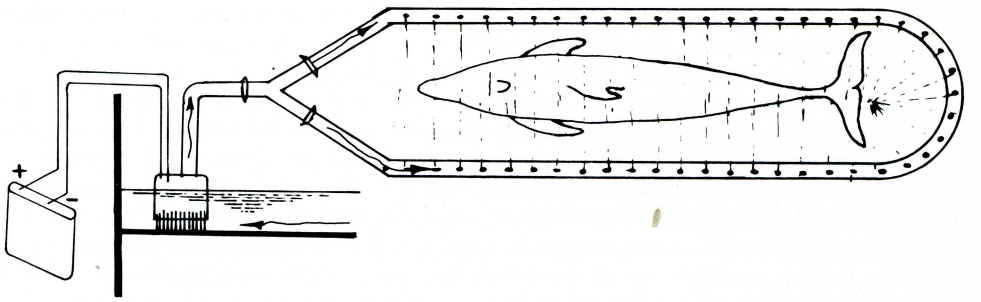

Fig. 8
The sprinkling system. See text.

pool after a trip of ± 23 hours all in. During the flight plastic sheets are spread over the containers to keep a moist atmosphere. This can be done because the animals are so quiet and the evaporation cools so effectively that they turn off their heat regulating mechanism. The flippers, flukes and dorsal fins are cooler than the body. Too much water now makes them even shiver. Beware of overcooling; it may do as much harm as overheating. If animals appear to be cold after shifting them in cold weather from the plane to the cargo building to wait for loading into the next plane warm water can be used to help them warm up. During the transport the cloth is moist, not wet, as long as the animal's temperature is normal, that is extremities cooler than the body. Rectal temperature will be normal, about 36°-37°C. If necessary extra lanoline is applied. For every animal we carry a one-gallon container with sterilized fresh water for various emergencies.

Handling

Before being shipped after the initial catching dolphins should be allowed to accustom themselves to captivity. In my opinion a period of at least 3—4 weeks should elapse from the moment they start feeding in captivity until they are shipped.
As mentioned above water in the lungs increase the chance of infection. Therefore use experienced help to catch the animals prior to the transport.
Be careful with sprinkling water over the dolphin. I prefer the sponge and wait until the animal has breathed before wetting the head region. Always warn the animal, by showing yourself first, talking and stroking the dorsal side between blowhole and dorsal fin, that you intend to touch him. Either for wetting, applying new lanoline or adjusting the animal in the sling. Even a newly caught animal is used to this after a few times and does not resist you or gets frightened resulting in nervousness and overheating. Most dolphins quiet down within an hour especially when you are on the move. The noise and movements in a truck going at good speed quiets them sooner than most other things.
Dolphins on transport do not like brusque movements or kicking against their container. Try to do things smoothly and convince cargo employees to be helpful in this way. With some coaxing beforehand they are always helpful. Dolphins usually do not like to be touched on the extremities so prevent bystanders to touch them.
As soon as the animals have quieted down the handle bars of the sling are shifted sideways. In this way the sling is opened and the dolphin has some freedom of movement. They can roll over a little bit from side to side by the movements of truck or plane. If they want to they can lift their head and see what is happening. It helps for the blood circulation. You may have to adjust the covers afterwards.
If they get nervous and start thrashing the handle bars are shifted towards each other.
If they give signs of irritation suddenly one can be sure they have shifted in their hammocks to such extent (either by the shaking of truck or plane or by their own excercises) that in 90 % of the cases the movement of the flipper is obstructed. One has to shift them a little bit backwards or forwards or roll them over to make them comfortable again.
Two attendants are necessary in such a case. If you don't restore them to a comfortable position you either have a wild thrashing animal at your hand that may even go into shock or some internal damage may be done. If proper care is taken right in the beginning problems of this kind will be rare.
Before you leave by truck instruct your driver to accellerate and decellerate gradually. Let him avoid holes, or slow down for them. No sudden jerks sideways, no traffic risks. Ask him to stop after half an hour (after that every 1½ hours) for control. If possible, a necessity on long trucking journeys, rig a red light signal in front of the driver to stop him in an emergency. I usually have a rigid closed truck. It gives better protection against cold and draught. In winter time such a truck can be heated easily. This is not so easy in a virtually open truck covered with sailcloth. An open truck is to be avoided at all times unless adequate cover can be provided. Beware of exhaust fumes. They may be more than a nuisance and dolphins on transit have met their death by suffocation.
In the same way I discuss the flight with the crew of the plane. I ask them to increase and decrease height gradually. A dolphin reacts immediately to pressure changes. In an earlier paper Dudok van Heel and Tiebor (1966) discussed pressure in the cabin. Tiebor once alone (Tursiops), we together once (Tursiops) and myself another time (Lagenorhynchus

obliquidens) observed signs of shock in a dolphin when the pressure in the cabin became lower than the equivalent of ± 5000 ft. This is rare as it is in human beings. Many flights have been made with dolphins at lower pressure without any problem. As it may occur and modern jets can easily keep the pressure in their cabins at the equivalent of 2000–3000 ft., more so if the crew is notified beforehand, I always ask the flight engineer not to pass the 5000 ft. level. On request most captains ask for and obtain permission to start the final descent prior to the usual half hour before touch down. I ask them to lower the pressure gradually and we also decrease the temperature from the usual 18°C to approximately 10°C. In this way the animals get acquainted to the lower temperatures we usually encounter after landing and during the shift from plane to car. When it is freezing on the platform the big loading doors are kept closed as long as possible and a closed truck is waiting for us as arranged beforehand. It is always arranged with the cargo officer in charge that we are in the forward end of the plane which is the most quiet part for movement and noise. It also means we are last to go in and first out. Moreover there is easy contact with the crew in an emergency. We always try to arrange to stay with the animals during take-off and landing, which is not always permitted because of flight safety regulations.

I always place the containers at right angles to the flight direction. In this way the dolphins swing sideways and easily take the forces on their body during take off and landing. When they are placed lengthwise in the plane they may slid forwards (or backwards) in the sling which may even cause cuts in the flippers. In a box, they may hit the front end bruising their snouts seriously. These kind of wounds can be avoided at all times by proper handling and stowing. A truck is usually too narrow to stow animals athwartship. Therefore a good and careful driver and two attendants are a must.

It is obvious that containers should never be stacked on top of each other as this obstructs access to the lower animals.

After some time one can see animals opening their mouth repeatedly and a slimy substance is visible on the lips. Not all animals show this. We wash their mouths, lift their heads a little and pour water in the mouth. If they don't want to open their mouth at first open it yourself from the sides and push a piece of wood (a clean round stick carried to this end) between the jaws. After they have tasted the water they will be cooperative next time. To this end we use the sterilized water we carry in one-gallon cans for emergency reasons.

At their final destination all animals are unloaded first, covers are taken away and animals controlled. Excessive dirt is washed away. We put them in a shallow tank one by one where one or two trainers are ready to walk them around to help them overcome stiffness. Usually this will be necessary only after transports lasting more than 25–30 hours. We let them roll sideways out of the sling waiting to let them go until they have blowed.

Feeding is stopped not later than eight hours prior to transport. This means they travel with no food in the stomach. Vomiting is excluded and there will be less fecal contamination of the container.

As soon as the animals are swimming normally at their destination, usual ten to fifteen minutes after arrival, a light meal of three pounds is given.

Prior to transport add daily the following vitamins:
100 mg B^1, 1 tablet of the usual multivitamins and 1000 mg C. After transport the extra

C is added for two weeks and then omitted if everything is normal. Vit. C') is a normal constituent of the multivitamin tablets, which also include minerals. In the Dolfinarium the daily ration also includes 10 mg of vit. K^3 (menadiol bisulfiet) and 5 cc wheatoil which is rich in the various natural strains of vit. E.

') Vit. C or ascorbine acid (as citric acid) belongs to the antioxydantia. In this way it counteracts to a certain degree the agens which destroys vit. B at such a tremendous rate in dead fish. The century old custom of serving citrusslices with fish is therefore one of those interesting uses which modern science is now beginning to understand. For the same reason it is important to add vit. C in combination with vit. B complex during treatment with antibiotics. Antibiotics in particular when given orally, may be able to destroy the intestinal flora, which means a vit. K deficiency may develop. Therefore vit. K should also be added during treatment with antibiotics. We give 10–20 mg extra daily.

Shipping in the belly of a plane and igloos

The "rules" mention the following concerning this debatable issue: "Under special conditions consideration will be given the shipment of Tursiops truncatus in the belly of commercial passenger planes on domestic flights. An attendant must be on the plane in case of excessive delay or alteration of flight plan."
I am aware of the fact that a few very experienced colleagues have shipped dolphins successfully in the belly of a passenger plane. Others have shipped them with fatal consequences.
The law of the State of Florida and the accompanying rules and guide lines concerning dolphins (which we hope will be valid soon as federal law in the U.S., in Canada and all other countries with oceanaria and dolphinaria) and this paper aim at the wellbeing of dolphins and the avoidance of unnecessary risks. In my opinion the shipping of dolphins in the belly of a plane is such an unnecessary risk and should be avoided. As it is it can be avoided by those for whom the wellbeing of the dolphin comes first. Most other species of dolphins to be shipped are more delicate and more sensitive than Tursiops. Shipping those in the belly should not even be discussed.
It is a matter of opinion and as the rules take it into consideration I'll deal with the problem here. The main negative points are:

1. No attendants are allowed in the belly. Consequently no care can be given to the animal as long as the belly is closed. That means no care if the plane's heating system fails or the sprinkling system of a container. If my method is used the latter risk can be eliminated to some extent.
2. Except for the Boeing 747 the bellies are low (5 ft. at most headroom) and too narrow to stow containers at right angles to the plane's axis. All the serious drawbacks of lengthwise stowage as described above are present and in this case there is nobody to intervene and prevent trouble.

In the Boeing 747 pallets of 318 cm wide are used so stowage athwartship is possible. However, these planes are mainly used for long distance. Moreover the pressure compartment of the 747 that is also heated is in the tail end of the plane and the floor of this compartment tilts over most of its length. This part is more lively and noisy than the forward end and therefore less suitable for transport without attendants.
It is my experience of many years that it is always possible to find a cargo plane that will be able to ship containers and attendants in the cabin. One may have to wait some days, or a detour (at some expense) has to be arranged, but this easily offsets the risks of shipping in the belly.
Do not forget that the Department of Natural Resources in Tallahassee may be less willing to issue an export permit to someone who lost a dolphin on transport because unnecessary risks have been taken.
A few words on igloes should be added. It is modern practice nowadays to ship certain goods in a kind of container, an inglo, shaped to fit the rounded contours of the plane. They have the same floor space as a pallet. Attendants are not allowed inside and they are virtually airtight so a dolphin will suffocate after some time. I found some airlines don't want to take dolphins because they ship igloes only and don't use pallets. So they said. Whether this was an excuse on their part not to accept dolphins I did not pursue as another airline was available. I learned that quite a number of Boeing 747's use igloes in their bellies, which makes shipping down there impossible.

Medical care

The rules state that "all medication regimes in marine mammals should be approached with extreme caution". As soon as an animal looks not normal a veterinarian should be consulted.

"Looks not normal" is a delicate phrase. An experienced eye can see something is amiss at a much earlier moment than the newcomer. General speaking a lively animal with good appetite, with interest in what is happening around him and good colouring (pinkish bellies in most species of dolphins) is healthy. The faeces has to come in an easy cloud, quickly dissolving. As soon as faeces clogs and starts to float up something is wrong. The blow has to come easy and almost without smell. Sneezing, foam around the blowhole, foul smelling air points to lung or airtract infection. Animals with any of the "wrong" signs should not be transported. In my opinion the normal "healthy looking" dolphin transported "dry" as described above is so protected against harm that the risks of infection are very negligible. My basic philosophy, which seems to pay dividend, on "keeping dolphins" is that the healthy animal will be able to fight off quite some infections as long as its normal internal balance is not disturbed. The fight to keep an animal alive over a long period lies primarily in prevention') outside the animal.

A carefully planned and executed transport is part of that prevention. *Consequently I do not give shots of antibiotics prior to transport.* This doet not mean I am against the use of antibiotics. On the contrary I do use them in sick animals. However, I am against the use of it in a healthy animal because it disturbs the rather delicate internal balance to such an extent that it opens the way for real dangerous infections. Only if I know something is wrong, preferably after I have been able to determine exactly what is at the root do I give an antibiotic specifically directed against the foe.

My philosophy, professionally backed, has been under professional attack also. It has been stated that mortality in animal transport, cattle in particular, has decreased to a very low level due to the preventive use of antibiotics. I do not deny this, but animal transport, cattle in particular, has been and still is massproduction to a large extent under very unhygienic circumstances. On the other hand the modern well executed dolphin transport provides individual care for each animal, which makes a lot, if not all the difference.

What is the risk during a transport for a healthy dolphin. The risk is infection by bacteria and fungi through the mouth, the blowhole and wounds. Serious enough that sounds, but it is completely natural and animals and human beings are faced with it daily. In fact we have many of the dangerous bacteria and fungi as daily guests in our body. Only if the normal internal balance is disturbed one or more of these guests start multiplying and become more or less dangerous. The principal balance system inside is that between the fast growing and multiplying bacteria and their natural foe, the slowgrowing fungi. The latter produce antibiotics that keep the bacteria in check, which in turn by their existence check the fungi.

Every time a physician, surgeon or veterinarian is faced with giving any medication whatsever, he is faced with a dilemma. As it is, every tablet, shot, syrup, fluid brought into a human being or animal is alien. In treatment we have to take the road of the lesser risk. Is giving nothing worse than giving anything? Or, is the risk of giving smaller than doing nothing.

') To be discussed in a separate paper.

The problem we are faced with is that on one hand we have a host of excellent antibiotics of general and specific nature against bacteria. On the other hand is only a very small number of antibiotics, which are usually absorbed very slowly by the body, against fungi. As soon as we start to destroy bacteria in a healthy dolphin we automatically help the fungi to develop. If they are able to get a firm hold they present a real menance. One of the major methods to reduce them is to stop our fight against the bacteria. However, we have destroyed the normal bacterial flora and we may be faced now with a sudden bloom of one or a few dangerous bacteria which in turn have to be fought. Once the balance is destroyed, it may take a long time to restore it.
Those who give (and some do so every 6—8 hours!) shots usually take penicillin often in combination with streptomycin. Penicillin in a healthy dolphin kills a certain number and species of bacteria. It is able to do so because a newly caught dolphin has no bacteria with immunity against this antibiotic. At the same time, although we have no infection yet to fight, we start building up immunity. Additional consequences of the shot are that bacteria not sensitive to penicillin (perhaps dangerous in large numbers) and fungi have suddenly "room" to develop and, far more dangerous, the animal has more "room" to be infected by us or our milieu. That is by the ill-famous western strains of bacteria we carry, bred in a few decennia to be immune against all but the most powerful antibiotics manufactured and the worst ennemies in any western hospital. If now infection takes place the penicillin does not help, it has only destroyed the normal balance and brought the animal in a less favourable condition to fight. And under those conditions the animal has to endure the stress of transport, no food for 24—48 hours, a destroyed intestinal flora, adaptation to a new environment and often new food.
This philosophy of giving random shots of antibiotics followed by tablets once they eat again is in general use and in my opinion it is undoubtedly one of the few evils at the root of the high mortality of dolphins in captivity. Due to this philosophy of prevention with antibiotics we lost a Killer Whale because the initial treatment before and during transport, when we had no control or say about is, destroyed the animal's sensitive balance to such an extent that fungal growth in the airsac system was able to get a firm hold on him.
Fungal growth is one of the real dangers and one of the main reasons for my disapproval of the sprinkling system which makes the chance of fungal infection of the airsac system and wounds by the contaminated water far from imaginary.

In my opinion it is important to buy the dolphins from a dealer who is known to keep these animals himself over long periods. This means the pens your new dolphins are coming from are basically healthy and the man who cares for them has proved himself. This in itself is a kind of guarantee.
As I know the animals we buy are basically healthy, the transport method presents very little risks, the mortality in our pools is very low and wound infection so far non existent and illness rare, I never give the modern antibiotics in shots before transport. I have given sofar one 500mg tablet of Lederkyn (= Madribon = sulfametoxypyridanine). According to veterinary experience in Europe it stops erysipelas, it binds to the serumproteins and therefore is long lasting, some 2—4 days. Because of this it is excreted slowly by the intestines which means the intestinal flora is not disturbed. This is important when the animal has to recuperate after transport. The modern antibiotics usually applied by the laymen spill quickly and because often large dosages are given much harm is done and the water in the pool heavily contaminated. A severe cause for breeding immune strains in your pools.

I do not give antibiotics afterwards "just in case" for the same reasons. The random use of these modern antibiotics "just in case" is in fact a testimonium paupertatis.
I realise there may be different situations. One may have bought animals, unintentionally, from a suspicious source. I strongly advise always to consult a professional advisor preferably connected with a dolphinarium or oceanarium. He will probably already know or otherwise will be able to establish whether the dolphins intended for transport are swimming in contaminated water or in clean water. His other consideration will be the conditions and animals at the final destination. The professional advisor only will be able to judge. He will balance the situation, evaluate the risks and administer what he thinks is adequate in the right dosage.

The professional advice and possible treatment before transport and a careful conducted transport, together with a properly planned and managed dolphinarium, proper care backed by a professional at the final destination will keep your animals alive over long periods. It is to the benefit of the animals in the first place, rewarding for those who really care and more economical on the long run for the enterprise or institute.

Conclusions

Transport of dolphins is reviewed with emphasis on long distance. The method used by the Dolfinarium at Harderwijk (Neth.) is discussed. It is the author's opinion that the following conclusions can be drawn:

1. Responsibility is with the buyer. He should supervise and prepare everything and contact all keypoints personally.
2. Jetplanes are superior to all other means of transport. Use cargoplanes and avoid the belly of passenger planes.
3. Have always at least two attendants, even for 1–4 animals. Two experienced attendants may be able to handle nine animals (three pallets).
4. The frame has several advantages over the box as has the sling over the mattress.
5. Use canvas slings, no nylon, dacron or terylene and avoid padding.
6. The sprinkling system has been used successfully but has some serious disadvantages.
7. Greasing the animals with lanoline is easier and excludes the rigging and possible failures of pump, batteries and sprinkling system. The lanoline takes care of dehydration and has a healing effect on wounds. A moist cover deals with cooling by evaporation.
8. Be extremely careful with antibiotics. Only administer them after consultation with a professional preferably from a dolphinarium or oceanarium. Antibiotics have their place but should be selected with careful consideration by the professional advisor and be administered in a correct dose for a suitable period and by reliable method. Random shots by the layman without full appreciation of all factors involved do more harm than good.
9. A record of medication and treatment of each dolphin before it arrives at the final destination should accompany the animal.
10. Give ample dosage of vitamine in the periods prior to and after shipping.
11. Ask for a health certificate by a qualified veterinarian preferably from one who is connected with a dolphinarium or oceanarium. A health certificate is part of the regulations when shipping out of Florida and necessary for entry into several countries.

Advice to Airlines

1. Check for sturdy frames or boxes. Be careful in accepting collapsible frames.
   Discuss adequate dimensioned containers as described here, which means you can ship three containers on a pallet.
2. Stow animals at right angles to the axis of the plane and do not stack them.
   Try to avoid shipping in the belly of a plane. In my opinion the risks, if it is executed, should be carried by the shipper not by the airline except for death in a crash and comparable circumstances.
3. Some airlines insist on a check-in of the animals up to three hours prior to loading. As a fair approximation of the weight is known beforehand (with respect to the stowage plan) all preparation prior to loading i.e. weighing, loading the pallets, strapping down, cutting the bill etc. can be done in 1½ hours, with ample time to spare.
   Cooperation on the part of the airlines in this respect is certainly to the benefit of the animals on transport.
4. Inform the flight department and crews that slow ascents and descents will help to keep the animals comfortable, that, rarely as in human beings, problems have arisen with cabin pressure below the equivalent of 5000 ft., that a cabin temperature of 18°C is comfortable for both animals and attendants.
5. If possible have closed truck(s) available to transport the animals on their pallets to your own cargo building or that of the airline which looks after the next leg of the trip. Contact the other airline and exchange pallets. Place the containers in a quiet (cooled or heated and free from draught) corner of your cargo building during a lay-over. Ask your personnel to stay away from the animals.

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