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Editorial

This month marks the 20th anniversary of the implementation of the 1987 Pilotage Act which transferred responsibility for UK pilotage from Trinity House to the ports. It seems strange that pilotage was singled out as an area where legislation was required, but the intense lobbying by the shipping and ports industries somehow convinced the Government that pilots were "strangulating trade" and unless this unruly body of individuals was regulated then the country would be brought to its knees!

Although all was not as rosy under Trinity House as some would like to reminisce, the TH pilots provided a high quality professional and very efficient service to the ports for (compared to lawyers and accountants) a very reasonable charge. Once the responsibility for pilotage was transferred to the ports, the delegation of power without accountability inevitably led to the erosion of safety parameters and this fundamental flaw of the 1987 Act was dramatically exposed by the *Sea Empress* disaster in 1996. The findings of the *Sea Empress* investigation led to a review of the Pilotage Act which in turn led to the Port Marine Safety Code (PMSC).

So where are we now? Twenty years on, the flaws of the 1987 Act are still regularly being revealed by MAIB investigations and in 2005 the government announced a proposed new Marine Bill which would include pilotage and underpin the PMSC with legislation to provide accountability by ports to the Secretary of State. Although delayed, the Bill is still tabled for the future but the delay has resulted in the port and shipping industries intensifying their lobbying to water down the legislation. As I write this, the ship owners and charterers are lobbying to remove the requirement for a PEC holder to be the "bona fide" Master or Mate of the ship *(see pages 12 & 13)* and the ports bodies are lobbying to prevent the PMSC and accountability elements of the Bill from being incorporated. "Voluntary self regulation" is all that is required they protest. Well, as the now proud owners of all the UK banks' debts, we all know where that leads!

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THE PIVOT POINT

by Capt. Hugues Cauvier

From the day that an officer commences his apprenticeship, the traditional introduction to ship handling instils the concept of a ship's pivot point into the new recruit. Every navigating officer is therefore aware that a ship pivots around a point approximately 1/3 from the bow when going ahead and 1/4 from the stern when proceeding astern. This knowledge could be proudly revealed to the examiner during the "orals" examination when pushing the battered old wooden ships around books on the examiner's table. Well, you can now forget those lessons because Canadian pilot Hugues Cauvier has studied the principles involved and the following feature seeks to explain how, in many circumstances, our traditional understanding of the pivot point is incorrect and that an equally important factor is the "Centre of Lateral Resistance" (COLR).

This concept is well illustrated by Hugues using delightfully simple demonstrations involving basic models in a paddling pool on a video stream at the following link ***http://www.cpslc.com/pilote_web/pilote_web/liens-techniques.htm***

Research centres such as Wallingford and Marin should be afraid! *JCB*

Where will she pivot? *photo JCB*

In This Issue

Introduction

The following text brings forward a new understanding of the pivot point's position shift while handling ships. The proposed method, based on simple physical principles acting in combination, also outlines the limitation of the term "pivot" used to qualify that point. We will start from a basic rule of the thumb, which has been the traditional understanding of the pivot point until recently, and step up to more complex levels giving better explanation of the real-life behaviour of rotating ships.

The current approach highlights the effects that a side force applied on the ship has on the rotation and on the sideways motion of the ship. The author believes that understanding these effects at any stage of manoeuvring is more important than strictly dealing with the pivot point. The text is formatted so the reader can stop his study when he reaches a level that suits his needs or curiosity.

This article will also describe the phenomenon of the *ship generated sideways current*, the effects of which become obvious during practical trials made to deepen the understanding of the pivot point.

After the theoretical part, you will find a section covering real life shiphandling situations for some of which the traditional concept of the pivot point has no answer.

Definition: *The pivot point (or more precisely the "apparent pivot point") is that point along the fore and aft axis of a turning ship, that has no sideways movement, having for reference the surface of the water.*

Level 1

The traditional theory: the pivot point is nearly at 1/3 ship's length from the bow when the ship is moving ahead, and between 1/4 ship's length from the stern and the rudder post when going astern. The pivot point is considered to be the centre of leverage for forces acting on the ship.

Level 2

The pivot point is generally *at 1/3 ship's length from the bow when the ship is moving ahead, and between 1/4 ship's length from the stern and the rudder post when going astern*. But if a powerful and effective lateral force is applied at one end of the vessel, the position of the pivot point will shift at about 1/3 ship's length from the other end of the ship (relative to the applied force).

Example of an Azipod* driven ship moving astern

A ship fitted with Azipod propulsion is backing slowly from a finger pier (fig. 1). According to the traditional theory, when a third of the vessel is out of the corner, knowing the pivot point when going astern is also clear (fig. 2), the ship should not touch if a 90 degrees kick towards the dock side is given in order to swing the bow open towards the river. In real life, it does not happen since the lateral kick pushes the bigger part of the ship sideways (2/3) having for effect a pivot point approximately 1/3 ship's length from the bow (fig. 3)

*An Azipod driven ship was selected for this example since it can produce very effective side thrust without slowing the sternway. A very efficient tug pushing aft on a conventional ship would have a similar effect.

Level 3

As we have seen in Level 2 the P.P. is not always *at 1/3 ship's length from the bow when the ship is moving ahead, and between 1/4 ship's length from the stern and the rudder post when going astern*. If that rule is not always applying, it is simply because it is <u>not</u> a rule.

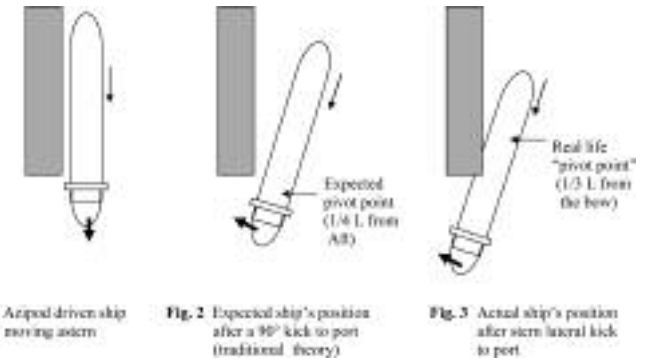


Fig. 1 Azipod driven ship moving astern

Fig. 2 Expected ship's position after a 90° kick to port (traditional theory)

Fig. 3 Actual ship's position after stern lateral kick to port

Here is the major bug in the traditional P.P. theory: imagine that you are pushing laterally on a point very close to the "so called" pivot point, let's say a little bit forward of it. If that point is really a "pivot", the part of the vessel forward of the P.P. should move in the direction of the push, and the part of the ship behind the P.P. should swing in the opposite direction. This would be true if the P.P. was a fixed axis and the ship was rotating around it. It does not happen that way because a ship is a floating object that can also bodily drift sideways when submitted to an effective lateral force. When a force is acting close to the "P.P.", it also pushes this point sideways – together with the ship - so the "pivot point" by this sudden lateral movement is then automatically losing the characteristic that gives it its name.

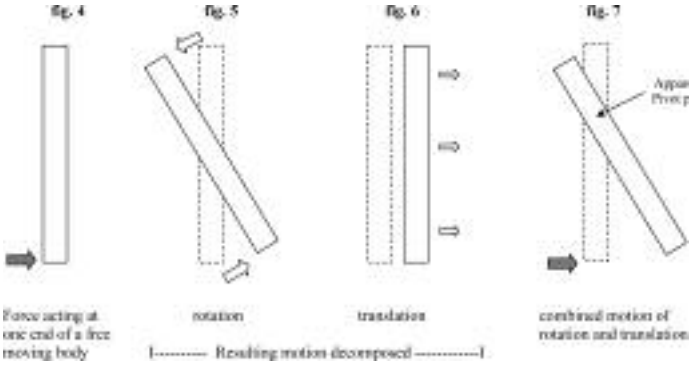
The position of the apparent pivot point is function of the efficient lateral force(s) applied on the ship. It is not caused by the headway or sternway.

Basic physics principle: sideways motion plus rotation

Let's suppose that you have a bar shaped body floating on a friction free surface and you apply a lateral force on it at one end (fig 4). The resulting motion can be decomposed in two parts:

First, a moment of rotation about the centre of gravity (fig. 5). Secondly, a sideways bodily motion (fig. 6). When combined, these two will result in a change of position of the body as per fig. 7 after the force has been applied for a period of time.

We realize that the part of the bar that has not changed position in space, the "apparent pivot point" (fig. 7), is not located at the centre of gravity but some distance off it, away from the end on which a force is applied.



This basic principle applies to ships. It is the main reason why a ship turning has its P.P. at 1/3 ship's length from the bow, since that ship is submitted to the lateral component of the rudder force. The combined effect of the lateral motion and rotation have for consequence a "P.P." away from the acting lateral force.

The point that has no sideways movement, having for reference the surface of the water is the "Apparent Pivot Point". It has no other importance physically speaking. The Apparent Pivot Point is

not the centre of leverage of anything.

At port operation speed, the centre of leverage (point of the ship where an effective lateral force causes no rotation) is close to midship. A little more forward if the vessel is trimmed by the head, a little bit more aft if the vessel is trimmed by the stern (a little more means less than 10% ships length). This point is the Center of Lateral Resistance (see level 5.1)

Level 4

From this level on, we will add information that completes the basic principle of Level 3. In depth explanations will be given at Level 5.

- The closer to the centre of the ship (centre of lateral resistance) a force will be acting, the further away at the opposite end of the vessel the apparent pivot point will be. It can even lie outside the ship's physical limits (see level 5.2).
- Small under keel clearance brings the apparent pivot point closer to the centre of the ship (see level 5.3)
- When a ship is turning, but no longer has forces acting on it, the position of the apparent pivot point follows the traditional pattern: approx. 1/3 ship's length from the bow when the ship is moving ahead, and 1/3 ship's length from the stern when going astern (see level 5.4).
- A bulkier, wider vessel has an apparent pivot point closer to the bow when moving ahead and turning (see level 5.3)

Level 5

This level explains in detail the rules given in level 3 and 4

5.1 Center of lateral resistance vs. apparent pivot point

Let's make a clear distinction between: *the center of lateral resistance and the apparent pivot point*.

The center of lateral resistance (COLR):

At a given moment, the COLR of a vessel is that point where, if you apply an "effective" lateral force, no rotation (if the vessel has a steady heading) will occur. Acting on this point, a lateral force has no arm lever, therefore no turning moment, it only pushes the vessel sideways. A force acting ahead of the COLR will rotate the ship in a different direction than the same force acting astern of the COLR would do. The lateral resistance can also be called hydraulic lift.

The position of the COLR depends on:
- the centre of gravity
- the centre of the underwater surface area (hull shape and trim)
- the pressure fields around the hull

1) The starting point of the COLR is a point between the centre of gravity of the ship and the centre of underwater surface area, when these two do not coincide.
2) The position of the centre of the underwater surface for one ship is mainly affected by the trim. A trim by the stern moves the COLR point more aft. A trim by the head moves it more forward
3) The pressure field (bow wave, stern sub-pressure) under headway shifts the COLR forward. This is mainly due to the positive pressure built around the bow (in a forward motion) which creates a *more resistant* surface for the hull to lean on when pushed sideways. The same principle applies when going astern. For practical shiphandling purposes, the shift of the COLR due to the speed is rarely more than 10% of the ship's length in the direction of the ship's movement.

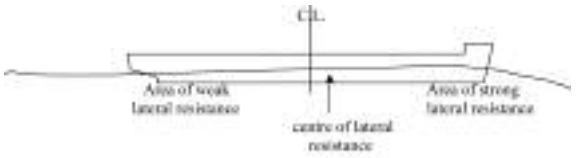


Fig. 8

The COLR is the *leaning point* for arm levers. It is not! the apparent pivot point. Actually these *two points almost never coincide.*

The "apparent pivot point" (or the pivot point as the mariners know it):
the point, along the fore and aft axis of the ship, that has no sideways movement, having for reference the surface of the water.

Position of the apparent pivot point:

The position of the apparent pivot point at a given moment depends on:
- the hull underwater resistance to lateral movement,
- the efficient lateral force(s) applied on the vessel,
- the inertia of rotation of the vessel

In order to estimate the position of the apparent pivot point we must assess how a lateral force will affect:
- the rotation of the vessel
- the sideways movement of the vessel (see level 3: basic physics principle)

For an easier understanding of the following demonstrations, the shiphandler will imagine his vessel being free to move on a non-friction surface.

5.2 The position of the acting lateral force

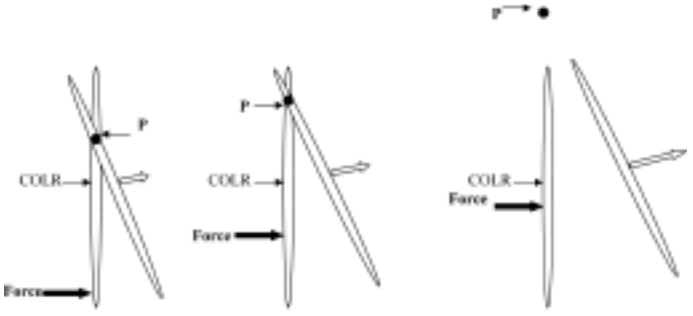


Fig. 9 Fig. 10 Fig. 11

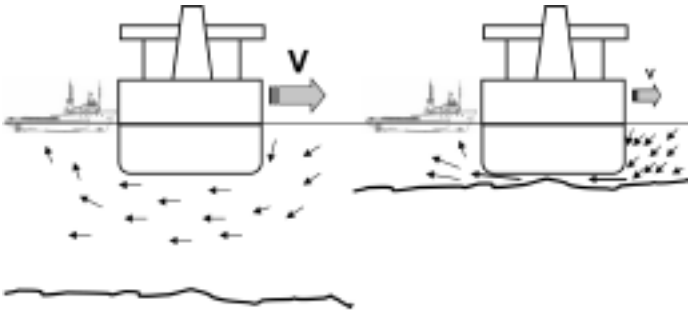
A lateral force acting away (fig. 9) from the COLR will, for the same angle of rotation, push the COLR relatively less sideways than a force acting closer to the COLR. This results in an apparent pivot point further at the opposite end of the vessel (fig.10). The closer to the COLR the force is acting, the further away from the opposite end the apparent pivot point will be, this can even result in a pivot point outside of the vessel physical limits (fig. 112). This principle is very helpful when using tugs.

5.3 Lateral resistance

As we have seen earlier, the "lift" *is the resistance of the water to any lateral movement of the vessel.*

The hydraulic lift varies with:
- The shape of the hull: a more profiled (narrow) hull will induce relatively more lift. Let's compare two ships with the same length, same draft, the first one having twice the beam of the second one. After the ships have developed sideways motion, it

is harder to stop the drift of the wider ship (twice heavier) for approximately the same lateral resisting force (L x draught = surface area of the wall of water).
- The under keel clearance: little under keel clearance means more lift (the narrow space under the keel makes it difficult for the water to flow from one side of the ship to the other, so it is harder to push the ship sideways).



A higher lift means a pivot point closer to the COLR

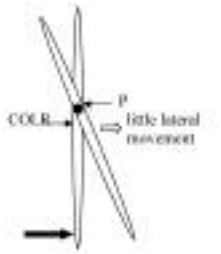


Fig. 13 High lateral resistance

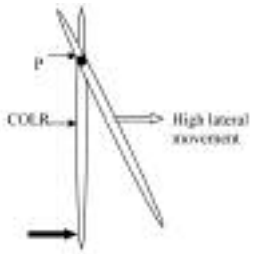


Fig. 14 Low lateral resistance

For the same change of angle, the COLR of a vessel with high lift will drift less sideways than a vessel with low lateral resistance when submitted to a lateral force. This results in an apparent pivot point closer to the COLR for a vessel with high lift than the vessel with low lift.

5.4 Motion of the ship after the lateral force(s) have been applied

The rotation effect

Let's take again our solid bar free to move on an friction free surface. Let's push it sideways with with some anti-clockwise rotation. Now stop the force acting on it and watch the resulting movement: The center of gravity is moving to the right and the bar rotates around it. The point that has no speed (having for reference the ice surface) is "P", the apparent pivot point.

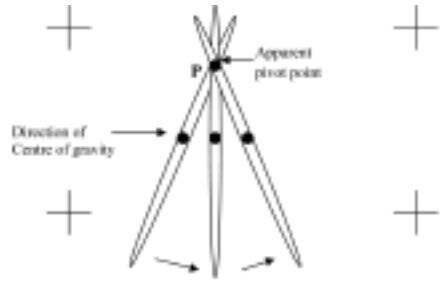


Fig. 15 Body thrown sideways and rotating on a friction free surface

When a ship is being handled at low speed (when the pressure fields on the hull are actually very low), it is mainly due to the above effect that the "apparent pivot point" seems to move astern if the vessel is moving astern and turning, and ahead if the vessel is moving ahead and turning. The other factor affecting it is "The ship generated sideways current.'

Level 6

The ship generated sideways current

Let's consider a ship turning, and moving ahead. The "sweeping" movement of the stern creates a vacuum which in turn drags a mass of water towards the quarter shipside. The outer shipside also pushes a mass of water away. We will call it the ship generated sideways current . Let's now stop the force creating the turning movement.

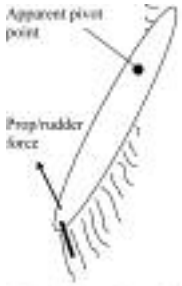


Fig. 15 Ship moving ahead And turning

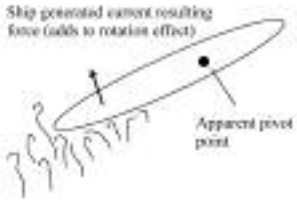


Fig. 16 Ship turning after acting force is stopped

The ship, with its rotational inertia, keeps on turning, but the rate of turn will reduce due to water friction. The ship generated sideways current with its own inertia, will catch the stern and continue to push it sideways, while the forward part of the ship is in undisturbed water. This force, acting more or less sideways on the stern contributes in moving the apparent pivot point more forward.

The ship generated sideways current effect is relatively more important on a deeply laden vessel than on a wide light barge. On the latter, the rotation effect will be more noticeable. The result, however, is the same : an apparent pivot point located forward.

Note: *The ship generated sideways current can have surprising effects when an efficient side force (strong tug, for example) is applied, at the shoulder on a ship with headway or at the quarter on a ship with sternway, for long periods. The ship can develop a swing in the opposite direction!*

Some real life observations and how they meet theory

Ship generated sideways current and stern seeking to go up-wind with astern movement

1) A ship adrift is pushed sideways in a beam wind. Its motion creates a *ship generated sideways current*.

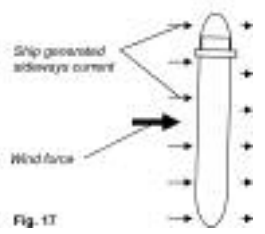


Fig. 17

2) The vessel is going astern (we neglect here the effect of the transverse thrust), pulling the aft part of the vessel out of the ship generated sideways current. The stern being now in an area of relatively undisturbed water, the rest of the vessel still in the local ship generated current, a turning couple is created, bringing the stern up-wind.

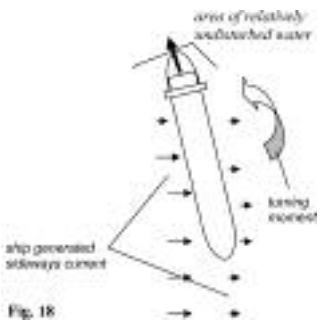


Fig. 18

As the stern is progressively directed into the wind, it gets out of and produces less ship generated sideways current. Another force couple is developing: the component of the propeller pull which is directed in the opposite direction of the wind is increasing, causing an arm lever of a length "d" between the propelling force and the centre of windage (fig. 19).

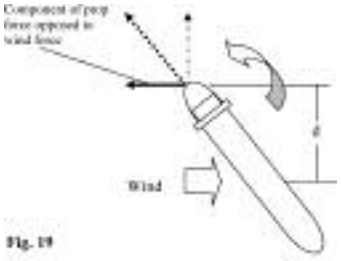


Fig. 19

Donkey-like behaviour of a ship pushed sideways by a forward escort tug *

1) The ship is moving ahead.
The forward escort tug will start pushing in order to direct the bow to port.


Fig. 20

* Note: This phenomenon was described in 2001 in the text: Unpredictable behaviour; example of a reason to reconsider the theory of manoeuvring for navigators by Capt. Max J. van Hilten of the Maritime Pilots' Institute, Netherlands:
(**www.imsf.org/2001AGMPresentations/Genua_paper_1.doc**)

2) The tug pushing has the following effect on the ship:
- sideways motion of the ship to port,
- rotation of the ship to port, since the force is acting forward of the centre of lateral resistance.
- Due to the sideways motion, the ship is displacing a mass of water sideways with her:
- pushing it on port side,
- pulling it on starboard side.

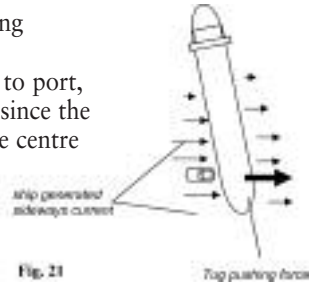


Fig. 21

3) As the ship moves ahead, the bow will float in an area of relatively undisturbed water. The stern instead will be affected by the ship generated sideways current that has started to develop in 2), causing a turning moment that will reduce the port swing and can even initiate a starboard swing.

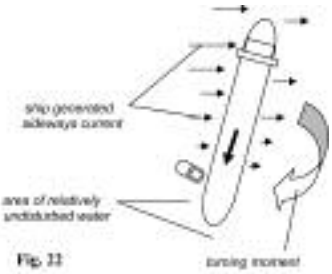


Fig. 22

When the ship starts a starboard swing, the stern, due to the rotation, keeps on generating more sideways current than the forward part of the vessel, thus amplifying the turning moment.

The similar effect is sometimes observed when leaving a berth stern to tide, having a tug made fast on the quarter and pulling. If the tug is used for a prolonged period to open the stern towards the centre of the river, (with the engines of the ship astern) the forward part of the vessel will be more affected by the ship generated sideways current than the stern. This will cause the bow to go after a while in the same direction as the tug pull.

Kick ahead, hard over while having sternway

What happens after an engine turning astern, causing stern motion, is followed by bold ahead engine movement with rudder hard over. The turbulence around the rudder, caused by the opposite flows of the surrounding water (coming from aft) and the propeller thrust, reduces its efficiency. The ability of a conventional rudder to initiate rotation is then very poor. Most of the propeller thrust kills the sternway, only a little part of it actually pushes the stern sideways.

However, you can, with a powerful twin screw, an azipod or a high efficiency rudder, produce enough efficient lateral force to move the apparent pivot point ahead, as per first basic principle, even with the vessel still having stern way.

Bow thruster efficiency

The poor turning effect of the bow thruster when moving ahead and its good steering properties when moving astern are well known facts. A very interesting article on the efficiency of the bow thruster was published in a Nautical Institute book entitled "Pilotage". In this article, Captain H. Hensen explains that when the ship starts moving ahead, the high speed stream of water expelled from the thruster bends along the hull (fig. 23). Its high velocity flow creates a low pressure area that "pulls" the bow in a direction opposite to the side we want to thrust it. The result is that the two forces tend to annihilate each other and the net thrust force is very weak.

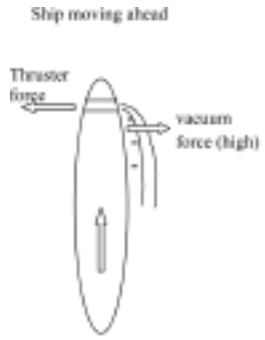


Fig. 23

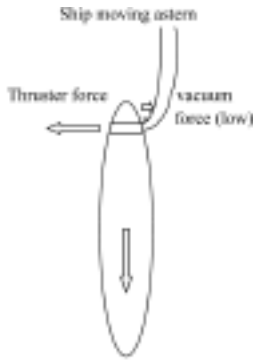


Fig. 24

The bow thruster is simply losing its efficiency as the ship moves forward. The loss of turning effect has therefore little to do with the change of arm lever distance between the thruster and the COLR.

When the vessel is moving astern (fig, 24), the vacuum effect created by the thruster is much less significant since the hull area over which it acts is quite smaller (area between the bow thruster opening and the stem).

Light ship (trimmed by the stern) vs. loaded ship (trimmed by the head)

A light ship is usually trimmed by the stern. Its COLR is relatively more aft than a loaded ship. This results in a shorter arm lever from the rudder to the COLR. At first glance this should lead to less steering efficiency. This short arm lever is overcome by the small inertia of rotation* of the light ship (less mass to control, therefore quicker reaction) for approximately the same steering power (same engine, same ruder, with maybe a little less efficiency if they are not completely water covered).

On loaded ships, the larger inertia of rotation* (even if the rudder-COLR arm lever is longer) makes the ship slower to react. The following phenomenon can also complicate steering control, especially when some vessels are even keel or trimmed by the head. The more important underwater area ahead combined with over pressure around the bow of these ships bring the COLR well forward of amidships).

**For those not familiar with "inertia of rotation", it is the tendency of a body to keep the same rate of turn if no force is applied on it (which also means to keep a steady course if it is initially steady).*

Let's take the example of a vessel moving north and initiating a turn to starboard (fig. 25). Once the turn is started, the centre of gravity of the vessel has now a new direction, a bit to the left of the initial course, let's suppose 350°. Because of inertia, the C. of G. wants to keep going that way (350°). Meanwhile the vessel itself has a different orientation, let's say 030°. This means that relative to the new direction of the C. of G. (350°), the COLR, would be some distance d off to the right. That distance corresponds to an arm lever that can be high enough sometimes to accelerate the rate of turn even with the wheel in midship position. Steering such a ship is like trying to keep the arrow of a wind indicator tail in the wind.

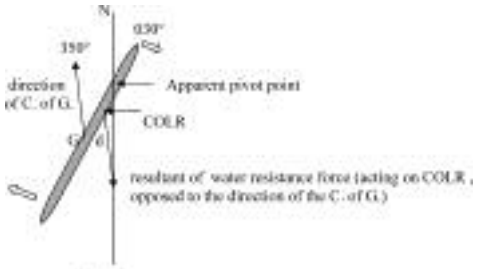


Fig. 25

Here is a familiar "land" example that illustrates this effect :

Push a loaded grocery caddie backwards. As soon as some external forces gives it a slight rotating movement, the rate of turn accelerates and the caddie turns completely around.

This happens because the centre of lateral resistance, is at the level of the rear fixed wheels. These fixed wheels prevent the rear part of the caddie from going in the same direction than the C. of G. of the caddie and cause the turning couple.

Steering a ship going astern with tug alongside

It is possible to steer a ship with a tug, even if positioned at approximately 1/4 L from the stern where the traditional pivot point supposedly lies when a ship is moving astern. When the tug is pushing, you do not get a bodily movement as traditional theory suggests but a movement of the stern in the direction of the action of the tug. The arm lever is short. The COLR is lying a little aft of midship since the ship is going astern slowly. The rotation produced is small and the side movement important, the apparent pivot point is consequently somewhere between the bow and 1/3 L from the bow.

Note : As seen before, if this pushing force is applied long enough for an important *ship generated sideways current* to appear, the rotation of the vessel may stop and even start in the opposite direction!

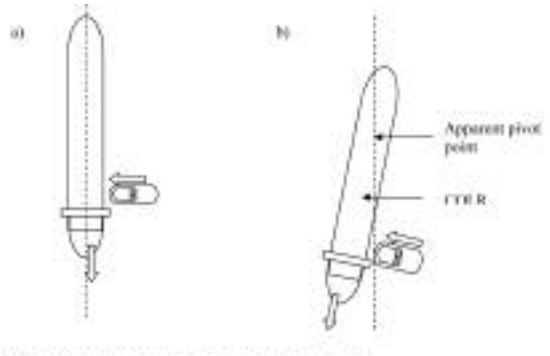
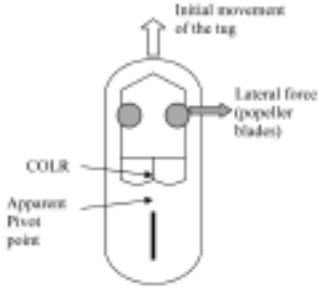


Fig. 26 Tug pushing on the quarter while moving astern

Voight-Shneider tugs pivot point.



Voight-Shneider tugs are an obvious example confirming the present theory. On this type of vessel the propellers, located forward, are also the steering force. When the tug turns, it is because a lateral force is exerted forward of the vessel by the action of the propellers. It is not the stern which is swung out in a direction opposite to the turn, but the bow which is pulled in the direction of the turn with the stern trailing behind like the tail of an arrow. This results in an apparent pivot point located aft of amidship.

Azipods

Azipod driven vessels going astern and turning will best demonstrate the present theory (see level 2).

Their high side thrusting capacity will show a pivot point forward of amidship even if the vessel is going astern (especially at low speed). In fact I foresee the greatest usefulness of the present theory for those who handle azipod and Z-drive ships.

Deep draft container vessel vs. hovercraft

These two means of transportation seem to have very little in common. There is one thing though, that they do have in common: their respective behaviour when submitted to lateral forces can be explained by the present approach.

The hovercraft: hovercrafts have by definition very little "lift". They are also usually short vessels. Let's say that the air cushion vessel alters course progressively from 000° to 030° without overshooting. The steering flap, creating the lateral force, is relatively close to the COLR, this results in an important side movement for a given course alteration. The absence of lift resistance amplifies this relative sideways motion, the apparent pivot point is subsequently very far from the COLR (fig. 28), actually outside the vessel physical limits.

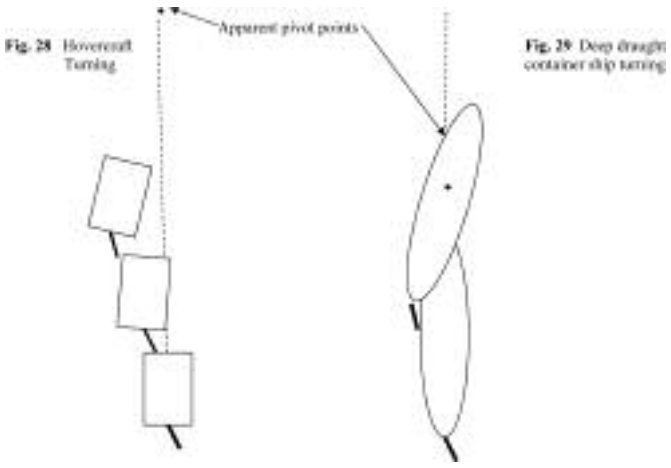


Fig. 28 Hovercraft Turning

Fig. 29 Deep draught container ship turning

The container ship: in the case of a deep draught container vessel in shallow water, the position of the "apparent pivot point is at the other end of the spectrum when compared to a hovercraft. As we

have seen earlier, a profiled ship's hull has more lift than a bulky one. This results in less sideways movement when turning and an "apparent pivot point" closer to the COLR. In addition, the small clearance under the keel makes it difficult for the water to flow from one side of the ship to the other, because of this effect, when the ship is turning, the sideways drift is again reduced. This causes the apparent pivot point to lie even closer to the COLR (fig 29).

Trivia question

Now a quick one to see if the lesson is well learned.

A vessel is drifting in a current, her fore and aft axis making 90 degrees with the direction of the current . The anchor is let go with sufficient slack. With five shackles in the water, the brake is screwed tight. The anchor dives in the mud, it holds. The ship starts to swing. Where is the pivot point? At the center of gravity? At the hawse pipe? 1/3L from the bow? 1/4L from the stern? Somewhere else?

Answer: The "apparent pivot" point is about 1/3 to 1/4 L from the stern as explained in figs. 4 to 7. Let's not forget that the apparent pivot point is relative to the sea surface surrounding the vessel. If you consider the movement of the ship over the ground, the pivoting point of the ship will of course be initially in the vicinity of the hawse pipe).

Appendix

Centre of Gravity vs. Centre of Underwater Surface Area

For a body in space where no friction is involved, the arm levers for forces causing rotation have for reference the centre of gravity of the body. For a ship in the water, this is basically true but the real "neutral" point of application for arm levers is also function of the resistance of the underwater surface.

Example: Let's say we have an homogeneous floating object at rest having the following shape (fig. 30). The centre of gravity "G" and the Centre of underwater Surface "CS" are on the same vertical line. It is also the position of the COLR.

Fig. 30

In fig. 31, we have added a large surface stern keel to our floating object. Let's assume this added surface is very light and causes negligible change of position of the centre of gravity. It is quite easy to see that in fig. 30 if we apply a force acting on G, the floating object will move sideways and no rotation will be induced since there is no arm lever. On the other hand, if you apply the same force on G in fig. 31 there will be an unbalance of the water resistance between the areas forward of G and aft of G. The centre of underwater surface area "CS" being more aft in this case, the COLR (neutral point for arm levers) will actually be located between these two points: the centre of inertia G and the centre of water resistance CS.

Fig. 31

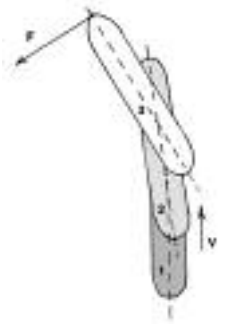
Experiments on small scale models

The following experiments were undertaken at the Ilawa shiphandling center in Poland in July 2005 using a small scale bulk carrier loaded to an even keel.

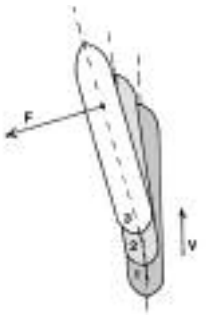
The aim of the experiment was to apply really effective side force on different points of the ship when she was making way through the water. For this we used a hand pulled towing line oriented at 90 degrees from the ship axis. By using a line, the results are not altered by hull/working force hydraulic interactions (as produced by tugs or bow thrusters).

Four tests were made:

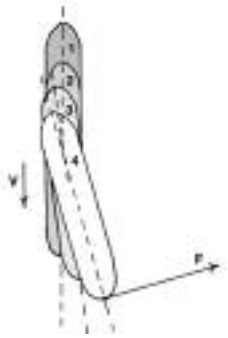
1) ship having headway (+/- 5 kts scale speed) and steady, engine stopped, pulling at the bow



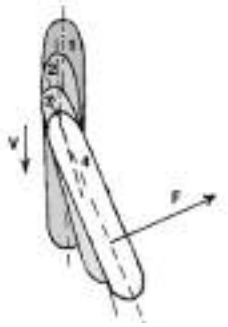
2) ship having headway (+/- 5 kts scale speed) and steady, engine stopped, pulling at about 1/3 L from the bow



3) ship having sternway (+/- 5 kts scale speed) and steady, engine stopped, pulling at the stern



4) ship having sternway (+/- 5 kts scale speed) and steady, engine stopped, pulling at about 1/4 L from the stern



The results speak by themselves :

When the force is applied at the extreme end of the ship (tests 1 and 3), the apparent pivot point is at the opposite end of where the traditional theory expects it to be.

When the force is applied on the traditional pivot point (tests 2 and 4), the expected result (traditional theory) of a ship only moving bodily sideways since there is no arm lever, does not occur. There is a moment of rotation, therefore an arm lever. The apparent pivot point is also at the opposite end of the one where the force is applied. This demonstrates again clearly the weakness of traditional theory.

Hugues Cauvier, email: sohu@oricom.ca

19th IMPA Congress: Bangkok 4th - 6th August 2008

Note that papers are available on the IMPA & UKMPA web sites at http://www.impahq.org/ & http://www.ukmpa.org/

I attended the congress as part of the UK delegation accompanied by Joe Wilson, John Pretswell and fellow executive member John Pearn (Milford Haven). Former IMPA president and retired Tees pilot, Geoff Taylor, also attended.

*With the underlying theme of **"PILOTS – MOVING FORWARD TOGETHER"** The event was hosted by the Thai pilots.*

Delegates numbered 176 from 41 countries accompanied by 96 guests (spouses, partners etc.) the largest contingent being from Canada who formed a party of 18 pilots.

Unfortunately, IMPA President Michael Watson (USA) was unable to attend owing to a prolonged illness which at short notice ultimately prevented him from undertaking the necessary long flight to Bangkok. It is pleasing to report that he is on the road to recovery. Senior Vice President Otavio Fragoso (Brasil) was thus placed in the challenging position (with little warning) of having to conduct proceedings. A task, which it was acknowledged at conference close, he performed admirably.

DAY 1:

Commenced with the traditional opening ceremony and a number of opening addresses, significantly that from Honorary President HRH King Juan Carlos of Spain which was read by his envoy, Manuel Nogueira, head of the Spanish delegation to the IMO. The rest of the day was spent with presentations on The Regulation and Use of Portable Pilot Units and environmental issues and their impact on various aspects of pilotage.

DAY 2:

Started with reports on the external work of IMPA. Secretary General, Nick Cutmore reported on various matters including our work at IMO **http://www.ukmpa.org/active/file/423/10._Report_of_Secretary_General_on_IMO.doc**

Vice President Rodolphe Striga (France) reported on his work with IALA and e-navigation and I presented a report on my work with PIANC *(see facing page)*.

The rest of the morning was spent on aspects of Pilots' personal safety. A variety of papers were presented, some it has to be said left a lot to be be improved on. However, one of important significance was presented by Yeong Sig Choi, (S. Korea) on the urgent need for IMO regulation of Pilot Ladder stowage reels, their construction, maintenance and location. **http://www.ukmpa.org/active/file/424/13._Capt_Choi_Presentation.doc**

This is work which will be taken forward by IMPA at IMO as the recently debated paper on Pilot Ladders presented by IMPA at NAV54 is progressed.

After lunch, the first of three closed sessions of conference was held. Strategic planning and IMPA values, beliefs and goals were the themes. It was a constructive afternoon with some valuable discussion.

Perhaps, as may have been expected to arise at some stage during the week, the *Cosco Busan* incident reared its head. It would be inappropriate to elaborate now since the whole case is still sub-judicae. However, to summarise, the USA delegation expressed their displeasure with a letter published in Lloyds list earlier this year from the Australian Pilots' Association (re-published in the latest UK *Pilot* magazine) which criticised certain aspects of the USA Pilots' Association's actions in dealing with the incident and its implications. (As a matter of interest, John Cota the San Francisco pilot involved was present at congress but not as a part of the USA Pilots' Association delegation). The final part of the closed session concerned a report to congress on the completed review of membership application criteria and the process to be followed by the Secretariat and Executive in dealing with applications for membership and the collection of subscriptions.

DAY 4:

Followed a lay-day excursion out of the city, commenced with a technical session during which papers were presented on a diversity of subjects including the Master Pilot Exchange, Port State Control in Thailand and VTMIS developments. Again, some of the papers being presented were a little challenging. The high-spot of this session though was an excellent presentation by Dirk Vaels (Belgium) on the joint training project being undertaken with the Panama Canal pilots as part of the Canal expansion project. After coffee, the session titled Modernisation - The Human Element included a variety of papers on the often overlooked but important aspects of pilotage not involving navigation or ship handling. Notably amongst these papers was a presentation by Ravi Nijjer – a highly respected Australian marine consultant on the various aspects of modernising pilotage. **http://www.ukmpa.org/active/file/426/26._Ravi_Nijjer_Modernisatin_of_Marine_Pilotge.pdf**

The afternoon was again a closed session, this time concentrating on competition in pilotage with the experiences of various countries concerning the impact it has had on safety and efficiency. This was followed by what was probably the most useful of all the sessions, Pilot Associations and their relationships with Government. Of particular note were the French paper presented by Jacques Sauban and the Candian paper by Simon Pelletier. The French paper gave an illustration of the actual cost of running a national association. Effectively, the 340 self employed pilots make individual contributions of 0.9% of a pilot station's income which provides a staff of two full time off roster pilots, a legal adviser and 2 secretarial staff. Not cheap but very effective! The Canadian example was similar. **http://www.ukmpa.org/active/file/428/30._Engaging_Government_Capt_Simon_Pelletier.pdf**

In simple terms, one gets what one pays for!

DAY 5:

As usual, the last day was a complete closed session, in effect the IMPA AGM. Following the Secretary General's address wherein he explained the day to day working of the IMPA secretariat, the election of the executive officers was held. There were three routine vice president vacancies to be filled with 7 candidates. I and others feel that IMPA needs to address the manner in which it handles the whole process of these elections and the presentation of candidates. I'm not sure that they would have met with the full approval of an independent observer! The *Cosco Busan* issue earlier in the week clearly influenced the electoral process creating a significant political rift of two camps within the assembly. Other factors were also prevalent which it would be improper to comment on in this report. The end result was the re-election of Steve Pelecanos (Australia) into post with election of the Canadian Simon Pelletier and Stig Thomsen (Denmark). The ballot is secret with the vote count remaining confidential. I have no real idea as to how near (or far) my electoral nomination was to success. I can honestly report though that there were a significant number of delegates who expressed to me open surprise and disappointment at the result.

The same session also approved a resolution which resolved that *"IMPA urges all members to investigate low CO2 output buildings, plant, service craft ad service vehicles as a matter of priority"*.

The day was rounded off with a number of national reports and presentations regarding the 20th Congress (Brisbane) October 2010, 21st (London) 2012, 22nd (Panama) 2014 and 23rd (Seoul) 2016 congresses followed by various votes of thanks etc.

A PERSONAL VIEW

Within our profession this is an extremely important event, not only as it gives us all a chance to learn of IMPA's work and activities as well as learning of developments in the shipping and navigation worlds but perhaps most importantly to interact with colleagues from other nations who have to deal with a huge variety of regulations, legislation and political systems. Although this conference had issues with regard to certain aspects of the management of the daily sessions and the election process, it was far from a wasted effort and cost to attend. It has become very apparent to me in my work for the UKMPA in the international field over the last 5 years that the UK has very much become regarded as being a minor player in the world of pilotage. I believe very much as a result of some insular and introspective, complacent attitudes and decisions made by certain of our officers, albeit with the best intentions at the time over the last 15 or 20 years. Despite this, it is also clear to me that UK pilotage is of a very high standard and quality globally despite the efforts of many different parties within the UK Ports and Shipping industry to reduce our professional standing within the UK maritime community. We can learn an awful lot from other nations with regard to bringing certain aspects of our profession into the 21st century in particular with regard to the various human factors including recruitment, training and accident investigation. We should not be afraid of progress or change and neither should we shy away from participation on the international stage of shipping and pilotage.

I strongly urge you and all our colleagues to consider attendance at Brisbane in 2010, why not make a holiday out of it?

If that does not fit in with your plans, then do make space in your diary for attendance to the 2012 congress in LONDON which we are hosting on behalf of IMPA. Additionally, why not get involved NOW, email Joe Wilson on joewilson22@o2.co.uk to offer your assistance in the organisation of the event. It is your ideas that are needed and participation in the management team to direct and monitor the work of our professional conference organisers. We have four very short years to show the global world of pilotage and the maritime community as a whole that the UK is still very much a significant world voice in shipping – not only in commerce but in Pilotage also.

Don Cockrill [don.cockrill@tesco.net]

IMPA Report: Meeting 8 of PIANC working group 49

As the UKMPA's IMPA representative I am involved with The Permanent International Association of Navigation Congresses (PIANC) working group 49. This group is concerned with the review of the 1997 working group 30 report titled "Approach Channels – A guide for Design". This is the design bible used by many authorities when considering a new or modified port channel or fairway.

Hosted by the Le Havre Port Authority (PAH) through their senior engineer, Paul Scheerer (who also represents the International Association of Ports & Harbours on the group), the meeting was well attended by 20 hydrodynamic engineers and naval architects from various countries in Europe, North America, Japan and South Africa.

PAH had also involved the Le Havre pilots into the hosting arrangements and their President, Captain Francois Le Guern, and his colleagues admirably entertained us throughout by providing lunches on both days and a superb dinner at the Société des Régates du Havre yacht club on the first evening. They joined us for the meeting itself on day 1 which ended with a visit to the Le Havre pilots' training simulator following a short bus tour of the port area.

The port visit itself was much enjoyed by the party not least because most of those present rarely if ever get the chance for a close up view of ships and the inside workings of the ports they design! Food for thought...

As usual the proceedings of the meeting were concerned with erudite debate and discussion on various technical aspects of the document under review. Many sections have been re-written or enhanced with all members, including myself making contributions pertaining to their fields of expertise.

It has been agreed with IMPA HQ that meeting 9 will be hosted by IMPA aboard HQS Wellington, at this stage over May 21st and 22nd 2009. I will be seeking some financial assistance from HR Wallingford to offset the cost of the venue and hopefully we will be able to get other forms of assistance from elsewhere.

The enthusiasm with which IMPA (through myself and most recently the Le Havre pilots) has been welcomed by the working group is strong testament of the need for us to take advantage of every opportunity to be involved in the background workings of port operations and not only on the front line aboard ships.

For example, IMPA has also been involved in the PIANC MarCom Working Group 54 which is dealing with the ***"Use of Hydro/Meteo information for Port Access and Operations"***. Nigel Allen (Southampton) is working with this group and the working title indicates how important its work is from a pilotage perspective.

Don Cockrill
[don.cockrill@tesco.net]

Technical and Training Committee Report

There has been little activity since our last meeting and the report we made to Conference that was included in the July edition of *The Pilot*.

A recent pilot ladder incident in Harwich on the 12th July has once again highlighted the dangers inherent during the pilot transfer operation. The Swedish Maritime Administration have brought to our attention the discrepancy between IMO A889(21) as contained in SOLAS V and ISO 799:2004. These documents detail how pilot ladders should be constructed however they differ in one very important aspect and that is where the side ropes are spliced. Sweden are in the process of collecting information with a view to proposing changes to IMO A889(21). Technical and Training have been asked by Section Committee to make comments with a view to progressing the matter through the MCA. This may be the appropriate moment to also look at the IMO poster and update that also.

IMPA are conducting a survey of Pilot Boats and have asked the Association for data on launches in use around the UK. This is probably a timely opportunity to review our own survey that was carried out in 2001. David Roberts has kindly agreed to take oversee this project.

Section Committee have appointed Nick Lee from PLA and Jonathan Mills from Medway to replace myself and John Nayes. We shall be inviting Nick and Jonathan along to join us at our next meeting on 6th November.

Gareth Rees
[dcg.rees@talktalk.net]

PENSIONS NEWS

The Secretariat

There is not much to report in respect of the Secretariat, except that Loretta has successfully completed her six month probationary period and appears to be settling in well. Loretta has become a firm favourite of the pensioners and widows who have dealt with her.

Scheme Funding Statement

You should have all received your annual Scheme Funding Statement last month. As you will have seen it was basically a rehash of last year's as there really was nothing new to tell you. By the time there is anything to tell you, you will be so bored with receiving the same old, same old that you will probably chuck it away without reading it.

Cash Equivalent Transfer Values

From 1 October 2008 it will be the responsibility of the Trustees to take the decisions on which assumptions the calculation of cash equivalent transfer values (CETVs) are based, as set out in government legislation. Previously the calculation had to be certified by the Fund's actuary. At their meeting held on 2 September 2008 the Trustees instructed the Fund's actuary on the basis to be used based on the actuary's recommendations. (As if the Trustees do not have enough on their plate already!)

Disinvestment From Goldman Sachs

30 June 2008 was the redemption date for the disinvestment of the funds held by Goldman Sachs and the last instalment was paid across on 2 September 2008. These sums have now been invested in Guaranteed Deposit Accounts held by Bank of Scotland to earn the highest interest possible. This now means that the number of investment managers has reduced to four, these being Henderson Global Investors, BlackRock Alternative Advisors (Quellos), EIM SA and Legal & General Investment Management.

Retirements

May 2008 to July 2008

AC Adams	**Harwich**	***April***
PG Dunn	**Tees**	***May***
KJ Higgs	**Gloucester**	***June***
HN Lawson	**Bristol**	***June***
DP McCann	**Londonderry**	***July***

Pension Protection Fund (PPF) Levy

A recent survey found that although 61% of respondents support the existence of the lifeboat fund, 94% believed the structure to be unfair. One in four of the schemes surveyed believed that the levy could seriously jeopardise the future existence of their business with more than a third of respondents having the view that it is likely to negatively impact future pensions provision. Comments expressed in the survey ranged from the PPF levy as a corporate stealth tax threatening both pension provisions and employers to concerns that schemes are being forced to participate involuntarily.

The PNPF Trustees have had their own run in with the PPF over the 2007/08 levy. When an invoice amounting to £268,505.00 was received in April it was quickly dispatched to the actuary to check the accuracy of the calculation, where it was discovered that the PPF had used incorrect data which artificially inflated the fees being charged. It has taken 5 months of continuous appeals, but with Aon's help we have managed to get the levy reduced to £131,443.00.

2007 Valuation and Impending Legal Proceedings

I am not going to add anything to what has already been communicated to members regarding the above. Suffice it to say no details of the 2007 valuation can be confirmed until it has been finalised and this is unlikely to be achieved before a decision is reached with regard to the legal proceedings. (A real "Catch 22" situation.) I can say that the papers have been served and the solicitors are attempting to agree a timetable in respect of the lodging of evidence.

Savings Crises

According to the Office of National Statics (ONS) in quarter 4 of 2007 pensioners suffered a bigger jump in the cost of living than most other households. The 5.6% rise in the cost of living is largely due to increases in food, electricity, gas and council tax bills. This gloomy fact was compounded by the additional statistic that revealed for the first time the U.K. has more people of pensionable age than children under 16.

Another recent survey, this time by the CBI, found that 3 in 10 employees reaching retirement age asked to postpone their retirement, with 8 out of 10 requests being granted. Many of the older workers were either not ready to retire or did not feel financially secure enough to do so.

Lost Data

It seems like we are being told, on a monthly basis, of another government department losing members' personal data. But in Japan they do it on a mammoth scale. Japan's social insurance agency admitted to misplacing 18.4 million records and confirmed that one of its official encouraged firms to make up records if they were lagging behind. (Maybe we are not so bad after all.)

Nova Scotia

Well I can think of nothing else to tell you about pensions and as I still have some space to fill I will bore you with details of my last holiday. It's taken 34 years of marriage for my husband, Tom, to tell me that he had always wanted to visit Nova Scotia, because as a child he always considered it the back of beyond. (Well it has got to be better than Tierra del Fuego!) Not my first choice of destinations, but at least it did not involve too many medieval cathedrals, challenging sculptures or crowded beaches. It is a truly beautiful place and the denizens were definitely friendly. Tom now wants to retire there. The holiday definitely had a nautical feel and I learned more about the Bluenose racing schooner, the Titanic and trawler fishing than I could wish for, but the Canadians enthusiasm for their history was catching. I also attempted to eat my way through Nova Scotia's annual lobster catch, but failed miserably.

Lastly I would like to thank Bob Swift for my lovely surprise.

Debbie Marten
Debbie@pnpf.co.uk

Pensioners Deceased

May 2008 to July 2008

BC Boot	***Humber***
FH Brabyn	***Fowey***
JD Cartmell	***Humber***
MA Chalmers	***Aberdeen***
J Gannicliffe	***Manchester***
RJ Howlett	***Port of London***
JA Pellow	***Southampton***
J Risi	***Dundee***
JM Turner	***Harwich***

PILOTS' GOLFING SOCIETY

Twenty one pilots from seven different stations, Milford Haven, Bristol, Tees, Tyne Humber Forth & Manchester, attended the 37th meeting of the Marine pilots golfing society at Langbank on the banks of the Clyde. The weather overall was kind to us although we didnt see much sunshine.

Winners were as follows: Manchester Salver, G Hutchison *(Forth)*; Wilmslow Cup, W Fairbairn *(Tees)* & G Hutchison *(Forth);* Hawkestone Cup, C Rickards *(Bristol);* Pilots' Cup, M Cramond *(Forth);* Milford Cup, M Cramond *(Forth);* Nearest Pin, P Bean *(Tees);* Jim Purvis Memorial, P Bean *(Tees)*. Our thanks go to the Milford Haven Port Authority and Svitzer Towage Milford Haven who sponsored the event.

Peter Ryder

Next year's meeting will take place at Hollins Hall, South Yorkshire on Sunday 6th September to Tuesday 8th September. All pilot golfers welcome. Contact Peter Ryder at **pilotlight10@hotmail.com** or **Tel: 01646 600711**.

Carbon Neutral, Belfast

Belfast Port recently became the first UK port to be granted carbon neutral status.

To mark the occasion Zoe Salmon *(Blue Peter presenter)* was invited to launch the eco drive and by pure coincidence there happened to be a couple of Belfast pilots available at short notice for a photo shoot!

Their obvious discomfort at being included in the event is clearly evident from the photo. How we suffer for our profession!!

JCB

Left: Billy Esler, right: Liam Magee. Zoe is most definitely the one in the middle.

PEC ABUSE

Earlier this year the Government produced the draft for a Marine Bill which, as well as introducing new legislation to cover the marine environment would also replace the 1987 Pilotage Act. Although we now understand that no Parliamentary time has been allocated for the passage of this Bill in the current legislative programme, the draft was put out to consultation and at the conference the DfT indicated that despite the probable lack of formal legislation, the DfT wished to incorporate the proposals into the Port Marine Safety Code as an interim measure pending parliamentary time for the Bill to be formally introduced. The consultation process was therefore extremely important and I know that in addition to the UKMPA submission, many pilots submitted individual responses.

One area in particular was of deep concern to pilots and that was the inclusion within the draft of a proposal to remove the requirement for a PEC holder to be the "Bona Fide" Master or Mate of the vessel and to replace it with "any person"!

Ever since the implementation of the 1987 Act, pilots have been aware that the "Bona Fide" requirement was being seriously abused by many operators who quite openly transferred an existing PEC holder from one vessel to another which had no valid PEC holder on board. Another common abuse was for a regular trading ship to obtain one PEC and then to permit relieving Masters and Mates to use the same number, even though they may never have navigated in the port to which the PEC was valid!

Such abuse was exposed by incident investigations and occasionally by random checks or by the "Bona Fide" PEC holder reporting the scam to the relevant authorities. Despite this practice being against the law, the difficulties involved in proceeding with a prosecution coupled with a general lack of enthusiasm by CHAs to prosecute important customers resulted in such abuse becoming common practice amongst some operators. The arguments put forward by the operators for amending this clause of the Bill is that on some trades, the requirements of the Working Time Directive introduce practical difficulties in ensuring that a bona fide officer is available to undertake the PEC role when required. Whilst it is possible to have some sympathy with this viewpoint, in practice the majority of vessels where this may potentially be a problem tend to be short sea traders and if there are insufficient PEC holders on board the vessel to adequately manage fatigue then the operator should either place additional officers on board or take a pilot. After all, the sole reason for establishing a compulsory pilotage district is safety.

The operators other claim that the title of "First Mate" is now obsolete is total nonsense since any officer who holds the relevant certificate can be signed on the articles as a bona fide First Mate. Since the majority of officers on well run short sea traders have a Master's certificate this argument is just a smokescreen. So why does all this matter? Well, anyone who may be in doubt as to how safety can be compromised by PEC abuse should read the MAIB report into the collision between the *Ursine* and *Pride of Bruges* in Hull in November 2007.The following is an extract from the MAIB synopsis of the full report.

Ursine *was on her first voyage into Hull, having recently been chartered to undertake a service between Hull and Rotterdam. In accordance with the terms of the charter party agreement, P&O had placed its representative on board to perform the pilotage duties for both ports. In accordance with local regulations the P&O representative, who held a Pilotage Exemption Certificate (PEC) for the river Humber, was on* Ursine*'s bridge with the vessel's bridge team when the vessel entered the river. As* Ursine *approached Hull, the PEC holder gave a briefing to the rest of the bridge team on the approach and entry into the lock for King George Dock. The master, who was not experienced in handling ro-ro vessels, assumed that the PEC holder would be in control. However, the PEC holder, who was not an experienced ship handler, assumed that the master would take charge of the manoeuvre. Eventually, with both men involved in the ship handling,* Ursine *berthed in the lock. In the lock, the PEC holder and the master, who had not been to Hull before, discussed the required approach for berthing at the P&O terminal. Again, there was no clarification as to who would be in control of the vessel. Once the lock had filled,* Ursine *proceeded stern first towards the berth, with both men handling the controls. From the conning position, on the port bridge wing, neither of them could see the P&O terminal. In the absence of any formal berth allocation, the PEC holder directed* Ursine *towards the berth which he assumed had been allocated to the vessel. This berth, 5 Quay Middle, was adjacent to the one regularly used by* Pride of Bruges. *However, on this occasion, for operational reasons,* Pride of Bruges *had been berthed on 5 Quay Middle. In the confusing situation, during which key bridge team members found themselves undertaking tasks for which they were inadequately prepared,* Ursine *was manoeuvred stern first towards the berth already occupied by* Pride of Bruges *until contact was made between the two vessels.*

The 1987 Pilotage Act states that only the bona fide Master or Mate of the vessel can apply for an exemption certificate, yet here we have a supernumerary placed on board *"in accordance with the terms of the charter party agreement"* to circumvent the compulsory pilotage requirements of a port. Where's the prosecution?

Policing and prosecutions regarding PEC abuse are the responsibility of the CHA and although evidence produced by an MAIB enquiry is inadmissible in a court of law their recommendations provide an

Two into one doesn't go!!

RETIREMENT ON THE TEES: Paul Dunn

The UKMPA conference saw a further reduction in the dwindling numbers of Trinity House pilots still piloting when Tees pilot Paul Dunn retired after 29 years of service.

Being a mere 60, Paul hadn't been planning to retire just yet but an impromptu swim after falling into the water when transferring from a ship to the cutter in April provided a not unsurprising stimulus to the decision making process. As Paul told me at conference there are occasions when life provides you with a message and a fall into the freezing waters of the North Sea in April cannot be ignored especially since he was the first pilot to fall into the sea since 1979. In 1979 the pilot who took the swim was none other than Paul himself and he is probably not exaggerating when he states that *"I believe I am the only person to survive falling into the North Sea twice and survive – normally when someone goes in, the task is the recovery of a body"*.

On both occasions Paul was wearing his SeaSafe jacket with the integrated auto inflating lifejacket and thus his swimming prowess has earned him the unique honour of being featured in a SeaSafe press release!

In no doubt as to the vital role that his jacket played in his survival he states *"On each of these life threatening incidents I was wearing my SeaSafe coat and both times it worked brilliantly – inflating instantly, giving vital buoyancy and aiding recovery so, apart from the extraordinary endeavours of my fellow crew members, there is no doubt that I have my SeaSafe jacket to thank for being alive – twice over."*

Paul concluded, *"My wife Carole and I were counting the hours to my retirement when this happened and it's hard to comprehend that such life threatening incidents marked both the start and end of my working career as a river pilot – I must admit I would rather have gone out with less fuss!"*

JCB

Paul receives a retirement gift from colleague Alan Hayward at the UKMPA conference.

INSURANCE INFORMATION

DAS Insurance:
Provided through Drew Smith, at Circle Insurance.

Personal Accident:
This is also provided by Drew Smith, at Circle Insurance.

Liability & Legal Defence:
This policy is provided by Ken Pound, at Meridian Risk Solutions Ltd., and the underwriters are Royal & Sun Alliance.

A summary of all policies, and contact details are on the web site:

www.ukmpa.org

In addition to the above the UKMPA has secured the services of a solicitor, Barrie Youde, who can be instructed by a member of section committee or the insurers.

INCIDENT PROCEDURE

In the event of any incident – no matter how trivial it may seem at the time – it is imperative that a pilot completes an Incident Report and forwards it to the insurance company. Forms are available on the website.

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