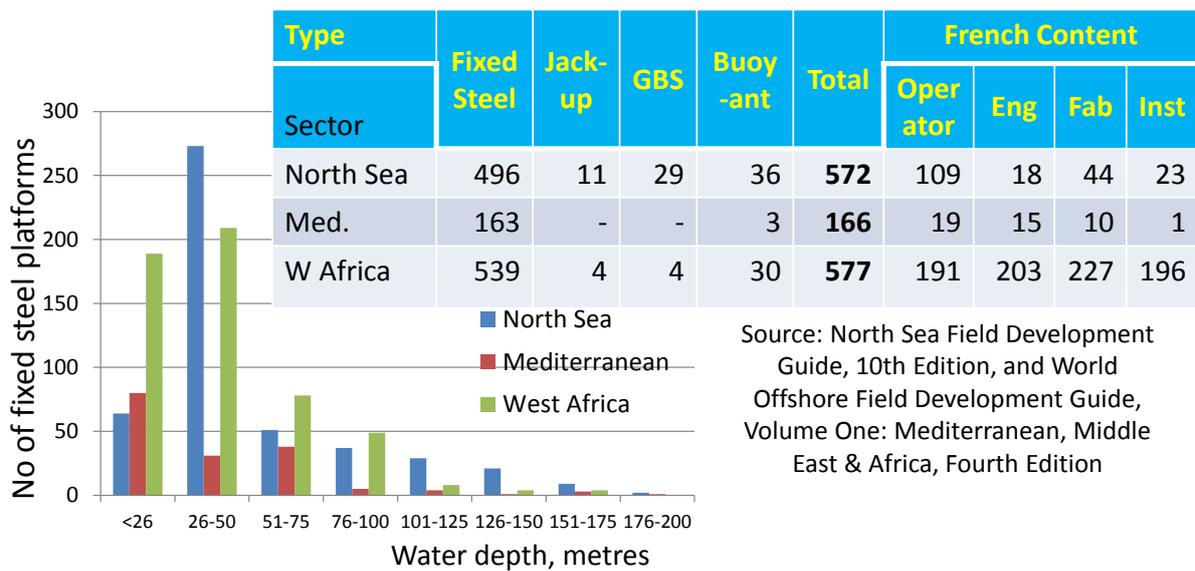


Lectures and Voyages d’Étude in 2015 have included offshore engineering, renewable energy, railways, tunnels, geotechnics, and energy from waste.

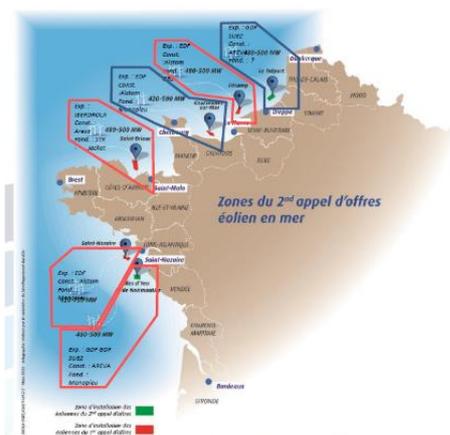
At the AGM the Presidential lecture “Offshore Structures – the French Connection” traced the role of French engineers and French companies in the development of offshore oil, gas and renewable energy. Peter Blair-Fish described the types and numbers of offshore structures in the North Sea, Mediterranean and off West Africa; overall energy consumption in Western Europe; the companies involved in the engineering, fabrication, installation and operation of offshore structures; developments in offshore safety; and the development of offshore wind and other renewable energy. One slide from his presentation shows the extent of French involvement:

Oil & Gas Platforms in N Sea, Med & W Africa



Another slide showed the dramatic decline in UK oil and gas production since 2000. Peter’s conclusions noted the increasing role of French companies in the development of offshore oil & gas, with no commercial oil or gas in home waters but extensive work off West Africa. He particularly noted the role of French companies in the development of concrete offshore structures, deep water riser pipes and the use of jack-up rigs as production platforms, and offshore wind.

Offshore Wind projects



Félix Gorintin of INNOSEA (www.innosea.co.uk) delivered a lecture at the Royal Overseas League in February on offshore wind and other renewables in France. He reviewed the readiness and potential timescales of available marine technologies from tidal range and fixed offshore wind, through tidal stream, floating offshore wind, and wave power to salinity gradient devices. So far, only fixed offshore wind has become commercial. Consents have been granted for six wind farms off the north and northwest coast of France, with a goal to generate 6 GW by 2020.

Andy Bull of Severn Wye Energy Agency gave a lecture in March at the National Liberal Club on Anaerobic Digestion, Bio-Gas and Combined Heat & Power in France and UK. One of the best places for such a plant is on a farm. Small digesters (less than 250 kW) have been used on farms in Brittany for some years now, helped by differences in application of legislation, capital grants, and bonuses for productive use of heat in conjunction with electricity fed into the French grid. A least one of the digesters in Brittany is experimenting with the use of grass cuttings from highway verges.



Pilot projects (see www.combine-nwe.eu) are being set up in the UK for small scale combined heat and power, using experience from similar plants in France and Belgium. Biomass is separated into cake which can be dried and pelleted as solid fuel, and fluid which can be fermented into biogas which can produce thermal and electrical energy.

Spring came early with a Voyage in April to Poitiers—a city steeped in history and now beside the route of the new Ligne Grande Vitesse (LGV) from Tours to Bordeaux (see www.lgv-sea-tours-bordeaux.fr). ICE France had visited the previous autumn. Our party of 31 visited the LGV line and the viaduct Léon Blum, completed in 2014, which carries buses, cycles and pedestrians across the railway in the centre of Poitiers (see www.rfr-group.com).



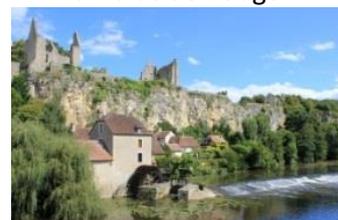
The new LGV line was developed as a concession from the French Government, with a faster overall schedule than previous TGV projects (6 years vs 11 years for TGV Est). To achieve the faster schedule, the project team set up round table consultation with all interested parties to agree the route, structures, and compensation measures. The new LGV line has no new stations. It by-passes cities like Poitiers with branch lines to take stopping trains into existing stations. One structure that we visited was L'Estacade de la Folie just north of Poitiers, where the branch line passes over a major road junction where it joins the existing main line.



L'Estacade de la Folie



Tumulus de Bougon



Angles sur l'Anglin

There were several cultural visits during the voyage including the Tumulus de Bougon, a megalithic site dating from about 4700 BC; the Église Notre Dame la Grande, whose façade depicts the essential message of Christianity, carved by highly skilled craftsmen during the late 11C and early 12C; the village of Angles sur l'Anglin with its 11C ruined castle; the 12C Romanesque Abbaye de St-Savin with a fine series of mural paintings; and the Église Ste-Radegonde, founded in 552 by Ste Radegonde. The order of Ste Radegonde founded a convent in Cambridge on the site where Jesus College now stands. We also enjoyed good local cuisine and wines.



Église Ste-Radegonde



Église Notre Dame la Grande



Gala dinner at Château du Clos de la Ribaudière

The next presentation in London was by François Pogu and Clarence Michel of Vinci Grand Projets in May at the RAF Club. They described the design and construction of the 8.6 m diameter 75 m deep Lee Tunnel from Beckton to Abbey Mills, including its five shafts. The most dramatic pictures in the presentation were of the critical operation to lower tunnel boring machine “Busy Lizzie” down one of the shafts.



Lifting part of the TBM...



and lowering it down the shaft

A combined event was held in late June in Cambridge for the President's Day and Ladies' Day. It started with lunch in the Fellows' garden of Jesus College. For the engineers there was a visit to the Geotechnical Centrifuge at the Schofield Centre which can achieve up to 130 g and so model full size soil problems at a scale of up to 130:1. Meanwhile, others visited the Botanic gardens which have over 8,000 plant species, including nine national collections. In the evening a memorable choral concert in chapel was followed by dinner in hall, all courtesy of our Patron, Professor Robert Mair. The following day there were walking or chauffeured punt tours of Cambridge followed by an al fresco lunch chez David and Jane Hughes in Comberton.



Explanations during visit to the Schofield Centre



Dinner in Jesus College



Punting on the Cam at the backs of Clare and King's Colleges

Our autumn voyage was to Aix-les-Bains, with technical visits to the Cornavin-Eaux Vives-Annemasse (CEVA) railway project in Geneva (www.ceva.ch) and to the Romanche Gavet hydroelectric project SE of Grenoble. For the 44 people on this voyage, the first visit was to the CEVA project with the alternative of a walking tour of the old town of Geneva. At the CEVA project there was a presentation of how the railway on the French side of Lake Geneva will be linked through a tunnel through unstable moraines, a new bridge over the river Arve and some existing track, to the main station of Cornavin. There was also a tour of some of the underground works for the new Eaux Vives station.



At the CEVA project



Layout of Romanche Gavet project



Inside the turbine hall at Gavet

Two days later at the Maison Romanche Energies there was a presentation of how the Romanche Gavet project will replace a series of five small turbines with a pair of two larger turbines and provide a more steady flow in the river. The party then split into three groups: two to visit the underground caverns and one to visit the Museum of Alpine Minerals and Fauna in Bourg d'Oisans. After a good lunch in the mountains, the whole party visited the Château of Vizille and Museum of the Revolution.



Abbaye d'Hautecombe



View from La Chambotte



Chanaz

Other cultural activities on the Voyage included a walking tour of Aix-Les-Bains; a trip by coach to the top of Mont Revard, overlooking Aix-les-Bains and the Lac du Bourget, and with a panoramic view of surrounding mountains; a visit by petit train to the port; the hot pools at Thermes Chevalley; wine tasting and dinner at Château des Comtes de Challes; a boat trip across Lac de Bourget to the Abbaye d'Hautecombe which was a location of great spiritual influence in 12C to 14C and the burial place of the Comtes de Savoie; a coach trip up a narrow winding road to lunch at the Belvédère La Chambotte, which Queen Victoria visited; an opportunity to buy local cheeses at a farm shop; and a visit to the village of Chanaz on the Canal de Savières at the north end of Lac du Bourget.

The first award of the Sir Alcon Copisarow Medal was made at the Caledonian Club in October to Chris Bakken of EDF Energy's New Build Team. Chris is project director for the 3.2 GW nuclear power station at Hinkley Point 'C'. Details of the award have been reported in the newsletter and are available at www.iesf.co.uk. The award was followed by congratulations to our Patron Professor Robert Mair on his appointment as a crossbench member of the House of Lords, and a lecture by him on "Tunnelling beneath cities—advances in research and practice".



Sir Alcon Copisarow presents the medal to Chris Bakken



Crossrail—15 m wide Crossover Cavern at Stepney Green

Robert described how tunnels are constructed, some of the instrumentation used to measure movements caused by tunnelling, the complex analyses used to predict movements, and measures such as pumping grout into the soil in order to limit those movements. These techniques were used for the station box for Westminster station for the Jubilee line, and at various locations for Crossrail.

The final meeting of the year was a presentation at ICE in early December by Andrew Newport of SBM Offshore on "Floating Production Storage & Offloading Systems (FPSOs) & their Turret Moorings". This event was publicised to the Offshore Engineering Society and had a total of 123 attendees at the lecture, which was timed to allow those who wished to attend the ICE/RICS carol service beforehand.

Andrew explained the difference between spread moorings that hold a vessel in one orientation, and single buoy moorings that allow a vessel to weathervane, and the difference between external single buoy moorings and those in a turret on the FPSO where they are protected from waves. He also described how turret moorings are evolving to withstand harsher conditions such as those found West of Shetland.



Prompted by Council Member Norman Train, the Council has developed its overall strategy which has three strands: seeking new members, publicity, and outward facing activities.

Already, the Council has been seeking to publicise the activities of the British Section. During 2015, two mentions were achieved in IESF "Flash Info"—one for the visit to Cambridge and one for the award of the SAC medal, which was also reported on ICE's web site. There is more to do.

I thank my predecessors and other members of Council for their valuable advice and support throughout the year and wish my successors well.

Peter Blair-Fish

December 2015