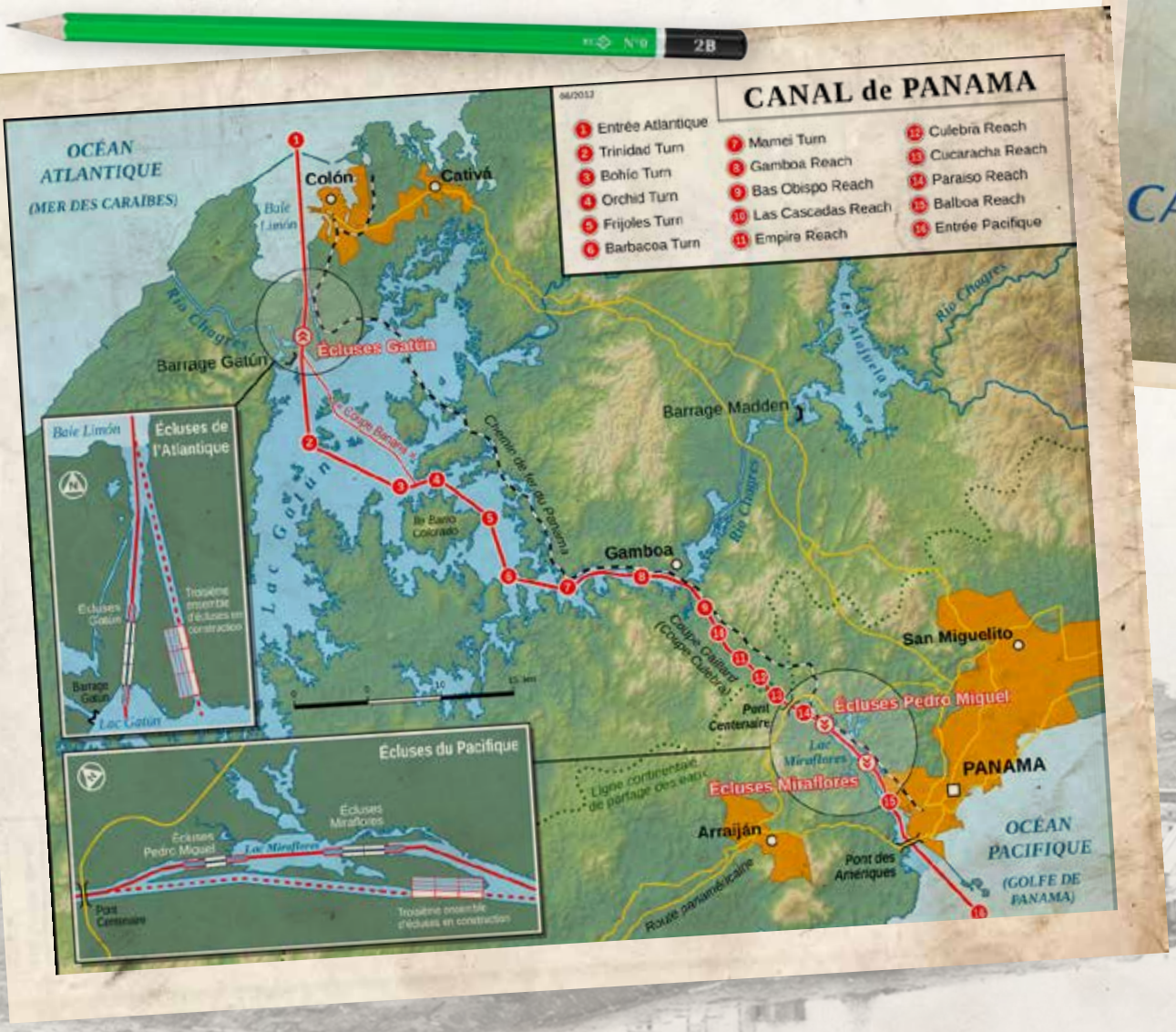
INITIATIVES POUR L'AVENIR
DES GRANDS FLEUVES
INITIATIVES FOR THE FUTURE
OF GREAT RIVERS

THE PANAMA CANAL


CANAL de PANAMA
06/2013
1 Entrée Atlantique
2 Trinidad Turn
3 Bohío Turn
4 Orchid Turn
5 Frijoles Turn
6 Barbacoa Turn
7 Mamei Turn
8 Gamboa Reach
9 Bas Obispo Reach
10 Las Cascadas Reach
11 Empire Reach
12 Culebra Reach
13 Cucaracha Reach
14 Paraiso Reach
15 Balboa Reach
16 Entrée Pacifique
OCÉAN ATLANTIQUE
(MER DES CARAÏBES)
Colón
Cativá
Baie Limón
Rio Chagres
Barrage Gatún
Écluses Gatún
Coupe Bamera
Chemin de fer du Panama
Barrage Madden
Lac Alajuela
Rio Chagres
Lac Gatun
Ile Barro Colorado
Gamboa
Coupe Culebra (Coupe Culebra)
Pont Centenaire
San Miguelito
Écluses Pedro Miguel
Lac Miraflores
PANAMA
Écluses Miraflores
Arraiján
Pont des Amériques
OCÉAN PACIFIQUE
(GOLFE DE PANAMA)
Route panaméricaine
Ligne continentale de partage des eaux
Écluses de l'Atlantique
Écluses Gatún
Troisième ensemble d'écluses en construction
Barrage Gatún
Lac Gatún
Écluses du Pacifique
Écluses Miraflores
Écluses Pedro Miguel
Lac Miraflores
Pont Centenaire
Troisième ensemble d'écluses en construction

What's a river?

Among different definitions, we could choose the following: a river is a path of water that flows into the sea.

Thus the Panama Canal deserves inclusion in the family of rivers, doubly so since it not only flows into one ocean but two. As for the path, it was precisely to avoid an endless and hazardous route that the canal was excavated.

On 1 September 1513, the conquistador Balboa left the shores of the Atlantic and, at the head of a small company, headed due south into the inextricable and menacing tropical forest. Three weeks later a great stretch of blue water could be seen through the trees. The soldiers ran to it, drank and grimaced. The taste of salt told them that they had just discovered another sea. It was baptised the "Pacific" seven years later by Magellan.

For nearly four centuries, this crossing of the isthmus, the shortest journey from one ocean to the other, would be taken by caravans of horses and mules to transport the gold and silver plundered from the Andean countries, Columbia, Bolivia, Peru, etc., to Spain via Havana in Cuba.
Legend would have it that the idea for the canal came from Charles V. Works started nearly three centuries later, in 1880, under the Frenchman, Ferdinand de Lesseps, the "victor of Suez". After many episodes, bankruptcies and scandals, the United States took up the task and occupied the site. The steamship Ancon opened the way on 15 August 1914. More than 26,000 workers lost their lives on the huge site, mainly from diseases (malaria and yellow fever). Here and there, a few discreet cemeteries remind us of the sacrifice of Americans, French from France and the Antilles, Polish and Italians, not to forget many Panamanians. Full sovereignty over the canal was not returned to Panama until 31 December 1999.

The French engineers believed in taking the simplest option by excavating a trench from one ocean to the other. But they had to cross the small central cordillera. Quickly, another plan was chosen: that of building a dam to hold back the waters of the numerous rivers, including

the Chagres. Thus a lake was formed 26 metres above sea level. It sufficed to raise the boats and lower them once they reached the other end of the lake. This is why the Panama Canal is primarily a system of locks that fulfil the role of lifts, contrary to what is believed.

The lock control house of Miraflores, Pacific side.

And now a few figures.
5% of world trade (excluding oil) passes via the canal, for a very simple reason: it shortens and secures voyages. For example, the distance from San Francisco to New York is 22,000 kilometres when passing via Cape Horn. By taking the shortcut through Panama, shipowners save no less than 9,000 kilometres and all the associated costs. However, they must pay the toll: from $120,000 and $400,000 per passage, depending on the tonnage, value and danger of the cargo. In several years, with the works in progress and the passage of larger vessels loaded with more containers, certain passages will lead to tolls of one million dollars. Thus there is no problem in finding the funds required for the extension works whose total cost has already reached $5.25 billion and for which a loan of $2 billion has been granted, reimbursable over 8 years.

Indeed, the canal generates a turnover in excess of $3 billion a year, of which one billion fuels the government budget. However, account must be taken of all the additional logistics activities.

Taken altogether the amount exceeds a third of the national GNP of Panama.

One can understand why the authorities take care of their canal and launch huge projects to increase its efficiency and attractiveness.

A major development plan was started in 2007, with the hope of completion in 2025. The ambition is no less than to double the canal's capacity and allow new generation ships to pass through it. The dimensions of these little babies, named "Post Panamax" or "New Panamax", can reach a length of 386 metres, a width of 49 metres and a draught of 15m, and they can transport more than 13,500 containers (twenty foot equivalent units).

Rest assured, the Suez Canal Authority also has its projects to prevent the "Suezmax" from becoming the "Post-Suezmax". If all goes well, as early as 2017, on the busiest days 55 ships should take this 80 kilometre canal between the two oceans, compared to 38 today.

To achieve this goal, a third line of larger locks thriftier with fresh water (a saving of 60%) is being built on both the Caribbean and Pacific sides to minimise the risk of saltwater intruding into Lake Gatun. This is all being done while taking into account rising sea levels. To date, 93% of the works have been completed, and 90 million cubic metres of cement have already been used. Sheer size does not end here: the lock gates are so large that they could not be carried on the ships sailing along the canal. Unloaded on one side the canal, half of the gates were transported by "Titan", a self-propelled floating crane. A survivor fulfilling a strange destiny, it was built by the Germans during the Second World War and then given to the operators of the Panama Canal by the Americans.

The Compagnie Nationale du Rhône (CNR) was asked to provide its assistance to these titanic works. The Panamanians knew of its experience in hydraulic engineering and river navigation.

This morning, the Panama Canal Authority (PCA) has given us an appointment on a pier located just after the Pedro Miguel lock. A fast patrol boat is to take us to the Atlantic, seventy kilometres to the north.

New lock and its gate,
Pacific side.

CNR's engineering knowhow was used to model the new locks

With befitting reverence, we salute the Centennial Bridge overhead and enter the narrowest part of the canal, a groove hollowed out of the stone of the cordillera. The space is tight: the boat has to slip between the vertiginous banks and the other boats passing on the way. Their hulls rise skywards like iron. The water is muddy, a light brown, due to the rainwater runoff and the dredging operations to widen the canal. Soon the bank appears slit open, signalling the outlet of the River Chagres, a river which, make no mistake, deserves respect: by filling the canal, it is the only river in the world that flows into two oceans. We shall forgive it for not having presented a crocodile to us today. Not long afterwards, the water becomes blue. We have entered Gatun, the largest artificial lake in the world. Who remembers that this vast expanse is not natural? It looks like the Amazon at the peak of its tides, or like Halong Bay without the impressive relief of its limestone concretions. The several hundred islands are the only trace of land left by some ancient deluge, bits of jungle over which thousands and thousands of birds fly. This world harking back to the beginning

of time forms the landscape through which the largest ships sail, loaded with containers bearing the names Maersk, China Shipping, CGM, Hanjin, Cosco, etc. We see more dredgers, bigger than the previous ones, vomiting blackish sludge. The water won't be left in peace for long.

The dull sound of explosions travels through the air at regular intervals. Dynamite or thunder? The first guess, perhaps. We're approaching the outlet to the Atlantic and the extension works are in full swing.

But it could also be lightning. Storms are frequent here; Panama has the fifth highest rainfall in the world. This pounding brings to mind the canal's close relationship with rain. Lake Gatun would dry without the rain and so the canal would close, hence the

concern expressed by the authorities regarding climate change. Since the beginning of time, a phenomenon called El Niño returns, regularly bringing deluges here and droughts there. Since several decades ago, El Niño has tended to become more frequent, but for the moment it has not affected Panama. Indeed, the contrary occurred in December 2010: the hundred year rainfall over-filled the reservoir! It was necessary to empty the surplus but the threat remained! More pressing (for the moment) than that of the possible competition of another Central American canal, a little further to the north. For several years, a Chinese consortium has invested colossal sums to build another path for boats in Nicaragua. It will link the numerous volcanic lakes that crater this country's land.

A clandestine passenger

The Panamanians know how to profit from this strategic situation at the very centre of the cord joining the two Americas, at the place where the land separating the two oceans is narrowest.
The inhabitants of this territory blessed by the gods of trade have not contented themselves with their canal. They have developed all the activities that facilitate trade between human beings: telecommunications, air transport and financial services. And they receive all those who seek shelter for some reason or another.
Against political instability (Venezuelans), against administrative red-tape (non-Americans of Miami following 9/11, traffickers seeking to launder income with murky origins without having to worry about

nit-picking inquiries), and against high taxation (everybody, private individuals and companies: more than 300,000 of the latter have established their head offices in Panama City).

Geography is the gold of Panama.
One might believe that real space in the digital universe is of no importance, that everyone everywhere can declare themselves as the centre of the world. Well, it's wrong. Look at Singapore, Hong Kong and Vancouver. These cities have certainly woven networks that reach the four corners of the world, but their importance above all stems from their localisation, a gift from the good fairy geography, though she can be so cruel sometimes, when her gift to a people is a landlocked country or one deprived of water.