Two tracks for a racing circuit

Directions
Colas University: on the management road

Intersections
with François Ewald

EN ROUTE

Information magazine from the Colas Group
Starting points
Into the 3rd millennium

The road is a vital constituent of our world. It has gradually become another element, like air, earth, fire and water, yet from time immemorial the road has been a dynamic source of life. Through its significant role in civilization, economic growth, cultural and social development, as a link between individuals and peoples, the road is a symbol of our evolution. It traces our history. Throughout this 3rd millennium, as before, the road will be at the center of challenges, both real and virtual, at the heart of many issues involving all sciences, and also social, political and economic developments. Fundamentally, it will be flexible, versatile, decentralizing, dynamic, independent and a guarantee of social cohesion. The future for Colas roads is truly boundless.
LATITUDE/LONGITUDE
From Madagascar to Morocco, Paris to the Périgord…, snapshots of the group’s star sites

DIRECTIONS
Drivers
• Management, methods, markets...
  What’s changing at Colas around the world

Backward glance
• Spot the pipeline! How to make all traces of a job site "disappear."

In depth
• Colas University: three steps on the road to the management.

ITINERARIES
Working behind the scenes or under the floodlights, these are the men and women who make the Colas Group what it is today.

INTERSECTIONS
• François Ewald: a prudent company is one that takes risks.
• Jean-Marie Ruiz: the management principles handbook sets out rules to be followed by the entire Group.
France

From roadways to railroads

24

France

Magny-les-Hameaux: a campus designed to drive innovation

30
Madagascar to Morocco, Paris to the Périgord… visits to jobsites, snapshots of work in progress, reports on finished projects. Colas expertise around the world.

A Compostyrene fill
They tried banking the foot of the slope in 1997, resurfacing the roadway in 1983 and mortar columns in 1989, but nothing did any good. Cracks four centimeters wide and four meters deep appeared on the embankment of the Poitiers southern bypass at the Cassette intersection. Built during the 1970s, this section of the RN 10 flanks the hillside running along the valley of the Boivre, one of the two rivers that flows through the lands of the Poitivin, built on highly unstable brown clay soil. After demolishing the old roadway, the Screg Poitiers profit center constructed a new embankment in expanded polystyrene over a length of 162 meters, using a volume of 4,725 cubic meters of Compostyrene. One hundred times lighter than the original earth, the material reduces the load on the clay soil by an equivalent amount. From late September to late November 2000, some 20 Screg operators worked under particularly difficult conditions because of the autumn storms.

Moroccan infrastructure development
Morocco is developing a motorway network with the aim of becoming the major transit country between Europe and Africa. GTR, one of the Group’s Moroccan subsidiaries, is in charge of two large-scale motorway sites. One of these, carried out in partnership with LRM, is a 28 km stretch of motorway linking Mohamedia to the Casablanca-Settat motorway, towards Marrakech. Scheduled for completion at the end of 2002, the work is being carried out almost exclusively in urban surroundings as the road runs through the outskirts of Casablanca. The site represents 4 million cubic meters of excavations and 300,000 metric tons of asphalt mix. The other site, a new fifteen kilometer stretch of the Rabat-Tangier motorway link between Sidi el-Yamani and Asilah, is in its start-up phase. The site is located in the north-west of the country, along the Atlantic coast, and will generate 6.2 million cubic meters of excavations and require 100,000 metric tons of asphalt mix. The project is scheduled for completion in July 2002. GTR is deploying around 300 workers on each of these sites.
Coletanche has the Galaube dam covered

Under construction since the spring of 1999, the Galaube dam is forecasting capacity at 8 million cubic meters. Located in southwestern France, the dam will supply drinking water to three different French Departments – the Aude, the Tarn and the Haute-Garonne. Since July 2000, Colas Midi-Méditerranée has been working on the upstream waterproof layer. Following construction of an embankment consisting of a layer of crushed rock to level the surface of the slope, a second bitumen emulsion layer was laid. The third layer was composed of cold-mix asphalt, followed by the laying of a geotextile membrane.

The product used was Coletanche NTP 3, manufactured by Colas in Galway, Ireland in 5.15 meter-wide rolls. Welds could not be used, so rolls of geotextile over 100 meters in length and weighing more than three metric tons had to be made. The characteristics of this reinforced bituminous geotextile membrane are strong resistance to elongation, very high breaking resistance, strong waterproofing capacity thanks to its bitumen component, complete adaptation to deformations and excellent resistance to various forms of tearing, ageing and numerous chemical products. When the project is finished, at the end of 2001, the 40-meter high Galaube dam will be the highest in the world to be waterproofed by a bituminous geotextile membrane.
Because intensive fishing in the Mozambique canal has resulted in far smaller catches, numerous shrimp farms have started up along the west coast of Madagascar, where there are many areas that are favorable to this activity.

A private company, Aquamas, has financed the construction of one of these farms in Soalala, where 250 hectares will soon be producing two thousand metric tons of shrimp a year. The farm has a number of pools fed by four pumps that empty into an irrigation canal. The water from the pools is regenerated daily and is evacuated through a system of drainage ditches.

Carrying out this type of work was a first for Colas Madagascar. The very nature of the swampy mangrove soil, water-logged and with little load-bearing strength, meant that Colas had to construct a peripheral dike over six kilometers in length to protect the entire zone from the effect of the tides.

The dikes are composed of borrowed laterite materials and were waterproofed with clay dredged up from the bottoms of the pools by two bulldozers and two shovels. In spite of problems of creeping supporting subsoil and loss of material through compression, the pools were handed over according to schedule.

In all, the back-fill represented a volume of 750,000 cubic meters. Civil engineering work included both hydraulic concrete structures and steel-frame constructions such as the pumping station, a bridge and a landing dock. A quay for boats to tie up to. Technical buildings, a hatching pond, a packing plant and storage sheds complete the project.
On your bike!

After 25 years of existence, the Beauvais velodrome – 250 meters long and 6 meters wide – was in a state unfit for any cyclist, with cracked concrete, water seepage, etc. For two weeks in October 2000, a twenty-five-strong team from Sacer Paris Nord-Est’s Beauvais profit center covered the concrete of the old track with asphalt mix. Five different bitumen elastomer mix designs were tested to obtain a non-slip, compact surface dressing. The main difficulty of the site was the slope of the cycle track, which shifts from 10% to 30%, making it difficult for the asphalt to hold and limiting the extent to which plant can be used. Firstly, the concrete expansion joints had to be filled, then an elastic bitumen membrane put in place so that the cracking in the concrete would not attain the asphalt surface dressing. A tixotrope bitumen elastomer emulsion tack coat, designed to bond on contact with the ground, was then applied. The final stage before application of the asphalt consisted of gritting so that the caterpillar tracks of the finisher would grip properly. Get set...

Who’s on the miniphone?

Sacer Sud-Est won the contract for the Grenoble A 480 bypass on the basis of a clear performance target – obtaining the greatest noise reduction possible. The bypass goes through an urban area and channels over one hundred thousand vehicles daily. 70,000 square meters of noise-reducing Miniphone S asphalt mix were applied, working nights only. During August, some forty operatives worked in shifts to bring the site to completion. Two planing machines treated the surfaces located underneath engineering structures in order to maintain the clearance and laid gravel the length of the emergency shoulder. Two cold microsurfacing application workshops produced a single tack coat that ensured the waterproof of the subbase. Three finishers working in a row and five compactors were used to lay the sound-reducing surface. Both local officials and neighboring residents were immediately enthusiastic about the improved noise levels, another confirmation – if it were needed – that Miniphone has a promising future.
Completion of phase one at Raleigh Airport
The first phase of work on the construction and layout of a new parking lot at Raleigh Airport in North Carolina, which began in March 2000, was completed in November. This large-scale project was handled by the Nello L. Teer company. After 13.6 hectares of woodland had been cleared, leveled, prepared and made viable, some 16,000 metric tons of asphalt were laid on a bed of 35,000 metric tons of rip-rap. Almost 30,000 m³ of earth was removed by four scrapers, while a tracked excavator filled the all-terrain trucks and a roller systematically compacted the soil. Although the work-site interfered with car traffic and parking at the airport site, the entire team worked to ensure total safety, as traffic continued in other airport parking lots during the duration of the works. The remaining portion of the project is scheduled for completion next Fall.

Supermarket gets a new hub
Intermarché, the French supermarket chain, is constructing a new logistics hub on an eleven-hectare site at Moulins, in the Allier Department. The hub will group products for distribution to stores throughout central France. Axima Centre won the performance clause-based contract for the roadways and building floor slabs - they must withstand pressure of 2,000 bars to cope with permanent delivery truck traffic. In all, the asphalt-paved surfaces will cover two hectares. Earthworks including 30,000 cubic meters of cement-lime stabilized fill took place over a period of four months from August 2000 onwards. This was not a favorable period to perform this type of work, but tight scheduling requires the base to be operational by April 2001. A Coletanche 3,500 cubic meter wastewater retention pond completes the site. Inside the building, 4,000 square meters of industrial floor slabs are also under construction. The best possible design solution for these floors was found with advice from the Scerg Sud-Est laboratory.
From Brazil to French Guyana

From Caracas to Macapa, the Pan-American Atlantic highway links Venezuela to Brazil crossing French Guyana. The Régina-Saint Georges stretch is the remaining missing link with 80 km of road and a number of major challenges for the teams on site. The road layout runs entirely through primary equatorial forest, over steeply sloping terrain and has been designed for low environmental impact, a major requirement of this job-site. The platform is 12 meters wide with maximum gradients of 7%. Deforestation is being carried out over an 80 meter width and ten eco-corridors allow the local fauna to cross the highway overhead through the forest canopy.

The first roadway will be built in laterite. Ribal TP, the Group subsidiary in French Guyana, won the contract for the first two sections, which have been financed by both the local and national governments for a total amount of €6.1 million. Financed by local government, the section comprises 290,000 cubic meters of back-fill and embankments, 194 meters of drainage networks and 21,000 cubic meters of laterite to constitute the wearing course. Four bulldozers, three graders, twenty trucks, five excavators and five compactors – a total of nearly sixty machines – are in service over the entire site. Material is brought in by barge, along the Cayenne-Saint Georges waterway. The new highway will boost trade within the Plateau of the Guyanas, particularly across the Brazilian border.
It is a year since Cofiroute was awarded the build-operate contract for the final stretch of the A86 motorway linking Rueil-Malmaison to Vélizy, in the Greater Paris region. The project involves the building of two tunnels, one of which is 4.5 km, between Rueil-Malmaison and the A13 motorway, and the other 5.5 km, between the A13 and the Colbert Bridge. The tunnel option was the only solution that offered sufficient environmental protection. Work on the first tunnel commenced in November 2000. Colas formed a team of thirty people to handle the setting up of installation platforms on the Rueil-Malmaison site, the A13 Vaucresson detour, and the administrative coordination of the project. The road tunnel, at a depth of 80 meters, includes a two-level 3-lane road, one in each direction. The 12-meter diameter meant that a tunnel-boring machine had to be constructed at a cost of over €38 million. As the site is located 500 meters from the Seine, all the excavated material could be taken off by barge. The cost of the 4.5 kilometer stretch between Rueil-Malmaison and the A13 is estimated at over €600 million. The first tunnel is for light vehicles and another tunnel for heavy vehicles is planned between Rueil-Malmaison and Bailly, at the entrance to the A12.
The A89 advances 28 km through the Périgord

The A89 motorway linking Lyon and Bordeaux is well under way. Screg Grands Travaux and Screg Sud-Ouest are working on site. Begun on October 18, the Montpon-Mussidan stretch should be finished by mid-May, 2001. It will be quite a challenge to carry out the 28 kilometers of drainage and roadway. Nearly 100 people are working on the site. 200,000 metric tons of road base asphalt for the road base and foundations, over 100,000 metric tons of bituminous concrete for the wearing course – a grand total of 300,000 metric tons of asphalt mix. The huge site is moving along at a daily rate of 3,000 metric tons of asphalt mix and untreated aggregates. The site is held to very tight delivery dates which must be kept to with no possible modification. But down in the Périgord, the teams are keeping up the pressure and will meet the challenge.

Reserved lane public transport on Reunion Island

The project for a dedicated bus lane to provide transport between the residential areas, outskirts and town center of Saint Denis de la Réunion has been developed by a consortium of towns to the north of Reunion Island. The four-stage contract was awarded to GTOI. Between February 1999 and October 2000, 3,500 meters of reserved lane roadway were laid in the city center, in addition to 1,500 meters of supplementary facilities such as pedestrian streets. Taken as a whole, the work represented 50 km of pipeworks, 56,000 square meters of roads and 32,000 square meters of pedestrian streets. The work was performed in four teams of fifteen people. A layer of as-dug gravel was covered by 20,000 metric tons of high-modulus asphalt mix and 5,000 metric tons of 0/10 Ruflex.

A team member was assigned the task of taking care of the public relations side of the project. Work of this type cannot be performed in a town center without the full understanding and agreement of locals. Information on safety, the disturbance caused by the work and the completion schedule was distributed to the neighborhood residents and the 200 shopkeepers in the area. The work finished, the workers received thanks and in some cases even small gifts from local shopkeepers.
First application for Coletanche in the USA
Near Redmond, Oregon, the watertightness of the Ochotto Canal now depends on a Coletanche geo-textile membrane. This irrigation channel was prone to substantial leakage, flooding nearby fields over a distance of 2.5 kilometers and causing considerable damage to crops. Although the principle of the sealed geo-textile membrane has been used in Europe for 25 years, this project is a first in the USA. Since November 2000, all the Coletanche specialists in the group have contributed their expertise: from Colas SA (R&D and the Research Lab), Colas LW and ACP (Terus). Coletanche, specially manufactured in Galway, Ireland, was sent by boat to Canada and from there taken to Oregon by train. Delivered in rolls approximately 5 meters wide, the geo-textile membrane is laid in welded strips. This project represents a life-size test, whose success could well see it being used on other US sites.

MAYOTTE
A smoother drive on the RN 2
With its 340 square kilometers and 160,000 inhabitants, Mayotte is developing its activities around its economic capital, Mamoudzou. This situation is affecting its road communication system, which is inadequate to absorb the increase in traffic. The RN 2 highway linking Mamoudzou with Tzoundzou is undergoing substantial upgrading work. The aim of the project is to free up land routes by building a road ‘out to sea’. In June 1999, ETPC began the backfill work for a 2 x 1 lane over the water, 100 meters offshore. A permeable breakwater wall has been set in place, consisting of 45,000 cubic meters of riprap to protect against waves and cyclones. Covering more than 1.6 kilometers, this project needed 450,000 cubic meters of aggregate; a quarry in the nearby mountains had to be opened to supply the amounts required for the job. A 2km lane means that trucks can work in rotation, to the tune of 400 trips/day. The project will be handed over in June.
The de-pollution of land at Nanchon mill is nearly finished

After the success of the de-pollution project at Amponville, Colas Environnement et Recyclage (CER) won a second project from Novartis Agro in Seine-et-Marne. This is the de-pollution of the Nanchon mill industrial by thermal desorption. Pollution has increased dramatically since the beginning of the century. The site was used as a storage center for petroleum products, then in 1947 a company called La Quinoléine installed a plant manufacturing herbicides and insecticides, which was used until 1962. Following complaints from local people, a de-pollution project began in 2000.

“De-pollution and risk management, in complete safety” could be CER’s motto; the proximity of the Seine river means the area is in the flood plain. The banks of the river have been protected by a sheet pile wall. A 1,600 square meter tent in which the air is constantly treated means the soil can be safely sorted. The tent limits the risk of odors in the immediate vicinity, an important consideration since the site is located in a built-up area. The project calls for several processing techniques: disposal as class 1 industrial waste, incineration of special waste, containment on site and - CER’s specialty - water treatment and thermal desorption. The land will be heated to 500°C to evaporate the pollutants without destroying the soil, then the pollutants are destroyed in the gaseous state by combustion at over 900°C. Clean-up of the area is planned for June 2001. The flood plains will become landscaped green areas and the other sections will once again become part of the industrial estate.
It’s cold and raining on the site of the future Rockingham motor racing complex, in the heart of the East Midlands region of England. The inhabitants of the nearby town of Corby are following the progress of the project with great interest. "The circuit will bring a lot of work, and attract a lot of visitors from all over the country, and from abroad, too." Ken Sutherland, head of quality and safety at Rockingham for Colas UK is very much of the same opinion: "You can feel it. The project has brought the region back to life to a great extent."
This vast site stretches as far as the eye can see, over 120 hectares of a former ironstone quarry to the Corby steelworks, which was shut down in the early 1980's. The men on site are busy despite the weather. "It's never rained so much!" exclaims Ken Sutherland, pointing to a series of rainfall charts. "I'm keeping a close watch on the hour by hour local weather forecast on the BBC web site – it's one of the best and most accurate available." However bad the weather conditions may be though, there's no question of postponing the circuit's public opening date, scheduled for May 2001.

In Project Manager Carl Fergusson's office, two members of Colas Group's United States subsidiary, Barrett Paving Materials, discuss the progress to date. Bob Harrington and Charlie Schumacker have supervised the surfacing of motor racing circuits in Michigan, Illinois, Kansas and California. They're pooling resources alongside Colas UK.

**Unique technique**
"The international collaboration here is truly fruitful," comments Bob Harrington. "Utilizing Colas worldwide resources we are confident that we will meet the demanding specifications and tight construction schedule of the £3.4 million contract." When you ask the two Americans to talk about their jobs there's no stopping them. "Rockingham is going to be a jewel of..."
Colas and motor racing tracks: a brief history

It was in Monaco that Colas had their first job on a motor racing circuit, in 1935, with Asphaltimac. Then followed a long series of projects, beginning with the Bugatti circuit at Le Mans in 1965 and the Paul-Ricard circuit in Castelet in 1969. The surfacing used then was Rugasphalt. Over the years, elastomer products were developed for surfacing. Ruflex covers the circuits at Essarts, Le Mans, Nogaro and Castelet. In 1989, it was the Nevers Magny-Cours circuit that benefited from Colas expertise. In the 1990's, the internationalization of the Group stimulated the export of Colas know-how to America. In 1995, Barrett Paving installed the ring at the Michigan International Speedway speed racing track. The specific feature of the Rockingham project is that it is an oval circuit, in the American style, to be used for different types of racing. Colas UK decided that this project called for the synergies of the different expertise and techniques developed by both the American and European specialists in the Group. It is a working partnership that should set a precedent.
a circuit," says Charlie. Rockingham is the first purpose-built motor racing complex to be developed in the UK since Brooklands in 1907. "It's bringing Europe a state of the art racing complex, including a 2,320 meter oval with a 7.5 degree banked curve, and a 3,550 meter international circuit intended for road racing and motor cycle events," states Carl Fergusson proudly.

The pit and garage area are constructed quite low so that spectators can have a clear view of both circuits. "To date we have laid 15,000 metric tons of roadbase and 10,000 metric tons of base course on the oval and two stabilization crews are making rapid progress on the international circuit. A layer of Ruflex will then be laid on the oval, pit road and road circuit," states Carl. "The

---

Ken Sutherland, quality and safety manager

This Scot who has lived in Kent for thirty years says he is a "luxury detail" on the project. "It's rare for one person to be dedicated exclusively to quality and safety. Colas UK has left nothing to chance; Rockingham is a project quite unlike any other. We have, for example, our own mobile asphalt mixing plant, which has been brought over specially from France. This isn't common practice in England." But this engineer does not only watch over the machines. "I must always keep an eye on the members of our team and make sure that they are wearing the compulsory protective clothing. Recently, the weather conditions have been extremely hostile. It is important to be well protected against the elements!" Given the weather constraints, the site has to shut before sunset. "But it's not as simple as turning off a tap. Shutting a site takes time and has to be done in compliance with a series of protocols." To meet the tight deadlines, Ken's team often has to work weekends if the weather is fine. "I am used to it. I spent five years in London surfacing roads. It's a job that's impossible to do at times when there is heavy traffic, so we often had to do the bulk of the work over the weekend! Over the years my family has had to get used to it too!"
paving operation is particularly interesting" says Charlie. The 7.5 degree banking does not allow the trucks to dump directly into the mix transfer machine. "We used a rubber tired Roadtec 2500 mix transfer machine from Sweden. This machine can store 25 tons of mix allowing us to dump on the flat and drive up the slope to the paver," he explains. This process was first used at the Chicago Motor Speedway, in the USA.

An imperative: a uniform track
Charlie further states that the secret to paving race tracks is to utilize a mix transfer machine to avoid truck contact with the paver work at a controlled pace, eliminating paver stoppage. The first layer of asphalt starts at the bottom and works up to the top using spiral paving. The second and final layer are paved from the top down using ultrasonic grade control equipment. "The one thing that makes this project unusual is the degree of compaction and appearance of the pavement adjacent to the outside crash wall. Colas UK developed a small roller attached to the Bomag roller frame which does an excellent job of compacting and finish rolling next to the coverage crash wall. This is the best solution to the

<table>
<thead>
<tr>
<th>Track Structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>- 40mm of Ruflex</td>
</tr>
<tr>
<td>- 50mm of base course</td>
</tr>
<tr>
<td>- 70mm of roadcourse</td>
</tr>
<tr>
<td>- 300mm lime/cement stabilization</td>
</tr>
</tbody>
</table>
Bob Harrington. "I will certainly reuse the idea in the future. When you think about crucial details like this, you realize just how important and useful our international collaboration is."

State-of-the-art technology

There will be a 9 meter high earth noise barrier all the way around the circuit, and the safety fences at Rockingham have been designed with a curved top shape so that debris will be thrown back onto the track in the event of an accident rather than onto spectators. Nearby stands the mobile asphalt plant, which has come directly from Southwest France. At the controls Dave Lomas is at work. "We produce around 1,400 metric tons of asphalt per day. I receive details of the asphalt components from the mix designs prepared by Colas Research Laboratory, near Paris, France. We have a mobile laboratory on site, which takes samples and performs quality control tests on the finished asphalt mix." Back at the office, Carl Fergusson reviews the results of
Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.

Asphalt mix for stability

PRODUCT

Ruflex, a product developed and manufactured by Colas, was selected because of its unique characteristics which are ideally suited to race track circuits. Solar radiation can raise banked pavement surface temperature beyond the softening point of conventional asphalt cements. Soft rubber tire compounds can fuse to the soft asphalt cements and strip the fines from the pavement surface. High-speed racing generates high lateral centrifugal forces in the curves and flat turns. "If the pavement cannot resist these forces the surface is destroyed," says Bob Harrington. In addition, European style racing does not stop if it rains, resulting in the potential for hydroplaning and water spray. Ruflex, the ideal solution to the demands of racing, combines high softening point with high stability and open graded pavement surface.
Seco-Rail, a new Colas subsidiary, constructs and rehabilitates 35,000 kilometers of the French railroad network. Robust logistical and organizational systems make it possible to work round-the-clock on the modernization of railroad lines whose traffic is constantly growing in intensity.

The construction of France’s TGV high-speed passenger train link and the maintenance of thousands of kilometers of railroad track all across the country is, for the most part, done by Seco-Rail, which has recently become a Colas subsidiary. With a different profession, different techniques and equipment and separate teams, Seco-Rail nevertheless shares Colas’ passion for site work. “It is SNCF [the French public rail utility] that defines the schedule of our ‘rapid deployment’ projects,” explains Benoît de Bodman, President of Seco-Rail. “If this involves renewing all or part of the track, the work we perform requires the diversion or slowing down of rail convoys for the period during which the work is carried out.”

In just a few words, he points out the specific nature of his profession, which consists of maintaining traditional railroad track and constructing TGV railroad lines or urban tram lines. For this special, and virtually unique customer, the company uses specific tools that are supplied almost exclusively by an Austrian company, Plasser & Theurer. An unusual situation, but one that in no way prevents the railroad business of the Desquennes et Giral Group, trading under the
name of Seco-Rail, from developing new business opportunities. “Apart from these specific aspects, the railroad business is a lot like the motorway business,” emphasizes Benoît de Bodman. “Carrying out a railroad project is rather like unwinding a ribbon a meter at a time. We have to deal with problems of organization (supplies of materials, technical precision, attention to detail, etc.) and of traffic, while keeping in mind that the most important thing is how far the work advances in a day.” Representing 25% of its activity in

France, “rapid deployment” consists of 8 locomotives, sixty railroad cars and machines, three packers, a ballast-remover, two leveling machines, a stabilizer, and self-dischargers for the ballast that combine to make four 700-meter long convoys. The “rapid deployment” train renews 200 kilometers of railroad track every year throughout France. In the course of operations, on the southeastern TGV line, ballast which normally lasts around twenty years is being gradually replaced by better quality material. On traditional railroad lines, concrete ties are gradually replacing their wooden ancestors. The rails themselves are renewed every twenty to thirty years. “Because we are blocked from above by the catenaries and from below by the track, with no possibility of bringing supply convoys in from the side, we have to ensure that every operation is
In the rural Beauce region of France, the small train station at Monnerville lived its hour of glory last December. Ten whole days, in fact during which the stretches or railroad track surrounding it were renovated over 11,300 meters by Seco-Rail rapid deployment. No fewer than 180 specialists, led by Alain Elia, the forty-six year-old site supervisor, took part in the operation which involved replacing the old wooden ties by new concrete ones. “As well as having responsibility for the job-site (eight 700 meter-length trains), I am also in charge of all problems relating to organizations, logistics (housing, food, etc.) and safety,” explains Alain Elia. I am working along with a number of site foreman and laying teams. Management involves dealing with day-to-day problems, with the teams, with removal of obstacles from the line, and then doing everything possible to move the work on and hand over the line every night to traffic.” Removal of worn ties, spacing of rails, laying of new ties, fixing the rails with the “SPRA”, a machine that moves slowly along the track, with the track layer operators working underneath – the rapid deployment train covers an average of 800 meters per day.

**PORTRAIT**

Alain Elia, the man who is right on track
The SNCF is the only authority competent to carry out work on the axles of the German locomotives to verify that the wheels are spaced correctly apart. The trains must be re-approved every two years.

perfectly organized in order to ensure that work advances at a steady pace,” emphasizes Alain Borios, the site executive. To this must be added the vital question of safety. For each job-site involving maintenance or construction work on the line, the SNCF delegates “announcers” whose job is to inform the teams, in time, of oncoming trains on the adjacent tracks. On a typical job-site, trains can pass as often as once every five minutes.

WELL-MAINTAINED, CAREFULLY INSPECTED EQUIPMENT

The presence of the SNCF French national railroad company is also visible in Les Mureaux, where six hectares of Seco-Rail workshops dedicated to plant maintenance and development have been located since the 1950s. In addition to reconditioning German locomotives – 1,100 horsepower monsters, the only ones capable of pulling 40 jobsite wagons, a load of around 3,000 metric tons – the maintenance and modernization of railroad and public works plant is also carried out on the site – rail-and-road excavators, chain-saws, screw-driving machines, etc. “Every two years, our German locomotives have to be re-
In 1999, Seco-Rail recycled several hundred thousand metric tons of ballast, 30% of which are reused by the SNCF and 70% by road building companies, led by Colas. In the tram sector, Seco-Rail has worked with the Group subsidiaries in Nantes and Montpellier on the extension or creation of tram lines in these two cities. On the international front, Seco-Rail has just won a 5-year maintenance contract for the Brussels tram, and in Mali Seco-Rail is carrying out a stretch of the Dakar-Bamako railroad line. These are all areas in which the Seco-Rail/Colas synergies should work to both companies’ advantage in the future.

A minimum of 200 people work on a railroad track renovation site.

SYNERGIES

Full steam ahead!

In 1999, Seco-Rail recycled several hundred thousand metric tons of ballast, 30% of which are reused by the SNCF and 70% by road building companies, led by Colas. In the tram sector, Seco-Rail has worked with the Group subsidiaries in Nantes and Montpellier on the extension or creation of tram lines in these two cities. On the international front, Seco-Rail has just won a 5-year maintenance contract for the Brussels tram, and in Mali Seco-Rail is carrying out a stretch of the Dakar-Bamako railroad line. These are all areas in which the Seco-Rail/Colas synergies should work to both companies’ advantage in the future.

Approved by the SNCF, the only authority allowed to work on the axles, to verify and authenticate that the wheels are in good working order and spaced correctly apart (1.435 meters) to match the gauge of the French track,” explains Joseph Haudebert, who is equipment supervisor. Different countries have different gauges – in the United States, the standard distance between two rails is 4 feet 8-and-a-half inches, a distance that was calculated over 2,000 years ago for the width of a Roman chariot pulled by two horses!

“In the future, the development of the TGV rail link will bring about changes in our profession, because night work will be frequently unavoidable,” forecasts Jean-Claude Guede, General Manager of Seco-Rail. “Joining the Colas Group should also allow us to develop our tram business, and our international business as well.”

Keep working on the railroad!
Magny-les-Hameaux, a campus designed to drive innovation

In bringing the scientific and technical centers of Sacer, Screg, Smac and Somaro together next to that of Colas on the ultra-modern campus of Magny-les-Hameaux, the aim of the Group is to make research even more efficient. The objective? Innovate more, better and faster.
Having grown to 4,000 m² of laboratory space and gone from twenty engineers and technicians in 1995 to seventy-five in 2001, the scientific and technical center of Magny-les-Hameaux, in the Greater Paris suburbs, is now the largest private research center for road technology in the world. Next to Magny 1, the building in which LCR, the Colas Central Laboratory, together with the document resource of CED (the Group Documentation and Expertise Department), have been housed for the past five years, two new buildings have sprung up. The first, called Magny 2, has been occupied since October 2000 by the CED’s team of experts, housed alongside LEM, the Sacer research laboratory, and RTE, the Screg research and development unit. In the spring, the second building, still under construction, but already known as Magny 3, will house the Smac and Somaro research and development centers and the Colas environment and recycling laboratory.

**Autonomous structures**

“By bringing together our technical and scientific teams on the same campus, we are strengthening our research capacity,” explains Michel Chappat, Group Research and Development manager. “The challenge is clear: boost our performance in the area that sets us apart — our capacity for innovation.” The grouping has taken an unusual form. “Instead of merging the research and development structures of each company into a single center,” explains LEM head Jean-Luc Aubert, “the Group has chosen to maintain their autonomy. Each company

In the rutting room, machines test the wear life of mix designs.
retains its own team, which means they are smaller and therefore more responsive. And the companies continue to develop their own road construction materials for the purposes of market differentiation. They have been brought closer together, which keeps emula-

tion going between the teams and at the same time facilitates synergies.” For testing, for in-
stance, Colas, Sacer and Screg have pooled the equipment they use for materials characterization such as machines to test fatigue and rutting, etc., at Magny-les-Hameaux (see below).

Because the companies that use the facility compete with each other, the laboratories in which engineers develop the formulations are specific to each company. The Colas laboratory is in Magny 1 and the Screg and Sacer laboratories are installed in the new Magny 2 building. Only the materials characterization area, in which non-sensitive measurements are carried out that have no impact on the confidentiality of research, are common to all the companies. One such room is the fatigue testing laboratory in Magny 1, where two machines owned by LEM and RTE have been placed with the three LCR machines that were already installed. A single test engineer runs all this test apparatus where trapezoid shaped samples of the material are sub-

jected to wear testing 24 hours a day for two weeks by a machine that simulates road fatigue under the impact of traffic. The advantage of the grouping is that if one of the machines breaks down, it is simple to shift the test over to another one. Similarly, Colas has grouped its rutting machines with those of Sacer and Screg in Magny 2. There, neatly arranged in two lines and sporting new yellow and gray paint, seven machines run a wheel endlessly back and forward over a sample of material until a rut is created, the depth of which is then measured. This is the only installation of its type in the world. The space formerly occupied by the Colas rutting machines in Magny 1 will now be used to set up a joint laboratory to study the properties of bitumen binders. Aggregate characterization equipment will be moved to a part of the Magny 3 building, which will be occupied by Smac.
“Previously, not all the same equipment was available to all the companies,” explains Pierre Bense, head of RTE. “Now each company has easy access to extra testing equipment without having to travel to another site.”

“Don’t forget that we also share the expertise of the technicians who run the tests,” adds Jean-Eric Poirier, head of LCR. “A Screg or Sacer engineer now only has to walk 50 meters to meet with a Colas specialist, and vice-versa. This will speed up our development times”. In addition, points out Jean-Luc Aubert, “this pooling of equipment and expertise allows us to field a more ambitious investment policy, both in terms of equipment and test processes. For example, it will be easier to finance the automation of our characterization equipment, or develop testing methods for our noise-reducing road surfacing materials, making us less dependent on outside laboratories.”

Another non-negligible advantage is that all the teams now have immediate access to the CED resources.

Last but not least, the geographical localization of the teams promotes exchanges of knowledge between the companies. “Of the laboratories are located on the ground floor. “This is a great advantage when we transport aggregates or bitumen,” adds Pierre Bense. “Here, everything is functional and designed for the specific needs of road construction research, which was not the case in the building at Bonneuil which had three stories.” Finally, in addition to the laboratories and equally modern office accommodation, each building has meeting rooms equipped for video-conferencing. This allows the campus teams to communicate easily with all the subsidiaries worldwide. This happens, for example, with the two decentralized Group research units in Ireland and South Africa, which are working on emulsifiers.

Seven rutting machines have been grouped together at Magny 2 for the benefit of Colas, Sacer and Screg.

**A functional site**

Rationalize organization: this was the watchword during the setting up of the Magny campus, and which gave rise to the large surface devoted to laboratory space. “At Magny, all of the machines are installed and ready to use, whereas back in Trappes, the old LCR site, we didn’t have enough space,” explains Jean-Eric Poirier. “We have made gains in productivity, in both our research activity and in our role of supporting foreign subsidiaries for whom we carry out certain tests.” For the same reasons, at Magny 1, and in Magny 2,
course, we are not talking about the confidential aspects of research," Jean-Eric Poirier is quick to emphasize. "However, if one of the teams discovers that such-and-such a parameter has an impact on a particular road material, and above all, if the team has been working on a subject in which no progress was being made, the others will reap enormous savings in time and money if they know about it rapidly."

To develop this dialogue, the Group is deploying three strategies. Firstly, regular meetings between the heads of the different laboratories. Next, the physical and cultural closeness of the various teams, which are themselves largely made up of young researchers from similar educational backgrounds (degrees in Civil Engineering, quantity surveying or chemistry). And finally, social activities. As soon as the LEM and RTE had moved into Magny, a “bitumen barbecue” was organized, with all of the engineers and technicians from the campus invited, just like a job-site celebration. There is nothing like a plate of good food – with an absolutely unique flavor – to encourage networking!
The order of "Compagnons de la route" welcomes new members

Cultivating an elite group whose values are professional competence, quality of customer service, team spirit, security and the love of a job well done: this is the objective of the order of Compagnons de la Route, which distinguishes the best professionals from all the subsidiaries. Created in 1993, the order of Compagnons de la Route federates the existing awards. The Losange d'Or (Golden Diamond Award) for Colas and Somaro, the Top Niveaux (Top Level) for Sacer and the Rubans Verts (Green Ribbons) at Screg were joined by two new orders in 2000: the Compagnons de l'Arche (Smac) and the Compagnons de l'Arc (Spac). The Order, which raises the status of the best workers in the Group, represents a
complete range of trades and expertise in the companies: machine operators, masons, mechanics and drivers, among others. The Companions meet every year on the occasion of their general assembly; they take part in a variety of events both in-house and outside their companies: job commissions as well as project visits, company conventions, etc. For example, in 1999, depending on their particular region and their company, they visited the quarries in the East, the Law Courts in Nantes, and even the mines in Leward, near Douai, in the North of France. Three training modules are also dedicated to them and several sessions are held every year. The first module initiates them into the company economy to give the Companions closer ties with the life of their center and subsidiary. The second develops

José Vieira Fonseca

"I have worked for the company for over twenty five years," tells José Vieira Fonseca, a machine operator with Axima Ile-de-France, a subsidiary of Sacer Paris Nord-Est. "I started with a pickaxe and a shovel and I learned my trade in the field. Since then, I have done many different jobs. I have already received Long Service Medals for fifteen and twenty years. I was delighted with this award: it is recognition that I am a good and reliable worker. Meeting Alain Dupont at the award ceremony in Paris was an added bonus!"
At 56, Gilbert Burgunder has worked at Screg Belfort for nearly thirty years. "I was only 14 when I started work," he explains. "I was so pleased to be awarded the Ruban Vert (Green Ribbon)." But Gilbert, known as "Tintin", did not wait for this distinction to become involved in tutoring. Their know-how in terms of induction and project training, and essentially concerns help with the orientation of new recruits. Finally, the third module is reserved for accident prevention in order to facilitate participation in HSE (health, safety and environment) initiatives within the companies. On 21st and 22nd November 2000, 76 newly elected representatives brought the number of Order members to 675. The new incumbents were welcomed to the Echangeur by Alain Dupont. After the award ceremony and the traditional group photo, a boat trip on the Seine and a visit to the Musée des Arts et Métiers brought the day to an agreeable close.

"I already play a part in the training and induction of young recruits, but I'm still going to follow the courses offered, because you can always learn something new! For example, when I met some of the Companions, I discovered that some of the bosses in the group shared the same hobbies and interests as me - mushroom picking and fly fishing! Around the table, where the context is rather different from the work situation, it feels as if we are all on a more equal footing."
Colas is expanding its headquarters

The enlargement program for the Boulogne head office currently under way at Colas is a testament to the dynamism of a group which was has been finding itself increasingly restricted for space at the present premises. The operation, managed by Bouygues Immobilier and designed by the architect Pierre Riboulet, will be completed at the end of 2001. It has been entrusted to Colas Ile-de-France-Normandy. The new building will have 3,600 square meters of additional space and include a restaurant, auditorium and a number of meeting rooms. Interconnection with the current headquarters, on the other side of the road, will be via a walkway located on the 1st floor and via two tunnels on level 3 of the car park. Rémy Desmoulin, who is in charge of coordinating the project, also refers to other group undertakings for 2001: construction of research laboratories at Magny-les-Hameaux, in the Yvelines department and the extension of the Résipoly plant at Villeneuve-le-Roy in the Val-de-Marne region.

At Vélizy, the computer intelligence center - the ‘Spieg’ - is doubling its office space with the construction of a new building with 1,600 square meters of useable floor area, also designed by Pierre Riboulet. Joined to the side of the existing headquarters and clad in white concrete, with the particularly unusual design of its external angles, it will be resolutely user-friendly on the inside. “The building comprises meeting rooms, training suites and a showroom. It is built to receive many visitors. However, we have already been extremely vigilant about security and access control,” emphasizes Rémy Desmoulin. The entrance to the new car park, which has space for 110 cars on 5 split levels, will be regulated by a sophisticated badge system. All of these structures will be up and running by Autumn 2001.
Safety continued to improve throughout the Group in 2000.

All of the safety indicators in France have improved, on a comparable reporting basis, in other words without taking acquisitions that took place during 2000 into account. The safety index fell from 17.18 in 1999 to 16.8 in 2000. The accident frequency rate dropped slightly, from 20.4 to 20.12 and the same is true of the severity rate, which improved from 0.84 to 0.83. This slow progression is due to the increase in the risk of potential workplace accidents. Turnover in France has in fact increased by 10%, on a comparable accounting basis, with only a 5% increase in the workforce. The proactive policy of training and preventive action must therefore be maintained by all teams for 2001. Countries outside France are working hard in this area. In the United States, for example, 70% of training hours are devoted to safety. The Group has also launched an ambitious safety program for Africa. This has involved creating a function of Safety Officer in Morocco and in the Ivory Coast. The Group is also developing a major safety training package to be included in the general training provided for local managers. The goals for 2001 are ambitious, but if everyone pulls in the same direction, these goals can be attained: continue to transmit a culture of safety, aiming for excellence in accident prevention and bring all the newly acquired companies in the Group up to Colas corporate safety standards.

Colas scores a triumph in the annual FNTP safety competition.

The Group companies and profit centers walked away with ten of the sixteen awards handed out on October 20, 2000 at the annual French national public works federation (FNTP) safety competition. Open to all French operators in the sector, the competition takes place in two heats. A selection is first made based on data submitted on workplace accidents. A panel of judges drawn from the profession then evaluates entries submitted by competing organizations in the form of dossiers setting out their achievements in the field. They then designate those with the best safety performance. The Group had outstanding success, winning prizes in every category of the competition (see table of results opposite).
ROAD SAFETY

The French inter-ministry charter to improve road safety standards has maintained the targets to reduce the number of accidents

When the Group signed the road safety charter in 1997, it committed itself to reducing vehicle road traffic accidents by 25% over a three-year period. This target has been reached thanks to a road safety program deployed by each subsidiary, with instructional material including rules for driving, driving skill audits and post-accident analysis. Organized by a steering committee within each subsidiary and conducted in the field by 300 employees chosen for their high road safety awareness, the program has been extremely successful. The Colas Group was even cited as an example to follow by the French TV channel TF1 news program, and again during a Road Safety Week sponsored by the French parliament. The results are satisfactory all round, despite the continuing existence of accidents due to gross misconduct and striking differences in the results between subsidiaries. Variations in the claims/number of vehicles ratio run from 0.09 for the best companies, to 0.28 for the worst. To ensure that the improvement is permanent and see that new subsidiaries are included in the program, on April 23 the Group will sign an attachment to the charter, committing it to maintaining its levels, plus a target of a further 5% reduction in accidents in the next three years.

WINNERS OF THE FNTP SAFETY COMPETITION

| Category A: | Safety award Sète profit center (Screg Sud-Est) |
| • Companies with 1 to 149 employees | Safety award Dunkerque profit center (Screg Nord-Picardie) |
| 1st prize SN ERT (Sacer Sud-Est) | |

| Category B: | Safety award Mersch (Screg Sud-Est) |
| • Group subsidiaries with 1 to 149 employees | Safety award SN Sego TP (Screg Est) |
| Safety award Cozzi (Screg Sud-Est) | Jury’s special award SNEL (Screg Est) |
| • Group profit centers with 1 to 149 employees | Safety award Bourges profit center (Colas Centre-Ouest) |

| Category C: | 1st prize SNPR Ile-St-Denis (Colas Ile-de-France Normandie) |
| • 150 to 499 employees | |

| Category D: | Safety award Colas Nord-Picardie |
| • Over 500 employees | |

FIMBACETE

Two “Oscars” for Group films

At the Fimbacte International Festival of multimedia for the building, architecture, construction, public works and environment industries, Colas picked up two awards. The product film for Néoclean (Screg) won the Golden Rock Award in the marketing and advertising category and the Colas sales film won the Silver Rock Award in the corporate image category.
Coletanche is now manufactured by Colas in Ireland

Coletanche having been a proven success for the last twenty-five years, Colas decided that in future it would be manufactured within the Group, to be able to cope with ever increasing demand for the product. Production is now a reality, following the construction of a new plant in Galway, Ireland. We take a look at how this Colas flagship product is made.

Marking the twenty-fifth anniversary of Coletanche, 2000 was a year that will go down in the history of bituminous membranes. Colas decided to make the move to industrial production, taking over direct manufacture of the product. For this purpose, the Cold Chon subsidiary constructed a state-of-the-art production facility in the west of Ireland, in the port of Galway industrial zone.

Less than six months elapsed between the start of earthworks for the plant in December 1999 and the first rolls of textile produced on May 29, 2000. The production line, acquired from the Netherlands second-hand and modernized in Italy, was adapted to the specific requirements of the
product, in particular, the capacity to produce a strip 5.15 meters wide, an increase of over 20% compared with previous production.

On a 2.5 hectare site, a building with 1,500 square meters of floor space houses the production unit and storage for raw materials (geotextile, glass fleece) as well as the production control laboratory. The bitumen is stored in the nearby Cold Chon petroleum terminal storage tanks, which have current capacity of 8,000 metric tons. This allows supplies to be delivered by ship and offers excellent flexibility.

Under the supervision of plant manager Damian Claffey, six people are in charge of the running and maintenance of the production line, an automated assembly 45 meters long, which can roll off 100 to 200 meters of membrane per hour, depending on the type of product. Geotextile and glass fleece are dipped in a bath of bitumen heated to a temperature of 180° C, then moved through a system where they are pressed and checked for thickness, before the upper side is sanded and the other plastic films that make up the membrane are added.

The plant has its own production control laboratory and, in compliance with the specification drawn up by Colas and Cold Chon, carries out the various tests required, both on the raw materials and on the finished products. Samples are taken from each roll, which are then submitted to traction and shear failure tests, or kept as reference samples. The traceability of the products constitutes the core of the quality system that was set up in the plant in July 2000. The system enabled Colas to gain ISO 9002 certification. In addition, Asqual, the reference organization for quality control of the geotextile profession, has just certified the plant and most of the range, with the remainder to follow shortly.

After a first season from June to November 2000, when no less than 270,000 square meters of Coletanche were produced, the plant has been preparing all winter to meet the increased demand generated by environment-related markets that are undergoing rapid expansion.

By making this investment, Colas is now in a position to offer integrated solutions to its customers, from the production of membrane through to its laying, in the context of an overall contract including excavation or pipeworks. Coletanche has got your future... covered!
Perrier – a sparkling acquisition!

Perrier TP, a public works company in the Lyon region, entered the Colas Group in May 2000. Originally a concrete specialist, the company has successfully diversified into bitumen-based products over the last decade. Perrier TP also takes a strong pro-environmental stand and is stepping up initiatives in recycling and clean demolition technology.
The dowry that Perrier TP brought to its marriage with Colas in the spring of 2000 was full of precious expertise in quarries, public works, earthworks, main services, demolition and materials recycling.

In Saint-Priest, in the outskirts of Lyon, Perrier has long been a traditional feature of the industrial landscape. After opening a construction supply business in 1922, Louis Perrier acquired his first gravel pit in 1936, located south of Lyon, where the old glacier bed left banks of gravel when it receded at the end of the ice age. This was the start of the industrial production of crushed products for roadways and rolled products, sand and fine-grade aggregates used in concrete for buildings and structures as well as ready-mix. From the 1950s to the 1970s, public works became a new company specialty (excavation, main services, demolition). By 1980, as soon as the recession began in the building industry, Joseph Perrier looked for new forms of diversification. “Whenever there were calls to tender for major contracts,” he relates, “Perrier was not allowed to bid because we did not make road surfacing products. For specialists in “white materials” [i.e., cement-bound products] such as ourselves to go into “black materials” [bitumen-bound products] would be breaking a rule and adventuring into unknown territory. None of our operatives had the training for it.”

By 1988 a cultural revolution was under way. Joseph Perrier hired a former Roads and Highways Department professional, bought some plant, invested in an asphalt mixing plant, and in partnership with another company set up Fera, a subsidiary installed in a Perrier TP quarry at Corbas, in the Rhône-Alpes department. From quantities of between 20,000 and 30,000 metric tons per year, Fera was soon producing 100,000 tons annually. Next, two other asphalt mixing plants opened in the departments of Isère and Haute-Savoie, taking production to 300,000 metric tons in 1999. A Roadmaster 160 mobile asphalt plant was added to the company’s assets in 2000.

Perrier has always been concerned by the environmental aspect of the industry. When excavation operations have ceased, every quarry is rehabilitated with the creation of artificial lakes, leisure and activity zones. Alongside its core business, the group has developed considerable expertise in clean demolition techniques as well as recycling of materials and the recovery of municipal waste bottom ash. “Once it is treated, we are left with a new product that we call Macheper,” explains Joseph Perrier. “This high-quality recycled material is used in subbase layers and back-fill.” This is an environmentally-conscious process of which the company is justly proud and proclaims in the form of its slogan “Perrier, an ally for the countryside”.

### Perrier Key Figures

- **2000 sales:** €68.5 million
- **Workforce:** 550
- **7 subsidiaries, 2 profit centers**
- **8 business areas:** public works, excavations, roads, main services, demolition, quarries, mobile aggregate crushing plants, materials recycling.
Lunched on September 4, a recruitment campaign in the press and on the Internet boosted applications from young graduates, attracted by the Group's national and international image.

The campaign theme "How far will your company spirit take you?" was defined by five faces illustrating Colas' presence throughout the world. This international message, aimed at all graduates emphasized the diversity of the Group's activities as well as its human dimension. Building roads means working for the economic development of countries. It means conquering new spaces, innovating as part of a team in an environment of confidence and security, encouraging freedom and choice. In September and October 2000, full-page ads in the main national and regional French daily and weekly publications carried the Colas message to young people. From the Express to the Parisien, Le Monde to L'Equipe, Ouest France to Dernières Nouvelles d'Alsace, the recruitment campaign covered 22 publication titles. It generated a healthy influx of résumés, particularly via the Internet. For the occasion, "colasrh.com", the Group recruitment site, was completely revamped to facilitate access to vacancies and available training schemes. Jobs also appeared on monster.com, one of the largest Internet recruitment sites. Bringing Colas to the attention of young people and projecting its image in the world, while running a quality campaign was a challenge, and one that the Autumn 2000 recruitment campaign won hands down.
ACQUISITIONS

Colas continues external growth in western Europe

FRANCE

Broadening the scope of core activities

Colas has taken on the rail and network activities of the Desquenne et Giral group; a new subsidiary, Seco-Rail, means that Colas is involved in rail construction with the maintenance and renewal of tracks and ballast (see report pages 24 to 29). Another subsidiary of the Desquenne et Giral group, Surbeco, and its 435 employees have also joined the group, within Spac. Based in Nanterre, near Paris, Surbeco specializes in several core businesses. Four agencies share the construction of pipelines (cableduct systems) and highways and associated works (drainage systems), directional drilling and the construction of HV buried electrical cables (higher than 63,000 volts).

Résipoly, a subsidiary of Screg, has recently acquired the Dickerhoff group’s "SRS resins" business. With this new addition, Résipoly has strengthened its range of liquid sealing products used in repairing and waterproofy concrete, which naturally complements the traditional activities of Résipoly and of Chrysor. In 2001, this new unit should generate turnover in the region of E 21 million, which will strengthen its position as leader in the French market.

Pollution Service has just been acquired by Colas Environment and Recycling. Created in 1981, Pollution Service, situated in the Lyon region, is the longest established pollution remediation company in France. The two core businesses of Pollution Service are taking emergency action when there is an accidental spillage, and the on-site clean-up of contaminated land and water tables. This is a complete multi-purpose company, the only one to cover the whole range of treatment techniques for contaminated sites and soils, with more than ten years experience in each technique.

CREAT BRITAIN

Colas strengthens its presence

Aram Resources plc, quoted on the London Stock Exchange, has been purchased by Colas Ltd, a subsidiary of Colas SA. Aram’s business is spread over four quarries in Cornwall. The operation of these quarries (diorite, granite and white rock) complements the road building activities of the group, providing valuable resources. The development of these business activities is ensured by coastal infrastructures for transporting materials by sea. With this acquisition, Colas has broadened its business interests and reinforced its presence in the south of England, as well as Manchester and Liverpool.
Surfing the world of Colas on www.colas.com

Colas has successfully met the challenge of creating international brand recognition in the construction and public works industry. Now the Group is ready for a new frontier on the Internet – making its business known to and understood by the general public.

Raising public awareness
Following a series of interviews that were carried out within the Group, which included all departments and professions, it became clear from the findings that Colas required a site that was far more focused on the general public. It was decided that the best way of achieving this was to modify the Group Internet site. The new version of the site has been specifically designed for two separate targets, industry professionals and the general public. It combines user-friendliness, simplicity, efficiency and fast access to information with in-depth presentations of the different sections. This “twin-track” information offering is clearly set out right from the homepage.

Clarity, an interactive interface and information deliver the right mix
On the new site, industry professionals can go straight to the latest Group developments and acquisitions from the homepage by accessing the news briefs. They can also get a global vision of Group activity by clicking on the “year in review” link. This takes the visitor to movies of the major sites carried out by Colas during the year. The general public can go straight to the Group presentation by clicking on the contents link. They can also go to the French-language site www.colasfr.fr and apply for jobs. The new site will, of course, continue to be an international one

A LOOK AT SOME OF THE GROUP’S WEBSITES
Screg Sud-Ouest sets the pace
www.screg-so.fr was one of the first sites to be set up by a French subsidiary. Simple and clear to navigate, it works on the funnel principle. The site first presents the company and its activities on its regional territory. Next, the visitor is invited to localize the various profit centers on a map. This then links to views of various forms of site work that can be performed for a private company or for a local authority. The Products section is extremely comprehensive, with an accompanying sheet of technical data for each of the products presented.

Close-up on…
…an excellent selection of photographs illustrating the “Discover Screg Sud-Ouest” and “Carry out your project” sections. These give the visitor a good idea of the type and quality of work that Screg Sud-Ouest is capable of carrying out.
with full English-language access. The new dual nature of the site is present throughout the entire visit. For example, under “documents for download”, industry visitors can download the Annual Report and the Management Report, and in the “Foundation” section general public visitors can download paintings to use as screen wallpaper. The animated movie “Building a road” has been specifically designed for the general public. It is a way of helping members of the general public to better understand the company’s business. The dynamic colas.com site has a dual purpose – to deliver regularly updated information in an attractive and easily accessible manner to professionals and to raise public awareness leading to a better understanding of the construction and public works industries.

One site leads to another
The www.colas.com site also has links to the sites of subsidiaries, not only from the “useful links” page but also from hypertext links in the body of text, each time the name of a subsidiary is mentioned. The Group site does not attempt to present the activities of all the subsidiaries in any comprehensive form, but rather acts as a gateway.

A LOOK AT…

Colas South Africa
The www.colas.co.za site has the same structure as the Scrg Sud-Ouest site. A general presentation of the company, a map of profit centers, a showcase of products and a list of contacts. The format allows easy navigation to the heart of the site. In addition to these standard-format sections, the site has two extra sections – a page dedicated to the topic of safety and a news section which helps refresh site content and keeps visitors up-to-date on what is happening within the company with, for example, information on how specific problems have been resolved.

Close up on…
... the operational management team portrait gallery that creates a relationship between customer and company. A “Quality and Commitment” link allows customers to directly contact the marketing department if they have any remarks concerning the quality of products or services.

Overview of…
... www.colas.co.za, a site which attracts visitors by aiming to communicate directly with visitors and inform them of the company’s products and services. Communication consists of “making friends” with the visitor. The only regret is that non-English-speaking visitors cannot take full advantage of the site’s accessibility.
Early in 1998, Colas senior management decided to launch a major program to achieve ISO 14001 certification of its industrial sites. The ISO 14001 international standard involves a system of environment management based on three principles – compliance with regulatory standards, prevention of site-generated pollution and continual improvement of the system. In 2000, seven Colas asphalt mixing plants were certified ISO 14000. In 2001, certification efforts will focus on five emulsion plants, a gravel pit and a quarry. “We have put environment officers in place within each of our subsidiaries,” explains Jean-Pierre Reymonet, deputy equipment manager for Colas. “On the sites currently undergoing certification, the head of the plant participates in drawing up the certification dossier and puts the team together. We have been careful to adopt procedures that are simple and straightforward, and every year we will be conducting a continuity audit to monitor that the system functions correctly.”

Once the certification audit by AFAQ, the French quality bureau, has been successfully completed the site must undergo an internal yearly audit, carried out by a Group environment officer. ISO 14001 certification requires major investment in human resources, but the program can also lead to considerable plant investment. For example, on a number of sites it was necessary to install an oil and sludge settling chamber to process run-off water.
Plant supervisors are key employees in road construction companies, but because they work on a very local level, whether they run a mobile or stationary plant, they often feel isolated from the operational stream. “It is really vital to get plant supervisors together, so that they can meet each other, share experiences and talk together about their concerns,” says Group equipment manager Jacques Chardon.

Accordingly, 185 French plant supervisors got together on December 1, 2000 to hold their first convention in the Normandy resort of Deauville. The meeting provided an opportunity to examine a certain number of topics such as synergy, safety, environment, recruitment, training and management of working hours. Whether they run hot or cold asphalt or concrete-mixing plants, supervisors must be multi-skilled – a vital prerequisite for managing an industrial structure of this nature. They have a complicated role of co-ordination which involves finding ways to handle and reconcile technical constraints, productivity requirements, customer relations with both internal and external customers. They must constantly make modifications to comply with technological and regulatory changes while continuing to deliver increasingly higher levels of quality.

Working on case studies and developing strong co-operation with the operational stream should help supervisors improve their work organization and flexibility of their teams. As industrial operators, plant supervisors also have a key pro-environmental role to play within the wider context of taking the Group towards full ISO 14001 certification. Throughout the convention, plant supervisors were able to talk freely about their jobs at round-table discussions, which were interspersed with video film reports made in the field in France and other countries.

For all the problems that were raised, solutions can be found in the short, medium or long term, so another convention will be held in five years’ time, to assess progress made in different areas.
Spot the pipeline!

BEFORE
The laying of pipelines leaves a furrowed line

Excavation is heavy work and laying pipelines may disfigure a site. How will the land look once the work is over? How will a river bed survive heavy plant? “Laying pipelines through a field is a major operation,” says Gérard Tréhorel, head of Major Pipeline Works at Spac. “A 36 inch pipe needs a track 22 meters wide. Operations involve digging, demolition of the slope, excavating the earth and flattening a track for the plant to drive over.” In farming country, soil is valuable. “We have to reconstitute the land once we have finished by separating out the arable soil and sorting what remains depending on the nature of the terrain, to ensure excavations are properly filled in.” Excess material is taken to landfill or used as stone ballast for the surrounding roads.

Watching out for our ancestors

Traces of our past are all around us. Archeologists from AFAN, the French archaeological association, have stringent standards. Explorations are systematically carried out before all site work, with samples taken every 30 meters, and every 15 meters at greater depth, if in doubt. When archaeological remains are discovered, the layout must be altered. Environmental associations also consulted for the protection of wildlife habitats and animal trails, which may involve moving a site or possibly delaying its start. When local residents, fishermen and walkers come to take a critical look at the site once work is finished, they get a pleasant surprise. “At Spac, we consider that restoration of the site is a very important phase,” concludes Spac site supervisor Sylvain Courtois. “The image of a carefully restored site is what people will remember, and it constitutes our brand image.”
The pressure on contractors to lower environmental impact has been stepped up not only by owners, farmers’ unions, fishing and hunting associations, local Agriculture and Forestry Departments and the Roads and Highways Department, but also by the Historical Monuments Fund and archeologists. “For the last four or five years,” explains Gérard Tréhorel, “we have avoided the use of rip-rap in natural waterways. Sometimes we cannot drive plant along river bottoms because we disturb the natural environment. In that case we divert the current or we construct bridges.” Times have changed, and even in the forest, laying pipelines is no longer done as it was in the past. “Today,” acknowledges Sylvain Courtois, “we try to lay pipes in a broken line, so as not to make the cut too visible, and the trees are not cut down in a straight line. Two years after the end of the site, you cannot see the signs any more. Only posts and other markers are visible, witnesses to the fact that a gas pipeline was laid there at a rate of 900 meters per day.” Of course, nature always comes back to its own, but it does it much faster when the area is re-planted with local varieties of plant life and carefully re-seeded. An inspection takes place three months after site completion. The site is always restored within the year, no matter how long the job itself took.
For almost ten years, comprehensive training packages have been provided for both inexperienced and confirmed managers. Designed to help them in their professions both now and in the future, the Colas University has achieved its aim. We take a look at an acclaimed and highly popular training course.
It’s December 2000, in a hotel near Paris. 23 newly hired young managers, all college graduates aged from 25 to 28, are ending a five-week break from work. Some work on sites, others are lawyers, civil engineers or auditors. January 2001, back in the same hotel, the 23 newcomers have been replaced by 17 site supervisors and site managers. In their 30s, with qualifications in construction and civil engineering and wide field experience behind them, they are just as focused as their predecessors. They have come from Group subsidiaries in France and Africa and are here to further their integration in the Group by taking part in the Colas University.

Faster integration
Every winter for a decade, several sessions of this training program have been held. It won an award at an event organized last March by a French press group. 700 engineers, managers and technicians have followed the specially designed training course since it began in 1990.

In the meantime, the University, originally set up at the request of the Colas senior management, has added a Phase 2, in which 250 profit center assistant managers have taken part, and since 1999 a Phase 3 in which 40 profit centers heads have so far participated. The aim of these three packages is to provide support for managers as they rise through the Group. These figures will rise sharply over the next few years. There were three intake classes for Phase 1 in 2000, but there will be six in 2001. Rising recruitment plus Group external growth are speeding up the sessions cycle. All young postgraduates must enroll in a Colas University course within an average of 15 months of recruitment. “Some companies train their graduate recruits as soon as they arrive,” says Philippe Morvan, head of Group training. “But when our young engineers leave engineering school, they often know nothing about roads. We first need to train them on the job. Working in the field as site supervisors, they learn road building through site work, working with real production constraints. After nine to 18 months, we have to help them stand back, give them an overall vision of what they have already seen in bits and pieces and finish their
training." They follow a complete program, which in five weeks deals as much with road building techniques, the economics of a contract, public and private sector contracts and managing teams as the context and constraints of the roads industry – safety, the environment and quality. It really is a "masters in road building".

But the course serves another purpose, too. It does not just promote integration into a given profession, but also integration at the Group level. As the course progresses, Colas history and culture are dealt with at length, as are all the Group’s non-road business activities (pipeworks, equipment, railway, etc.). But this does not mean that the training takes place without reference to the outside world, and it certainly does not encourage the closed mentality that could result from the Group’s position as world leader.

The program is run by the French Ecole Nationale des Ponts et Chausées engineering school and a substantial number of trainers come from outside the Group, including consultants, experts from other companies or government departments or even customers who come to talk about their expectations. Customer participation forms part of the training. They follow a complete program, which in five weeks deals as much with road building techniques, the economics of a contract, public and private sector contracts and managing teams as the context and constraints of the roads industry – safety, the environment and quality. It really is a "masters in road building".

But the course serves another purpose, too. It does not just promote integration into a given profession, but also integration at the Group level. As the course progresses, Colas history and culture are dealt with at length, as are all the Group’s non-road business activities (pipeworks, equipment, railway, etc.). But this does not mean that the training takes place without reference to the outside world, and it certainly does not encourage the closed mentality that could result from the Group’s position as world leader.

The program is run by the French Ecole Nationale des Ponts et Chausées engineering school and a substantial number of trainers come from outside the Group, including consultants, experts from other companies or government departments or even customers who come to talk about their expectations. Customer participation forms part of the training.

All Group businesses are discussed, including railways, pipeworks and equipment.

In greater depth

Stéphanie Vandromme, France

I gained a lot of theoretical knowledge that I did not have, because of my non-specialist background. The University has shown me ways I can go into my practical experience in greater depth, supplement it and put it to the test. The other advantage is that I got to know other Group professions and met people I will be able to contact in the future. For instance, I have spent five weeks with two people from Colas Strasbourg I didn’t know before, although I work for Screg in Colmar, right nearby!

Keep it concrete!

Boris Duverger, Burkina Faso

As an expatriate, the University has allowed me to get to know all of the Group. It has helped me be less cut off from French issues and answer questions put by people who are attracted by working abroad. I have also appreciated the real-world aspect. At school we studied disciplines in an abstract way. Here we talk management and use real examples. Having to tell a temporary worker that you are not hiring him or being younger than your more experienced site foreman are situations that we have all known.
of an exercise in which students’ submissions in response to an imaginary public sector call for bids are analyzed.

Networking

Having participants attend the University for five consecutive weeks (except weekends!) does not just take them out of their customary surroundings. “Besides logistical considerations, we wanted to create a group spirit, much like a graduating class at college, to help set up a Group-wide network that reaches beyond one’s own subsidiary,” explains Philippe Morvan. The many workshops and sports, cultural and leisure activities that participants take part in by group choice, help further this aim.

The ten-day Phase 2 targets assistant managers of profit centers and other managers with the potential to head a profit center. Most have been through Phase 1 a few years earlier. The aim is to fine-tune skills in sales relations, organization, finance and economics and management of people, i.e., give them an overview of the small to medium-size enterprise they will soon be running.

Phase 3 is solely for profit center managers already heading companies. Chiefly with engineering or technical backgrounds, they have already gained management skills on a par with those taught in such top business schools as the Paris Hautes Etudes Commerciales. It is in fact the continuing education department of HEC that coordinates the seminar. The course includes a comprehensive overview of the changes affecting the economy and in the field, the University shows that Colas places participants in a situation where they think before they do, so they stay relevant to customer needs. It also gives meaning to individual and collective action. Finally, the program is exemplary because it is firmly rooted in both the present and the future. Colas is trying to make its managers more proactive. The University prepares them for what their profession will be tomorrow. To work effectively with profit center heads, site supervisors must understand how they think, what responsibilities they face and what their limitations are. This will also help the supervisor to prepare, in turn, to run an agency. This constant “to-and-fro” between the present and the future gives the University a completely original dimension.

A shining example

Marie-Dominique Salaün, Ecole Nationale des Ponts et Chaussées

The training given by the Colas University is a shining example as it mediates Colas management and strategy for the trainees, in such a way as to foster Group development. The Group has made a commitment, which is clear from the fact that the CEO is there for each session. Far from the traditional image of the road construction business, which emphasizes work
Working in peer groups forms a vital part of training in all areas.

the world of work, marketing (at the end, subgroups of students draw up personal sales action plans), organization, strategy and management. “There is no technical content in Phase 3,” says Philippe Morvan. “It is training in entrepreneurship and aims to empower participants so they can then develop a dynamic profit center in line with their projects and their environment.” Since its first graduating class, the University has evolved greatly. The content of Phase 1 has continually been adapted over the years, to comply with changes at Colas and the appearance of new restrictions and regulations. Almost all the teaching staff has changed in the ten-year period. Since last year, all participants are provided with a laptop computer which they use continuously, either during class or for personal or group work. With dozens of external trainers and speakers (many from the prestigious Ponts et Chaussées and HEC graduate schools), hotel space reserved all winter long and now the laptops, the University comes with a price tag. Just how profitable is it? “The return on investment is not quantifiable in monetary terms,” states Philippe Morvan. “Efficiency is not instantly measurable as it is with technical training. But we would have stopped all this long ago if the participants and the Group did not derive many benefits from it.”

Contact information
The course provides each participant with the chance to find a role within the Group and within his or her activity. “This is management by direction,” Philippe Morvan stresses. “Everyone emerges from the training course knowing what purpose they serve, what their position is and how to make their actions part of a whole, with a coherent strategy.” The friendly atmosphere of the courses also means that everyone ends up with an

TESTIMONY
I have built on my management and legal skills

Jean-François Milleron, France
The University allowed me to form highly productive contacts with other trainees who share their human and technical experience, often very different to my own. Spending several days together facilitates relations between people within the Group who are not “Colas”. I am still in touch with a number of them. I also appreciated being away from work on a day-to-day basis so that I could acquire a more global view and hone my management and legal skills. I know that I am not a lawyer. I couldn’t remember everything from the course, which was very dense, but at least I know where to look. This is vital because today, business deals tend to have increasing recourse to litigation.
address book full of contact information not only for their fellow trainees but also the trainers and speakers, who they can call at any time after the course is over. Everyone can therefore refine their knowledge, hone their managerial attitude and take advantage of the experience of others.

As for the benefits for the Group, according to Philippe Morvan, they are numerous. People are motivated to improve mobility (brand barriers disappear) and swap experience (“to avoid having 400 profit centers each invent the mousetrap”) and there is stronger cohesion from adoption of the same techniques and a common language.

“Allowing people to acquire professional intelligence makes them more efficient and increases their loyalty to the company,” he says.

Philippe Morvan turns to the participants ending their five-week stint: “You are not passive cogs in a wheel. You are now in a position where you are far more empowered and proactive.” Seeing how the students react to this, none of them look as if they are exactly dreading the prospect of packing their bags and returning to their profit centers.

---

**TESTIMONY**

**Three virtues of the Colas University**

**Michel Fiol, Professor, HEC Management**

The Colas University Phase 3 has three major strengths. The first is bringing together managers working in situ. The University offers a space where exchanges of experience help managers better understand the situation they are experiencing and empathize with that being experienced by their colleagues. Second is the contribution to strengthening the cohesiveness of the Colas group. Participants come from different subsidiaries. They need to be better integrated into the Group. We take great care with this by mixing participants from different subsidiaries and having senior managers from both the Group and different companies act as trainers. Thirdly, the trainees discover that there are different dimensions to management – a marketing-led style, strategic approaches, management contradictions, research into work (ergonomics). Training is needed throughout an employee’s working life, no matter what his or her hierarchical level. Companies give training (by strengthening its managers’ operational capacities) and can also deform by over-concentration on operational aspects while neglecting thought. The University counters this deformation, but at the same time sustains the training that has been acquired through the practice of management skills.

---

**Understanding young people**

**Martine Bourdon, France**

Phase 3 is applied in our profession, and it also allows us to move out of our business. Meeting the marketing manager of Maille and Amora foods was a surprise, but also a highly enriching experience on returning to one’s job. This “voyage” into other disciplines such as sociology offers a very interesting opening. I appreciated the work we did to raise our awareness of young people. Better understanding of the character and objectives of young people arriving on the job market is vital when you are a manager.
He is Safety Manager; he is a Radio Operator; she is Assistant Production Support Manager; he is Insurance Manager; he is Sales and Marketing Manager; he is a Safety Instructor…

They reinvent their jobs every day as they steer Colas through the projects in hand. Portraits.
Major Thompson’s research

"I was the first foreigner to join the central research laboratory. I didn’t hesitate for a second."

**Martin Thompson, Section Manager in the Laboratory**

Anything but routine! This is Martin Thompson’s watchword. He studies bitumen and binders creating emulsions to meet the specifications required in each country. This work begins in the lab and is completed in the field, because it must of course be tested in real life situations. "I worked for a new plant in India," he explains. "I even went over there!" Martin was pleased to make the visit; he likes to be on the move.

With a degree in chemistry in Great Britain, Martin worked for 6 years before joining Colas UK. 18 months ago, he was offered the position of Section Manager at the Colas Central Research Laboratory (LCR) in Magny-les-Hameaux. "I didn’t hesitate for a second," he recalls. "It was a terrific opportunity and I was the first foreigner to join the laboratory. It was also a chance for my 4 year old son to become bilingual, without an accent - unlike his Dad!" He arrived in France without a word of French.

"I spoke to my colleagues in "franglais" and they answered me in French and English," he remembers. "It was a heck of a strange mixture. Those first 6 months were not at all easy, particularly dealing with French administration. It must be difficult for those coming from outside the European Union."

Since then, Martin has found his bearings. He especially appreciates living only 5 minutes away from the lab. "Life is much less stressful than in England. The only thing that I don’t fully appreciate is the French national football team, they beat everyone, sometimes even the England side!"

At 33, Martin has decided to stop travelling for a while, at least until his son has finished primary school. But he claims that he would love to move further afield: "Why not Canada, for example!" he suggests. A word to the wise is enough…
On the right wavelength

Olivier Randrianantenaina, Radio Operator, Madagascar

At the age of forty-four, Olivier Randrianantenaina has seen all of the episodes in the development of Colas Madagascar that have taken place over the last quarter of a century. He first worked for six years on Colas sites on the island, before joining the corporate headquarters in the capital, Antananarivo. “I am in regular contact with bush job-sites and with the boat that services sites where access is difficult. The sites send me their orders for replacement parts and materials, and I report to the center heads, who buy the supplies,” he says. Radio communications have now become second nature to Olivier. He has learned how to troubleshoot connection problems, use his imagination when communications are difficult to establish and install radio relay systems between job sites. Of course, radio communications equipment now performs much better than it did twenty years ago, but the job is basically the same – remain at the listening post and react fast. “Ultimately”, he says, “I would like to acquire further skills in stock management.” In Madagascar, if you want to get on the right wavelength, Olivier is the man for the job.

Laurent Decombe, Safety Officer, France

Road safety coordinator, safety officer in charge of the Parisian beltway and of road closures in the Ile-de-France Department for Viamark, Laurent Decombe has many strings to his bow. Starting work at 14, this Ile-de-France native had become leader of a street-lighting team by 18, then rising to site foreman. Laurent started working night shifts on the beltway which has its own rules and discipline to follow. When the cars have gone, another world takes over. There can be no question of being late or even early when shutting access to the highway. Traffic flow is so heavy that even a two minute difference can cause serious repercussions on all the traffic in the Greater Paris region. In 1982, Viamark (a subsidiary of Colas IDFN) asked Laurent to join the company, along with his six-strong team. He became site supervisor. But unfortunately, road closures did not only happen at night. The telephone would also ring during the day with grim tidings of serious accidents. In the face of these accidents, Laurent decided that he would
Conquering new markets

**Vuka Nkosi, Sales and Marketing Manager, South Africa**

Anticipating and accepting opportunities to progress, Vuka Nkosi has always sought dynamic environments in which to operate. Born in the Johannesburg region, he joined Colas in 1996 after studying Marketing and Economics in Canada. “I am in charge of marketing in the northern region of the country, as well as Swaziland, Mozambique and Botswana,” he says. Negotiating contracts and supplying road contractors with high-performance machines and Colas products, Vuka clocks up more than 10,000 km per month. “The development potential of roads in South Africa is vast. The city of Johannesburg alone has over 6,000 kilometers of roads, so contractors have excellent opportunities for maintenance and rehabilitation programs, encouraged by the South African government’s policy of sustainable growth through infrastructure development.”

Vuka’s marketing policy is based on collecting and interpreting marketing intelligence data, which he obtains upstream from decision-makers and consulting engineers, so as to be ready on time for provincial and national budgets. “The management of marketing intelligence data makes us efficient and gives us a competitive edge. It also aids with drawing up proposals and supply forecasting.”

The dynamic strategy chosen by Colas in South Africa gives Vuka a chance to display all his qualities, perhaps before taking up the challenge of an international post.

Safety and safety

Safety supervisor, he makes impromptu visits to jobsites to see if the safety procedures are being followed, not with the aim of reprimanding, but to make people aware of the dangers that negligence brings. Widely admired for his commitment, his expertise and his jovial personality by both customers and colleagues, Laurent has appeared several times on French TV, where he has taken part in reports and programs on road safety.
Providing good service is his motto

Arthur Grob,
Insurance Manager,
France

I suppose I’ve had a rather miraculous recovery,” explains Arthur Grob. Fate changed his life at the age of 22 when as a mechanic with a subsidiary of Colas Est, he fell a drop of 7 meters at an asphalt mixing plant. He was no longer able to work on site. After a year’s convalescence, he became an administrative employee at the asphalt mixing plant in Herrlisheim, then an accountant in the equipment department. It was a natural progression, in 1984, for him to apply for a job as Insurance Manager, a position he still holds today. Why did he choose this role? According to his colleagues, Arthur loves one thing above all: providing service. He should be more than satisfied since he has to deal with all claims for the subsidiary: vehicle accidents, equipment civil liability and decennial claims. He checks the documents, compares declarations, internal notes and joint reports of automobile accidents. “It is fundamental that I’ve worked on sites, serviced equipment and worked at an asphalt mixing plant. It helps me understand what really happened. I can put myself in the situation. It’s then very important to negotiate with the experts and lawyers.” Arthur handles 400 claims a year. At evenings and weekends, when the files have been stored away, Arthur, an affable and generous man, does not leave Colas. He somehow finds the time to involve himself in the Schubel-Colas staff social club, of which he is President, organizing parties around the flammekueche that he cooks with great flare and enthusiasm. Finally, when all his professional activities leave him a little free time, this active recent grandfather likes to indulge in his passion for DIY.

Jean-Pierre Déan,
Technical Director,
France

For applied research, you have to know the field inside out to meet your clients’ expectations.” Jean-Pierre Déan has learned a great deal in the field since he left the Lyon Center, in 1973. After the creation of the Smac agency in Orléans, he became the Manager for the Normandy area, then Aquitaine until 1997. “In technical management, we have a dual role,” he explains. “We have to
A young lady out in the field

Candice Arimare, Assistant Production Support Manager, Canada.

Candice Arimare is assistant production support manager with Adventure Paving. "Obviously I didn't get here by chance," Candice states at the outset, "my father is Director of the company! I have always loved being on site." On leaving school, it only seemed natural for Candice to join the family business. She spent three years in office jobs learning about the working world. "Then I wanted to work on site." Under the leadership of the production support manager, she observed, asked questions and learned a great deal. "This year, it was my second season, and I assumed responsibility for the position. You need to be attentive: plan the work schedule, organize the trucks and the production of asphalt. Everything must be supervised and controlled, the temperature, the mix, the oil, etc. Sometimes there are breakdowns or hard rocks that jam the system. At the beginning, it's pretty daunting. Here, we work from March to November as the rest of the year the weather conditions are too harsh." This is rest time, and Candice will probably put it to good use by taking a training course. "Learning more about the different types of plant, the techniques and the asphalt mixes." Unless she decides to pursue her studies and become a sports teacher. At 23, anything is possible…

"I have always loved being on site."

a new approach

monitor changes in regulations to advise the operators, improve existing processes and create new ones within the framework of the regulations, which is not an easy task. We therefore work on formulas for asphalt mixes, coating surfaces to meet the new thermal standards and the acoustic treatment of surfaces." Jean-Pierre prefers research and development to legal monitoring. "We are participating in the technical development of the company. The most important thing is to anticipate new developments, this avoids being made a slave to them." Imagination, rigor and great reactivity are essential qualities for any researcher. "The solutions are often where you least expect them. In our job, we have to challenge ourselves every day so that we can tackle problems with a new approach. This is a state of mind that requires tremendous energy." As a former French university cycling champion, energy is not something Jean-Pierre lacks…
Françoise Ewald:
A prudent company is one that takes risks
We are now seeing a strongly critical view of capitalism emerge. What is your explanation for this?

The traditional critical view of capitalism, seen as alienation and exploitation, no longer applies today. What is criticized in the current form of capitalism, is its immorality, particularly in the matter of risk. Increasingly the general public is exposed to risks over which it has absolutely no control. Food is the best example of this. Strategic decisions are made about its quality, and the general public has no power to decide what the food industry will offer it, or ability to verify it. A man like José Bové, who is very popular with the French media, is attempting to do something about this lack of ethical commitment in the way business is done today.

What does the concept of ethics mean to you?

Unlike morality, ethics obeys no predefined rules or codes. When a choice has to be made in any given situation, the decision is taken in terms of the risks involved. No procedures guide the choice of decision-makers, they give a totally subjective opinion. They make the decision according to their conscience. Take the example of biotechnologies. Scientists and politicians have to make absolutely fundamental choices involving the future of mankind, often without recourse to the notions of good and evil. This means that the use of our genetic heritage has come to depend solely on the ethical awareness of a handful of people. From ethics springs the notion of personal responsibility. A responsible individual measures risks in terms of the consequences of his choice. There is strong link between the concepts of risk and ethics; they are complementary. Where a risk is being run, choices can be assessed in terms of ethics. To have one’s own ethic means taking a risk, making a commitment.

Who is making commitments today?

Politicians are, of course, but heads of industry as well. When they take decisions according to their personal ethical beliefs, and justify them on this basis, they put the future of other people at stake, and by extension that of the entire world. And the consequences are irreversible. This means that they are taking on an enormous responsibility in the eyes of all of us. They are doing this without pre-established rules, applying instead a virtuous principle – that of prudence. Good leaders, whether or not they are politicians, make the right choices for the people they lead by measuring risks according to the personal ethics to which they are committed. This means that they have to be prudent, the modern synonym for “responsible”. Such is the basis of the precautionary principle which, according to Aristotle, guides mankind through the uncertainties of an imperfect world.

What values should companies be defending at the start of this new century?

Throughout the 20th century, we sought to reduce risks in general, in the areas of illness and work. This is why insurance developed in all domains. I see a very strong trend – individuals feel increasingly vulnerable to risks they are powerless to do anything about, such as climate changes and natural catastrophes. For example, the hole in the ozone layer has led us all to reduce the use of aerosols. Not wishing to be left behind, businesses are starting to take responsibility for risk. They are integrating this commitment into their corporate values and obligations through pro-environmental or socially responsible actions. They are publicly stating standards of social responsibility and are working for present interests, but not forgetting those of future generations. This is a new concept in the history of capitalism, but is starting to gain ground. Companies are starting to measure the risks involved in their options. They are becoming aware of the need to take a prudent stance, and are starting to proclaim this ancient yet extremely modern principle.
The management principles handbook sets out rules to be followed by the entire Group

Audit manager Jean-Marie Ruiz presents the handbook as a reference standard of basic rules and procedures intended as guidelines for Group professionals in their daily work.
What is the precise role of internal auditing within an international Group?

The internal audit department, which reports directly to the CEO, is a unit of eight auditors who conduct periodic audits within the various Group companies, both in France and in international subsidiaries. It is the responsibility of auditors to verify that the organizational systems that have been set up are capable of containing risks and that they ensure the protection of assets. We also check that the companies are correctly following Group rules and procedures. If this should turn out not to be the case, the auditors can draw up recommendations that are designed to improve the functioning of the company being audited.

What are the reasons that led to the drawing up of a management principles handbook?

When we were auditing companies that had recently entered the Group or that were located outside France and we noticed that there was an infringement or mis-application of the rules in force within the Group, the companies being audited frequently responded by telling us that these rules were unknown to them. It is true that, outside of France where the rules are collected in a handbook called the Dico, the management principles of the Group have never been formulated. They tend to form part of an oral tradition rather than information that is given on a systematic basis. I had already informed Alain Dupont of this reaction from the heads of companies under audit, and he asked me to prepare a draft management principles handbook which would be a complement to the Group business principles, issued in 1998.

What was the process used to draft this handbook?

The CEO asked me to co-ordinate the work of a committee made up of French and International Managing Directors as well as the President of a French subsidiary. This committee interviewed all the managers at corporate headquarters, asking them to indicate which management rules appropriate to their field of activity they wished to see appear in the handbook. A certain number of principles were chosen and I started to produce the first draft of the handbook. After several months of discussion with the steering committee and corporate headquarters senior management, a final draft was submitted to Alain Dupont for approval.

What were the major policy lines that formed the basis for the draft of the handbook?

Firstly, we had to define what we mean by management principles. Unfortunately, the term used in French – “gestion” – has a number of possible meanings: administration, organization, management. Of course, it was the latter meaning, in the sense of management of a company, that was required here. The handbook has to be a reference guide of the rules and internal procedures that can be used to guide the actions of Group managers. The English term, management principles, gives rise to no confusion as the term “management” is explicit. This definition of course led us to define who formed the target population of the handbook – all of the Group managers who head a company, a profit center or a geographical sector. In other words, all Group managers from the CEO down to site supervisors. On the other hand, there was no question of drawing up a new, universal Dico. The French Dico is already twelve volumes long and the type of formulation it uses makes frequent reference to French legislation and regulation. The principles set out in the handbook must therefore be of a somewhat major character and be capable of application in all of the countries where the Group conducts business. These two conditions clearly restricted the number of possible principles.

The handbook has been translated and distributed to all Group managers. Does this turn it into a repository of immutable commandments?

Certainly not! The rules and procedures are not graven on tables of stone for all eternity. I think I read somewhere: “If you stand on your principles, they will end up giving way.” Cynical, perhaps, but no less true for that. People change the principles they live by and their behavior. In the same way, the management principles handbook will need to be updated on a regular basis, in function of the new constraints of the environment that companies find themselves faced with, as well as any changes that occur in Group size, structure or business.
**INTERVIEW**

Didier Bernheim: uniting artists from around the world

Chairman of the Maison des Artistes, Didier Bernheim works to further the dynamics of cultural life and solidarity with artists. His next project is to create an international Maison des Artistes in Paris.

The Maison des Artistes is the largest association of artists in France. What is its mission?

The Maison des Artistes continues to promote the spirit of solidarity in which it was created in 1952: financial support for artists in difficulty, legal and tax advice, design assistance, and managing the Social Security schemes concerned. For the 18,000 professional plastic and graphic artists belonging to the Maison des Artistes, it represents a meeting place with a strong sense of identity, and one which helps to relieve the isolation so often experienced by artists.

How did the idea for an international Maison des Artistes come about?

Originally, we wanted to create a center for artists similar to the one that thrived in Montparnasse until the mid-1970s where artists could share a simple meal in a warm family atmosphere. Then the idea developed to include accommodation for artists visiting from the provinces and abroad. Finally, the opportunity arose to set up in Récollets convent, a historical site in the 10th district in Paris. The city and regional authorities plan to renovate it so that it will become a sort of Medici villa.

What activities will be held in this new cultural center?

There is no equivalent institution in Paris at the present time: 1,700 square meters available to artists. It will be somewhere for them to meet; amongst other facilities there will be a video library, restaurant, studios and a gallery. The international Maison des Artistes will not be a closed institutional venue, but a crossroads of cultural exchanges, exhibitions and events where all the arts will be represented and the public will be welcome. The influx of artists from other continents should quickly establish the international reputation of the institution.

Company foundations, like the Colas Foundation, are involved in cultural environments. What role can such patronage play today?

Company patronage is essential for the development of artistic life because foundations can provide substantial and extremely flexible means of support. They can finance the Maison des Artistes and this will enable us to organize events and exhibitions. We plan to put artists in touch with foundations wishing to acquire their work, like the Colas Foundation, which already supports painters. Patronage will always proceed in the overall direction of our initiatives since we are all striving towards a common goal: upholding artists' interests and revitalizing cultural life.
Acknowledgements

ERIC MILLIAT, THIERRY DEBIEN, YVES BAILLON,  
JEAN-PIERRE CHAMBON,  
ALAIN DES HORTS, GÉRARD TRÉHOREL,  
MARIE-THÉRÈSE SÉRAFINO, PHILIPPE LAMBERT,  
JEAN-PIERRE MORICHON,  
DOMINIQUE BIRRAUX, DENIS PAGOT,  
FRANÇOIS GRASS, FABRICE HERNANDEZ,  
CHRISTOPHE DA POIÁN, CHRISTOPHE GUY,  
VALÉRIE BATTON, MARIE-NOËLLE MACÉ  
SÉGOLÈNE CALAIS, JEAN-MICHEL JACINTO,  
ALAN GRAY, BERNARD BREUL,  
ALICE COMER, JEAN-PIERRE REYMONET,  
Diane Hervé-Bazin,  
FRANÇOISE COUEGNAS, HUGUES DECOUDIN  
SOPHIE GENG, MARIE-PIERRE GIVAUDIN,  
FRANÇOIS CHAIGNON, TRACEY HOFHEINZ
A stall on an island in the Pacific Ocean. Customers drop in to taste their favourite coffee. Nobody knows that the coffee is unique and that the four varieties on offer have a single purpose: to stimulate the conversation.