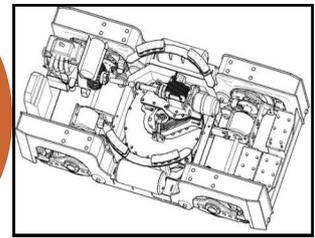




# PARRY Foresights



An Occasional Newsletter from Parry People Movers Ltd ,  
ULRPartners Ltd, Parry Building Products Ltd and  
Intermediate Technology Ltd

2020 Q2 Bulletin

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[www.parrybuildingproducts.com](http://www.parrybuildingproducts.com)

[www.intermediatetechnologyworkshops.com](http://www.intermediatetechnologyworkshops.com)

[www.parrypeoplemovers.com](http://www.parrypeoplemovers.com)

## THE MANY CHANGES TO COME

### Prime Minister States Importance of Innovation

Recent events now call for a ban on overcrowding of public transport in future. This in turn calls for more space to maintain service capacity. Adjusting to a dramatic change in operating specification will require attention to the design, build and operation of rail vehicles.

In what hitherto has been a 'no-man's-land', that which is *intermediate* between LRT and small branch line Heavy Rail, Parry People Movers and its collaborators have, since the 1990s, been concentrating years of effort and millions of pounds into compact vehicles.

The Coronavirus Pandemic has brought many shocks, none more than the near death experience of the Prime Minister. In his first public statement after

recovery from illness, Boris Johnson announced that, for the time being, public transport use is to be avoided if possible (while reducing to 10% normal vehicle capacity by introducing social distancing measures).

He emphasised the importance of innovation. The challenge from PPM's perspective is to implement physical changes to the internal trim, compartmentalising vehicles' interiors and developing ways to sterilise the air entering the carriages. Meanwhile, not forgetting the climate issue, we are preparing for the introduction of very low carbon and even zero carbon versions of our railcars, trains and trams with the development of bio-methane and compressed air means of traction.

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### THE CLASS 139 RAILCARS JUST GOT SMALLER

*PPM-built railcars in operation on the Stourbridge town branch now have both cab areas fenced off in order for the crews and the public to be kept apart (losing a third of the passenger space).*



### CLAYTON AND PPM JOIN FORCES ON TRIBRID TRAIN INTERMEDIATE RAIL DEVELOPMENT



PPM / CLAYTON TRIBRID TRAIN CONCEPT

*An end to 'sardine' travel? A dividend available from the long history of collaboration between Clayton Equipment Ltd and PPM has come in the form of the potential to combine the engineering of a highly successful modern British locomotive and breakthroughs in transit technology. The TRIBRID TRAIN. See Pages 4-5.*



### There is a Need, but where is the Demand?

W.S. Gilbert used the term 'Topsy Turvy' when writing the script for 'The Mikado' and being intrigued by contemporary Japanese society in the 1880s which contained so many opposites to Victorian Britain. If alive today and viewing contemporary *British* society, he would see much that has been turned topsy-turvy by the Coronavirus pandemic. Exhortations to please stay home, but go back to work. Public transport is vital, but please avoid using it!

The Chair of the National Infrastructure Commission, Sir John Armitt, has just written to the Chancellor of the Exchequer with a reminder that, among all of the immediate steps being taken to mitigate the effects of the pandemic, the Government must not 'lose sight of the net zero greenhouse gas emissions target'. So for people to stay at home and not go to work is calamitous, but for nearly everybody not to use public transport, but car instead is not just topsy-turvy, but catastrophic.

## A WORLD TURNED TOPSY-TURVY

The new design priority that has emerged involves measures which make it 'safe' to restore passenger occupancy levels to levels far greater than the '10 per cent' currently being suggested, applying the 2m social distancing guidelines, while at the same time continuing to drive forward inexorably technical developments which lead towards the 'net zero' target.

### Worldwide Relevance

In many parts of the World there are cities and conurbations with traffic congestion on their roads. Trains that run along railway lines can provide a frequent and reliable service, carrying passengers who would otherwise use the roads, and so reducing traffic congestion. Furthermore there are parts of the world which are likely to create a demand for higher capacity rail modes, Metro-style but affordable as transport for low income workers. Much more attention may soon be given to particular parts of cities with highest population densities - the favelas, slums, shanty settlements and refugee camps. These, in some countries, accommodate half a million people crammed together in a manner which invites epidemics. 'Social distancing' measures are a non-starter in overcrowded, disadvantaged settlements where several families share communal facilities such as toilets. Lockdowns which snuff out informal sector income earnings

leave such people with no money, and leads to starvation. The World Bank has just one measure it can take - demolition of the totally overcrowded settlements and rebuilding at much lower density. New places to live cannot normally be found *within* the surrounding city which points to a 'peri-urban' strategy of new towns and outer suburbs built separately and with the participation of former slum dwellers. Given greater distances to travel, a specification emerges for very low cost, but still effective forms of transport, and by rail to meet environmental standards:-

- ◇ Safe and legal
- ◇ Cool and spacious
- ◇ Economically built
- ◇ Cheap to run
- ◇ Zero carbon
- ◇ Tough and durable
- ◇ Easily maintained
- ◇ Presentable

The sudden emergence of a sometimes undetectable but frequently lethal contagious disease may spell the end to passengers travelling jammed together like sardines. This demands flexible capacity so that the size of the transport mode can be altered to match changes in demand.

### Bring on the Innovators

The Parry team and its talented collaborators must live up to their reputation as technical innovators. Whilst the nation has been locked down, we've been busy.



*Over a kilometre of unused railway track at the site of a closed down power station, an ideal asset for vehicle testing and demonstrations.*

### **FIRST OF A KIND R&D PROJECT STYMIED BY VIRUS**

Between September and December 2019 work had proceeded on fabricating the framework for the driveline and running gear of the First of A Kind bogie project. PPM's main engineering counterparts, Clayton Equipment, overwhelmed with orders, were unable to receive the equipment to carry out assembly and integration. Another railway engineer, Severn Lamb, kindly agreed to take on the work and everything was moved to their Warwickshire factory on 20th February. At this time the Coronavirus pandemic seemed just a cloud on the horizon, but within 3 weeks European countries were locking down their populations and in week beginning 15th March the managers of the factory decided that it must shut down until end June.

## **R&D Facility Based on Historic Rail Assets points to a New Way of Running Local Lines**

PPMForesight is proposing to the Railway authorities, such as the DfT, NIC, RDG and Network Rail that the type of rail infrastructure left behind when a coal-fired power station closes should become the location for a practical, commercially run R&D facility introducing a radically different form of local railway. By adopting an intermediate specification which assumes changes in the design, build and operation of rail vehicles in what hitherto has been a 'no-man's-land' between LRT and small branch line Heavy Rail, the facility could show that railways need not just be rich men's toys. The Heritage Railway organisations comprising over a 100 different

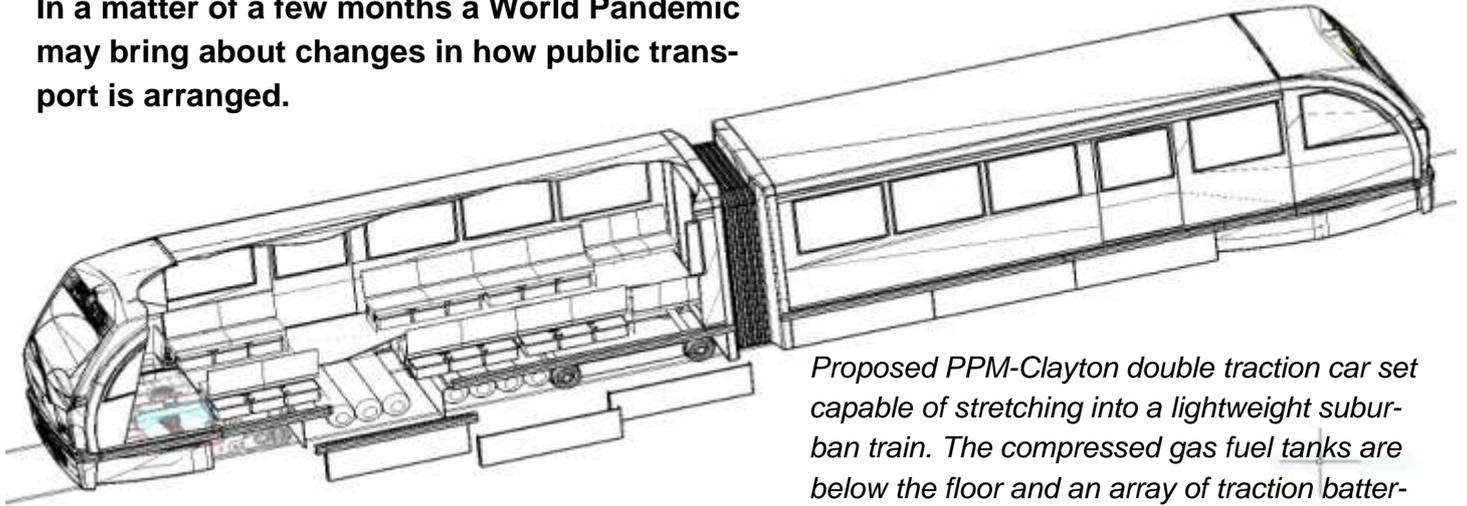
centres have astonishingly competent recreations of previous centuries' engineering skills. In many places visitors can experience actual journeys using rolling stock from a bygone age operating according to authentic procedures and use of materials. It should be possible that the same organisations, even some led by volunteers, to become hosts to new, simplified forms of railway operation? Instead of just running steam trains on a Sunday, they might consider diversifying and working with public transport operators equipped with new forms of contemporary rolling stock, but designed to match the simplicity of the best of the former designs.



*The First of A Kind testbed chassis at Severn Lamb's factory almost ready for integration with the body (above left) at the point when the factory was locked down due to the Coronavirus pandemic.*

# CLAYTON AND PPM JOIN FORCES ON TRIBRID DEVELOPMENT

In a matter of a few months a World Pandemic may bring about changes in how public transport is arranged.



*Proposed PPM-Clayton double traction car set capable of stretching into a lightweight suburban train. The compressed gas fuel tanks are below the floor and an array of traction batteries stowed up against the bulkhead.*

**The World's need for affordable rail systems is sparking a rolling stock breakthrough. Two different forms of hybrid rail traction are being integrated into a single system to bring low carbon affordability to metro systems worldwide and for low running cost branch line trains.**

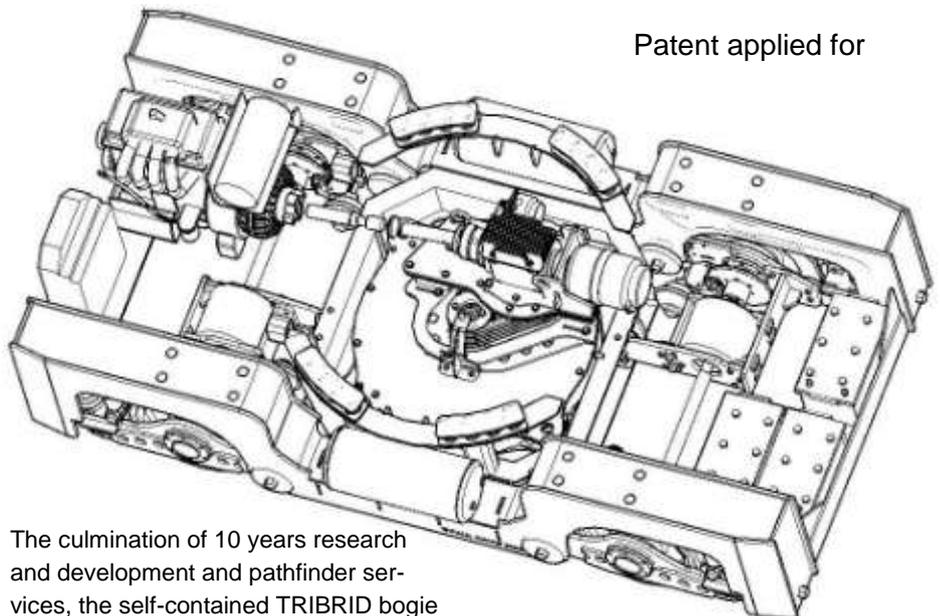
The creation in 2010 of a Strategic Business Alliance between the two firms, Clayton Equipment Ltd and Parry People Movers Ltd forms the basis for a new joint endeavour combining the beneficial features of two separate hybrid traction systems for rail vehicles.

A new form of metro style urban transit is now made possible as a result of amalgamating two types of hybrid to create TRIBRID energy storage and transmission. PPM's quiet and clean compressed gas-flywheel primary energy system is to be used as an electric power generator for the driveline of Clayton's modern range of diesel-battery hybrid locomotives. Powered by the latest traction motors and a new power efficient variant of the lead-acid battery, the CBD30 and larger models are market leaders in robust, affordable locomotives.

The remarkable current market success of Clayton locomotives has come from years of incremental development.

Working on parallel tracks, Clayton, originally a part of Rolls Royce Derby and since 2006 fully independent, and PPM, a 30 year old design engineering firm, have devised an ingenious but highly practical advance in hybrid engineering.

The outcome from melding the two hybrid features is the TRIBRID quiet, low emission power generation enabling all day uninterrupted running of a battery vehicle. Power surges for rapid acceleration (as needed by all Metro vehicles) are provided by the PPM flywheels. This extra torque will be needed for applications where coaches are added for extra passenger capacity.



Patent applied for

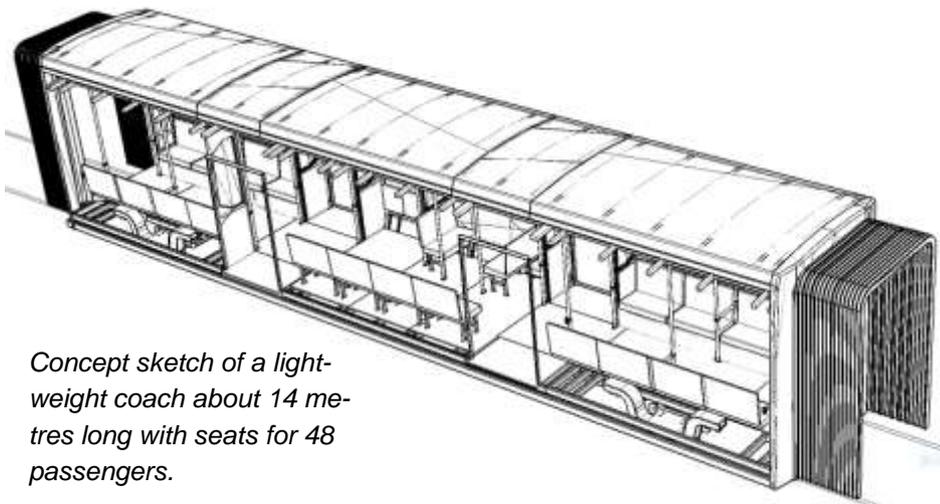
The culmination of 10 years research and development and pathfinder services, the self-contained TRIBRID bogie

# MODULAR APPROACH DELIVERS CAPACITY FLEXIBILITY TO MATCH A WIDE RANGE OF LOCAL RAILWAY APPLICATIONS

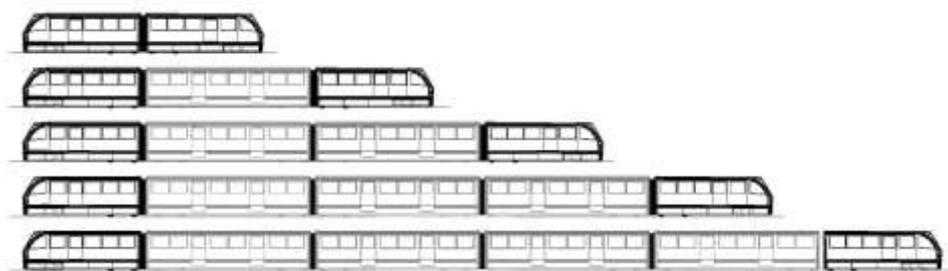
The basic minimum set is two traction cars back-to-back with provision for a total of 60 seated passengers. Only two of the four bogies will be powered and while, in normal duty, both of the drivelines will run concurrently, the two car unit can continue in service with one of the powered bogies out of action or idling. For lines with steep gradients, the traction cars can have all bogies powered.

For services where greater passenger loadings are anticipated, coupling arrangements will permit capacity to be increased by adding unpowered coaches in between the traction cars situated at both ends. The coaches will be equipped with seats for 48 passengers. In exceptional circumstances when dispensation is given for extra passengers to travel standing, the total per coach can be raised to 100. On first introduction of the new mode, the maximum number of five carriages will carry 300-500 passengers.

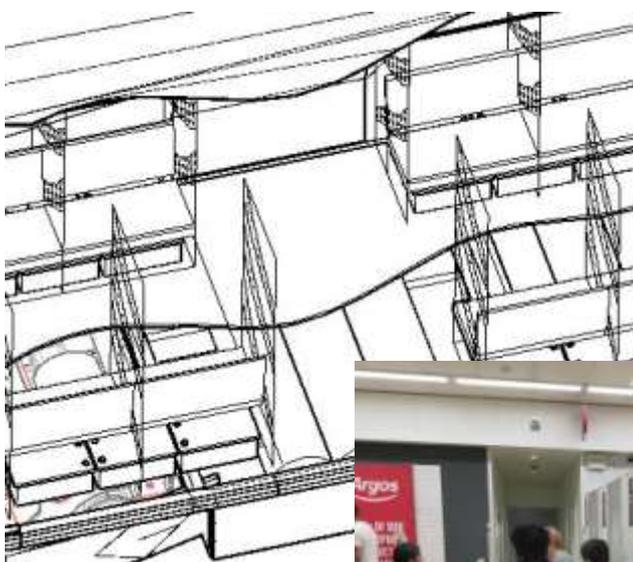
Working with collaborating firms, PPM is researching measures leading to the acceptance of higher numbers of passengers than presently indicated (at 2m social distancing). Possibilities include partitioning of space and a means of continuously purging the internal air and replacing it by a sterilised, filtered source of cool air.



*Concept sketch of a light-weight coach about 14 metres long with seats for 48 passengers.*



Equipped with Clayton locomotive motors and driveline with power drawn from the standard traction batteries, the twin power cars will have the drawbar capability to operate with a rake of carriages on speed restricted local branch lines.



*Installation of light partitioning is a provision which may be sanctioned to increase passenger numbers permitted to be in a carriage.*

Retailers' innovative use of screen to separate two lines of shoppers. Although the two tills are barely 2 metres apart, the partition makes it possible for customers to pass close by each other.

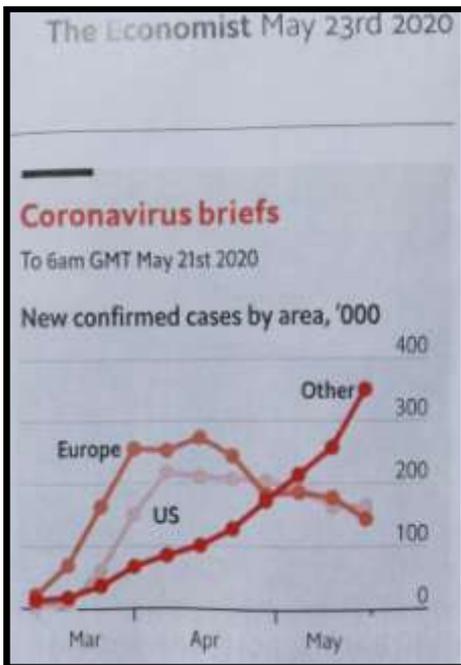


# WAKE UP INTERMEDIATE TECHNOLOGY LIMITED

ITW Ltd rebranded as 'Intermediate Technology' to create millions of jobs. By John Parry

## It's Not Over till It's Over

The bad news may be worse than the other news is good. As summarised in the 23rd May issue of the Economist Magazine - in the form of a simple graph, while the numbers of confirmed Coronavirus cases in the United States and Europe, having peaked are now declining, elsewhere in the world the trend is exponentially upward.



One of the World's numerous slums that I have visited, largely built up a hillside, is Brazil's main Flavela in Sao Paulo. While the informally constructed dwellings are tidy and clean, overcrowding is severe. Instead of streets there are usually alleyways and the houses close together like London was before the Great Fire. Brazil's latest statistics show 22,000 deaths, concentrated in Sao Paulo, also rising exponentially. Many other overcrowded cities exist. Since the much regretted demise of JPM Parry & Associates in 2013, ITW was kept on 'life support' by PPM, but had been inactive. Time for a revival.

With the shadow of Coronavirus hanging over us, the Cradley Heath team is considering the role that Intermediate Technology should play with regard to the economic consequences to millions of low income families and above all the need for jobs.

The line the Newsletter is taking is that there is an urgent need to replace the most unhealthy slums by promoting new towns such as Kaputei in Kenya which has several flattering references on the Internet. For this to happen, other things will be needed:- sites for properly laid out new suburbs and completely new towns and villages will need to be found on the periphery of cities.

Our Kenya based colleague, Nick Evans, says that this is already happening there and Intermediate Technology methods including building lightweight floor slabs with precast waffles are now widely used. The slum dwellers themselves can be engaged in building materials production (using intermediate technology methods). Affordable means of transport will also need to be available between human settlements and centres of employment such as industrial areas (where many of the slum dwellers already have jobs). Other employment opportunities will need to be devised. Based on labour-intensive technical methods, these can include bio-methane fuel production and the recycling and purification of water. The implications for Intermediate Technology Ltd are that it will need a UK location, a manager and a pump priming tranche of capital.

Space is available at the back of PPM's offices and PPM can provide additional admin support.

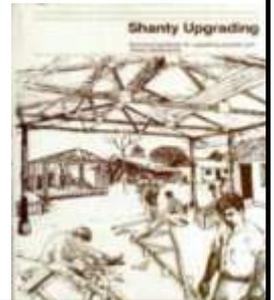
ITW was the Publisher, 33 years ago, of the handbook 'Shanty Upgrading'. The 1987 issue can still be accessed via Google books on the Internet. A new version should now be written and published describing the Kaputei achievement and other Parry Associates/ Parry Building Products, Build IT International projects in Zambia and PPM's achievement in affordable rail technology.

## Shanty Upgrading

A technical Handbook covering the background and issues relating to shanty upgrading and appropriate techniques for construction and the production of building materials.

Published in 1987, the editors were John Parry and Andrew Gordon.

Google books



The new version of the book should also describe the affordable rail service at Stourbridge and low cost trains described on Pages 4-5 and 8 powered by renewable energy.

IT Ltd 'under new management' could start to act as marketing agents for the Parry machines still being produced at Gainsborough Trading Estate in Stourbridge by independently-owned Parry Building Products Ltd and its associated companies and for PPM as well. Build IT International with projects all over Zambia and formed largely by PPM shareholders is being asked to cooperate researching prospects.

# A SOURCE OF HOPE FOR SHANTY DWELLERS

## A New Town in Kenya built mainly by Slum Dwellers

The approach that led to the Kaputei new town project dates back to the late 1980s. Then, Mrs Ingrid Munro, a Swedish trained architect, working as an official with the international agency Shelter Afrique arranged the formation of women's groups from Nairobi's shanty towns in the manufacture of concrete blocks and roofing tiles using Parry vibrating machines and moulds. Lightweight concrete pantiles and hollow blocks, produced by workers from the shanty towns, played a crucial

role in the self-help housing projects including the construction of 3,000 houses at the Koma Rock housing estate. This has now become a pleasant dormitory suburb of Nairobi. Ingrid was planning her retirement. A group of people from Mathari Valley shanty came to her house to ask whether she would be prepared to help the vision which they had to transform their lives. She agreed, and the JamiiBora Trust was formed. It began as a micro-credit organisation

providing loans for the multitudes of small enterprises in the slums and shanties, before moving into mortgaging and construction. The greater vision of building a complete new town for 10,000 people followed later and the Trust chose the same locally-based technology used at Koma Rock. Some of the original equipment was transferred to the new site and manufacture began. As the project expanded, more equipment was ordered from Cradley Heath workshops.

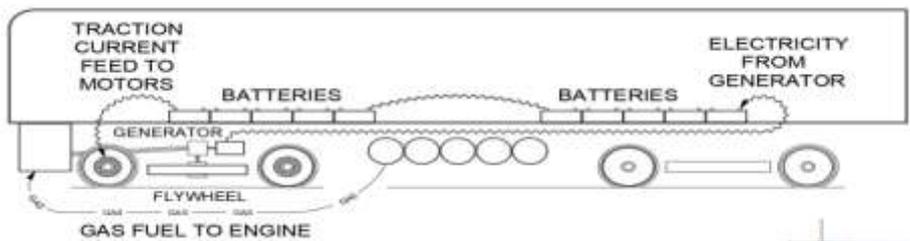


## TRIBRID EXPLAINED

Now in the safe hands at the UK's Intellectual Property Office in Cardiff is the Tribrid bogie invention patent application. The technology described will enable designers of a wide range of rail vehicles attain a kind of performance in low cost operations that previously would only have been possible at high capital expense. Hitherto motive power delivered *quietly and without pollution* has required a permanent electrical infrastructure to be built above and into the track to feed traction current to powerful electric motors on board the vehicles. The unconnected alternative is a large array of traction batteries which can only supply energy for a few hours before the vehicles have to be taken out of service to be recharged.

As now common in the automotive sector, locomotives that are hybrids have begun being marketed successfully by Clayton Equipment using a small diesel engine which provides continuous charging. The TRIBRID goes a step further by supplementing an even smaller charging motor with short boosts of kinetic energy. This is contained in a spinning 500 kg flywheel providing over 100 hp for vital acceleration. The kinetic

energy boosts the traction current from the batteries whenever the train needs to accelerate away from a station. Using a Tribrid traction car, operators have the benefit of lighter battery-powered vehicles with more sprightly acceleration which run all day not stopping to recharge, and requiring only non-electrified track. TRIBRID powered trains will be able to run on Beeching reversal preserved lines.



*The small engine of the Traction car drives a flywheel which accumulates energy while passing this on to traction batteries stowed along the car bulkhead beneath seats. Traction current from the batteries drives the train, boosted by phases of extra torque from the flywheel (seen between the wheels of the left bogie).*

## COMPRESSED AIR TRACTION

Anyone entering a room with no cushions, rugs, curtains, chairs, tables, shelves, light fittings or loose objects or life forms of any kind, might be forgiven for saying, 'This room is completely empty!' But they would be wrong - measuring say 5m wide, 7m long and 3m high, it will be full of air weighing 100 Kgs. Air is one of the few good things, like smiles, that are completely free but still extremely welcome. Air can be used in the following ways:-

1. Providing oxygen to sustain life
2. Transferring heat or cold

3. Providing a resilient 'cushion' in a vehicle's tyres or suspension
4. As a broom to sweep leaves
5. As a cheap means of storing energy
6. Powering tools like wrenches and drills
7. To sustain combustion
8. To make and convey sounds (music, warnings or speech)
9. To lift weights
10. To propel a train along its rail line

The use of compressed air provides the prospect of the long-awaited breakthrough needed for solar and wind energy to be utilised for transportation. Historic precedents exist with compressed air being used successfully to drive mining locomotives in North America and Europe, and even complete tram systems in France. These, though practical, used to have inefficient steam engine pistons and valve gear. Turbines and rotary engines are now available and could be adapted to work with the TRIBRID arrangement. Use of renewable energy to run a public railway will be a major achievement in carbon reduction.



*Compressed air powered locomotive in Polish coal mine.*

*Compressed air trams running in Nantes prior to 1900. (Two of a fleet of around 300 cars).*



