

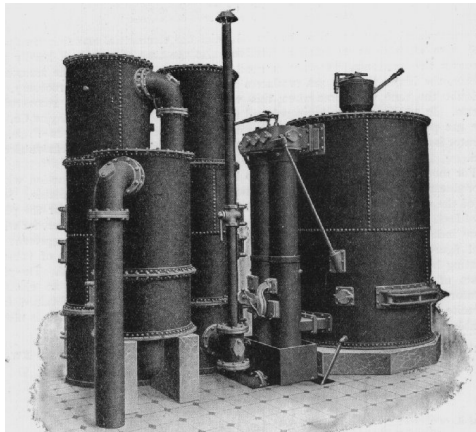
## Featured Engine No. 39

The National Gas & Oil Engine Company  
From "The Anson" Website

The company was founded by Mr H. N. Bickerton in 1889, who, after being in business for some time as an engineer, ventured into the realms of horizontal gas engine manufacture. For this purpose he took over Isaac Watt Boulton's locomotive works in Wellington Rd. The first gas engine went to abroad to France 1894.

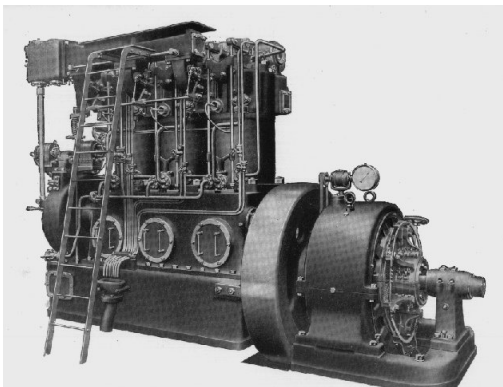
As the years went by, extensions were put in hand at Wellington Rd. Offices were built and new bays erected. These included an Iron Foundry, Drawing Office, Pattern Shop, Shipping Departments

The engines were designed originally to run on town's gas and a later development was the gas producer plant using anthracite, coke and waste fuels such as wood, cotton seed etc. The introduction of



the gas plant increased enormously the demand for gas engines, as they not only proved to be the most economical power available at the time but combined engines and

gas plants could be installed anywhere in the world where solid fuel was available from which the gas could be extracted. In the early part of the century, many hundreds of gas producer plants and engines were shipped to all parts of the world. In the year



1906, a new type National gas producer was exhibited at the Royal Agricultural Show, Derby, and was awarded the gold medal.

By 1908, the demand for small horizontal gas engines was diminishing rapidly due to competition from the electric motor and in that year, work was commenced on building new bays at the west end of the works for the manufacture of vertical tandem gas engines up to units of 2,000 b.h.p. with 12 cylinders having a bore and stroke of 26in x 24in. Many

installations of 10,000 b.h.p. or more were laid down at collieries, iron and steel works etc., for running on blast furnace and coke oven gases. This new section of the works was equipped with special machines for carrying out this operation.

In 1914, National installed the first sewage gas engine at the Birmingham, Tame and Rea Drainage Board's works, & from that date supplied more sewage engines in the British Empire than any other company.

During the 1914-1918 war the Company



undertook, among other contracts, the building of Y-type 12 cylinder engines for high-speed naval craft. In addition a great number of engines were supplied to various factories sponsored by the Ministry of Supply. With the advent of the compression ignition engine the National Company developed this branch of the business. Previously, oil engines had been confined to the hot-bulb or hot-spot type and they now embarked on the compression ignition types, beginning with horizontal engines. Very quickly, a large order book was built up for these units. Concurrently, the vertical engine department developed vertical engines with up to 17in diameter cylinders by 21 in stroke. These were subsequently extended to give outputs up to 2,000 b.h.p. utilising turbo-pressure-chargers.

Although the compression ignition engine gradually replaced the gas engine, National were still the leading manufacturers of gas engines for special purposes such as oil fields and sewage works where natural and sludge gas were available. In 1938, the National Company produced the first dual-fuel engine capable of running on either oil or gas or a combination of both. Many engines of this type were supplied and a typical example is the Rickmansworth works of the Colne Valley Sewage Board where there are six dual-fuel engines, each developing 1,000 b.h.p. when pressure charged on oil fuel and 660 b.h.p. when using gas.

During WW2, the Company supplied vast numbers of engines for the War effort. In addition, contracts were undertaken for the manufacture of jigs for the Manchester and Lancaster bombers, hydraulic recuperators for 25 pounder guns, and groups of machines were laid down for the manufacture of blade adaptors for the Rotol variable pitch propeller and also for machining propeller hubs.

## Calendar of Events

Key. Event – E. Club night - CN

April 2<sup>nd</sup>–4<sup>th</sup> (Easter) **Virginia Ash public house Henstridge.** Engines required. Proceeds to Afghanistan Hero's. Camping available. Phone T. Williams 07845137796

April 5<sup>th</sup> **E.** (*Easter Monday*) **Mells Daffodil Rally**

**April 11<sup>th</sup> E. Newbury Sort Out. Junc M4/A34**

April 17<sup>th</sup> **E. Enstone Sort Out**, Oxfordshire

April 18<sup>th</sup> **E. Crankup** at Nunney Catch:

April 24/25<sup>th</sup> **Westbury Transport Gathering**, It's on the B3098 the Bratton Road out of Westbury. Can't miss it, it's in the shadow of the White Horse. Contact Tony Davis 01373 464982

April 26<sup>th</sup> **CN.** Guest Speaker: Kim Siddorn.

**Rolls Royce Piston Aero Engines.** Illustrated

May 8/9<sup>th</sup> **E. The Breamore Countryside Museum.** Engines required. Contact Eric Gay 01225 754374.

May 15<sup>th</sup> **E. Museum at Night** at Internal Fire, Ceredigion.

May 24<sup>th</sup> **CN. Member's Night:**- bring ten photo's or slides on any subject. - prize for best effort.

June 2<sup>nd</sup> **E. (Wed evening). D-Day crankup.** Venue TBA.

Bring something military if you can!

Guest Speaker: Henry Body

**A Talk On Speed Records**

Sept. 18<sup>th</sup> **E. Camerton Village Day.**

Sept 27<sup>th</sup> **CN Quiz Night**

Oct 9<sup>th</sup> **CN.. Skittles & Supper Evening**, Venue TBA

Oct 17<sup>th</sup> **E. Robert's Open Day.**

Oct 16<sup>th</sup> **E. Vintage Sort Out** at Cranmore Railway station yard.

Oct 25<sup>th</sup> **CN.** Guest Speaker, Roger Fowler.

**The Burnham-On-Sea rescue hover craft**

Nov 13<sup>th</sup> **E. Enstone Sort Out**, Oxfordshire

Nov 29<sup>th</sup> **CN.** Guest Speaker:- Martin Phippard.

**Parara Marble Extraction**, Italy. Illustrated

Dec 5<sup>th</sup> **E. Crank up** at Nunney Catch

Dec 27<sup>th</sup> **E. Mince Pie Crankup:**- Court Hotel

**Dates and venues may change. Check before driving!**

### **Chairman's report** (*printed as received*)

The clubs AGM on Monday 22 February was poorly attended compared to previous AGM's. Why was this? Because it was almost a week early due to how the dates fell, or was it because members could not be bothered? You need to tell us the reason for the poor turnout or I consider the committee are wasting their time when members can't be bothered to turn up for the AGM and no one wants to be secretary. Despite the low attendance the AGM was conducted without a hitch. We had 29 postal votes which was counted before the meeting started by the two tellers appointed by the President to count the votes cast during the meeting. These tellers were Herb Gane and Brian Munt who both carried out this task admirably. With six committee members resigning, including the Treasurer and secretary and only one new member coming forward the committee is now somewhat depleted. The committee elected for 2010 is, President, Brian Verrall, Chairman, Brian Baker, Vice Chairman, Eric Gay, Treasurer, Keith Nash, Editor, Kim Siddorn, Committee Members, Martin Feeney, Paul Chant, And Keith Sheppard. Presentations were made to Jackie for giving nearly

thirty years service as treasurer, she was given a Marks and Spencer voucher to the value of £100, and a basket of fruit. Arthur was presented with a cheque for £100 for 12 absolutely brilliant years as club secretary. Mary Butler was given a cheque for £50 for the outstanding work she does distributing the newsletter every month. We gave a bouquet to Sue the landlady of the Court Hotel for making us so welcome to our new venue. Robin won the Editors cup for the best contribution to the newsletter during 2009, and this was presented by our editor Kim. After the meeting ended we held our usual raffle which contributed to club funds, and so ended a very successful evening.

### **Social news**

By Jackie Lambert

We'd like to welcome new members Mr N Anstis from Coleford, Somerset, Mr C Coombes from Salisbury, Mr D Henderson from Frome. Mr KJ Henderson from Midsomer Norton and Mr T Tambllyn from Portsmouth.

I would like to say a big thank you for the gifts presented to me at the AGM to mark my retirement of Treasurer for the club. I would also like to thank Keith Nash for taking on the Treasurer's job and for all the visits he made to Frome to make sure the transition was a smooth one. Well done Keith.

### **Cranmore Spring Sortout**

By Brian Baker

Some of the sellers at our Spring Sortout on Saturday 6<sup>th</sup> March arrived before the organisers! We saw a very early start by on a bitterly cold morning. Oliver and myself arrived to find quite a lot of stalls already set up, Jackie was on the gate taking the money & the site looked quite busy already. I would like to thank the members who took turns to man the gate as it was too cold to stay on duty for long.

The café opened at 9am & seemed to be doing a good trade all morning, in fact when Oliver & myself managed to find time to go in for a bacon sandwich they had started to run out of some of their supplies.

The number of sellers was down on the October sortout, but the number of buyers was about the same. The revenue from the gate and the stalls was around £350 from which we have to make a donation to the Railway. These Sortouts are easy to run with little or no work involved and certainly no financial outlay or risk.

### **Some Event Updates**

By Eric Gay

I have sent out the entry forms for Breamore to all those that entered last year, this event is set in the walled garden of the Manor House alongside the Countryside Museum. The dates are May 8<sup>th</sup> & 9<sup>th</sup> 2010 & if you would like to come to Breamore give me a ring (01225 754374) and I will send you a form.

As I said last month, I would like some engines for an event at Lackham College, Nr. Chippenham on June 13th 2010. Numbers are limited so please get in early.

The team is already working hard for **YOUR** rally and entry forms have been sent out to all last years exhibitors, Traders ect. but I still need you to come and make it even better, we had over 130 engines last year. Help me make it 200 engines this year! You'll have had a form by now, so fill it in, put it in the post & mark your diary.

For 2010 we are also trying to build up the working area with more country crafts, working engines driving mills, chaff cutters, drag saws, rack saws and any other driven machinery. *Remember that our insurance DOES cover you for this kind of "dangerous machinery" display – Ed.*

I would also like to find a Thatcher, a Blacksmith and a Dry stone waller, Hurdle Maker and any other country craft. If you can help me with any of the above please let me know.

Now as you all know, we run the rally with a total of 6 people and we are looking for more help with the administration side of the event. So far this year, I have personally sent out over 200 letters and forms, so as you can see with only six of us there is a lot to do. If you feel able to help in any small way, I - or any of the team - would love to hear from you. We had wonderful help over the few days before the rally with roping up etc and I sincerely hope that such help will be available this year.

At a rally this spring? Pass the word around to exhibitors you know that The Midsummer Vintage Gathering is **The Event To Be Seen At** in 2010,

#### **Mells Daffodil Day**

*Easter Monday 5<sup>th</sup> April 2010*

Robin asks me to make it clear that this rally is now not only full but that he has TEN waiting for places! If you have a pass and cannot now come, please let Robin know on 01373 463526 so he can re-allocate the space. Please DO NOT turn up in hopeful fashion as you will have to pay to get in and there will be no space for you to exhibit!

#### **Earwig's Bit**

We wish Member Ken Barnett well with his newly fitted knee joint. By the time this goes to press, club Treasurer Keith Nash will also be sporting a new knee joint. So we hope to see both on the scene very soon.

Two of our senior club members celebrate their birthdays in April. Happy birthday to Brian Munt and John Emery.

#### **A Blast from the Past**

By Brian Baker

In my article in the newsletter entitled "My First Engine" I said I also bought a Lister D on the Rally Field. I repainted this engine and made a trolley for it, I didn't have to touch the mechanics as it ran like a dream. I had only just joined the WSEC and the first chance I had to exhibit it was at the club's annual rally at Cheddar Football Club.

One of the events put on for the exhibitors entertainment was an "Economy Run". This was for any exhibitor with either a Lister D or a Wolseley WD to bring it onto the central green to enter. The

engines were then completely drained of any fuel and you were given a measured <sup>1</sup>/<sub>4</sub> pint of petrol to put in the tank. We paid a nominal sum of money to enter and the engine that ran the longest on that <sup>1</sup>/<sub>4</sub> of a pint picked up the money.

On the word go you had to start the engine, you were allowed to make adjustments but if the engine stopped once it had started you were disqualified. You were not allowed to start it up again.

The chap who had won this competition many times before was the favourite to win again, but he had cut his mixture so fine that as soon as his engine started it stopped, he was disqualified almost before he had started, hooray. My engine started first swing and settled down to a nice steady beat. Brian Verrall was the timekeeper, and as the competition progressed the engines began to stop, mine carried on until it was the only engine running, Brian kept looking at his watch and saying "how much longer is the bl --- y thing going to run?" Well after running for 45 minutes it finally stopped much to Brian's relief. I was the winner of the first competition I had entered with the first engine I had rallied.

I would like to point out to event organisers they should consider reintroducing simple competitions like this to their events as it provides exhibitors with entertainment and amusement to the onlookers. How about it Eric?

#### **My first stationary engine**

By Rob Armstrong

Was, of course, a Lister "D". I bought her, got her to run well, she then did all I asked of her and never failed to start, and I have her to this day. How dull !. But how did I discover the stationary engine breed, the love, the excitement it can produce? To answer this, I have to go back a long way

I left school & went to University in Birmingham, my home city, to the Chemical Engineering department. Dad had been most unwilling to let me have a motorbike — he remembered a serious accident he had had as a young man, when he had borrowed an enormous V-twin Harley-Davidson from a friend, found it a thrilling ride, but when he borrowed it again a few weeks later after a sidecar had been fitted to the machine he quite forgot the chair while trying to corner at speed on the Great North Road. This put him in hospital

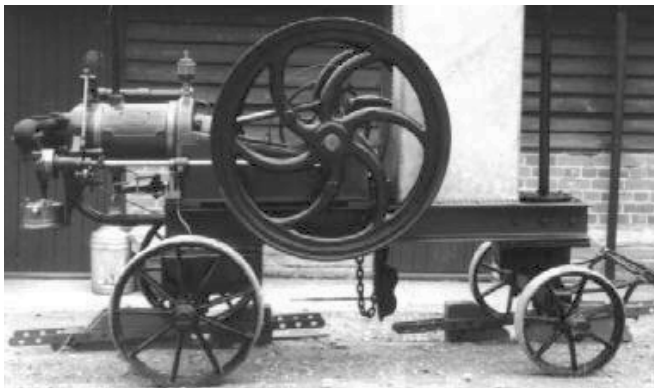
So, very generously, he offered to buy me my first car. This was in late 1950 — almost all new cars were then being exported and any good secondhand car would have cost much more than a new one! Even an old banger cost more than I could afford — we scanned the evening paper ads for any small car and saw several real horrors until we found a 1932 10 HP Rover two-seater tourer. It needed a lot of loving care, but seemed very fair value at £75, and once mechanically restored served me well throughout my time at Brum and during a year or so in my first real job at the explosives factory in Pembrey, West Wales,

I met Pete during the first morning of the Birmingham course. He was about the only other owner of wheels amongst the students of that year — he had a 1934 Model 50 Norton 350 cc bike, an impressively rapid machine — so this common interest made a bond. There was nowhere at his digs where he could easily check or repair his bike, so I offered the use of the back of the garage at home, where my Rover lived. Pete soon became a firm friend.

Later that term, he invited me to his home for the weekend, where I met his father, "Pop" for the first time, I think the finest engineer I have ever known. He was then the head of the electrical engineering department at the local technical college in Surrey, but far from being just an academic engineer — he also made beautiful models in his workshop at home. I found later that he had been apprenticed to the Exeter tramways (and what better place to learn how to care for hardworking electric motors day by day?) but after this he decided to take an electrical engineering degree course at Bristol, and then follow a career in lecturing. Pete had an elder sister who was in advanced nursing training (I didn't see much of her), and his mother was the homemaker, a pillar of the local Women's Institute. They seemed to be an ideally settled suburban family.

All of this was violently upset — I think it must have been in 1953. Authority had decreed that the college where Pop worked should be amalgamated with a neighbouring unit, but then did not offer him the headship of the new, combined electrical department. This quietly spoken Devon man was furious — so much so that he decided to quit the teaching life altogether and take on a small rural garage, which he would run until he retired to a well-earned rest.

In summer, Pete rang me. "Can you come down here for a few days and see what Pop has done? We could do with another pair of hands" and so off I went, in the Rover, to deepest Somerset.



A hot-bulb Blackstone (not the one described)

Well, not quite "deepest"! The garage was isolated, lonely, perched on top of a hill beside the A30, just before Somerset changes into Devon. Four Esso pumps, a large forecourt, a corrugated iron workshop in back, a rather sad-looking transport cafe, and a

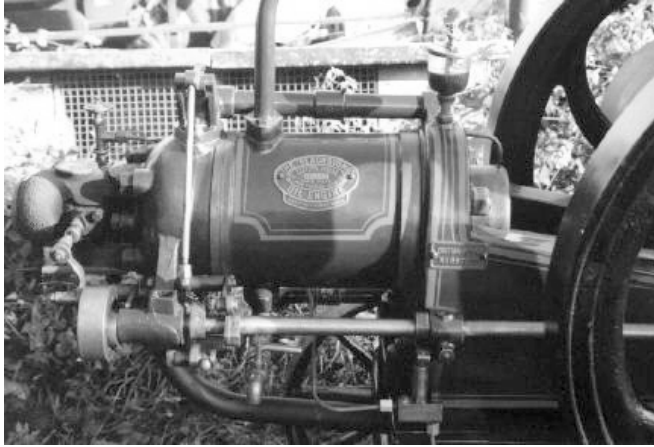
bungalow behind. I could hear the slow, soft regular beat of an engine as Pete came out to serve petrol to a customer, then to turn the lights on in the oval globes of the pumps as the daylight faded. Pop emerged from the workshop, followed by his wife from the cafe. A lovely welcome, then Pete dragged me off. "Come and see what's here!"

"All of this place runs from that" — pointing to the large, hot-bulb Blackstone sitting in an annex to the workshop, belt-driving a 110-volt dynamo of (obviously) very mature age. "the lights, the pumps, the water supply, the machine tools, everything". Later, I saw the lovely slate switchboard and the big glass cells of the battery behind and was entirely captivated! Later that evening, Pop explained that the National Grid supply hadn't then come anywhere near the garage. "Oh, they'll put in a line quickly enough, if I pay for it, and guarantee a regular quarterly use of the juice for several years — it's just never worth it! We can live with what we've got for now".

I approached the Blackstone cautiously the next morning. It didn't seem to have a starting handle at all. Pete showed me the starting drill, first to light the rather solid-looking blowlamp, then when the cylinder head just started to glow in the darkness of the engine shed, open the fuel valve, rock the flywheel back as far as it would go, then briskly pull the top of the wheel over compression. She fired at once, then settled to a steady, soft beat. I found later that the exhaust pipe led into a large underground chamber for a silencer, which then vented up a brick chimney. The field regulator was set for a reasonable charge rate, and that was that.

Or nearly that! There was a real art in setting up the Blackstone to run smoothly: First, you set the engine governor to the usual setting (it was clearly marked!) and then you set the generator field rheostat to such a point that you got the output you thought you needed, and observed the engine's running behaviour after the blowlamp was turned off. If the head cooled down, you had to increase the amount of work that the engine was doing by upping the dynamo output a bit before the Blackstone coughed and died. If the engine was working too hard, the head stayed visibly glowing, the ignition point of the charge would move a shade earlier in the cycle, and the engine then started to knock in a threatening way. The precise setting of the field regulator was really important — or it would have been if the battery had been in better heart. The battery had been sadly neglected. Many of the cells had distorted plates, the acid levels were uneven, the end cells were missing and had been replaced by a couple of tractor batteries. Pop was clear — this would not do at all! I wondered what the price of a replacement might be, but had to return to work and it was some weeks before I could spend a couple of days more in Somerset. I found the new battery in place, not the old glass-box cells, but a set of twenty of the largest size Exide 6-volt truck batteries, all brand new.

"Had to do it" from Pop. "It's not as much capacity as I would like, but it's money well spent" And what a



difference to the working of the lights and workshop tools! It wasn't long before Pop found another 110 volt engine/generator set at auction. It was a 5HP Lister, a "J" type, I think, all in good order and displaced by the arrival of the "Grid" to the farm of the owner. This was duly installed alongside the Blackstone, to share the underground exhaust system.

The Lister, starting on petrol then quickly being changed over to TVO, was an easy starter, a reliable runner, and, most importantly could be set to any output from very low to full without upsetting the running at all. So it quickly took over the main generating task, only giving way to the Blackstone when the battery got too low for comfort or when old oil had to be disposed of. That hot-bulb engine would burn anything which could flow along the fuel feed pipe without apparent distress!

Meanwhile, the cafe's business was flourishing. Pete's mother was a remarkable lady, able to turn her hand to almost anything. She had recruited help for the kitchen and for waitress staff from local farming families, had imposed high quality standards on what was no more than a roadside cafe, and her "full breakfast" was only the start. The local Walls' ice-cream supplier was anxious to provide a chest freezer to supply his products for sale – a 110 volt DC motor had to be fitted to this unit, and this added yet more to the electric demand. Once filled, a freezer must not be shut off at night – the quality of the ice-cream suffers badly. But the sales justified the load during the entire summer season. Cream teas became the real sale success in the cafe at that time, clotted cream supplied locally, strawberry jam made on the premises and the scones baked freshly every single day.

Most repairs were possible in the workshop, mending broken farm equipment was perhaps the mainstay. Oxy-acetylene welding and cutting, lathe and milling machine work, tyre repair (there was a lovely old electric vulcanising press which did sterling work on inner tubes and could also patch damaged outer casings and treads in a way which would not be allowed now. But I never knew of any of our repairs

(failing). Pop found a Victorian shaper in one of his favourite sales, hand-driven, but most useful for cutting and reforming damaged keyways in shafts or hubs. An electric compressor provided the obligatory "free air" for tyres and supplied a couple of windy drills and the ever-useful sharp blast to clear dirt from a blind hole. No vehicle lift, but a pit fitted with two flameproof bulkhead lamps. They didn't give enough light, so it was normal to use an unprotected lamp in a wire cage fed from a flexible cable as well to see what you were doing. Oh, dear! Not safe down there, even before the Health & Safety at Work Act had been thought of. Control of the battery / charging was further improved when Pop found an ampere-hour meter from an electric milk-cart in a local sale. He modified this to work on 110 volts and wired it in to the electric system. These meters run at one rate when recording charge, and at another (quicker) rate when recording discharge. This makes it easier to keep track of what the battery was doing without having to sample the acid in each cell with a hydrometer very often.

Forward a bit. Just before Christmas, 1954, the temporary television transmitter at North Hessary Tor in Devon was started. "It would be lovely to see a bit of TV again" Pete's mother murmured. Now television sets in that era used a lot of juice, and certainly could not run from a 110 volt supply. "Something might be done" from Pop. So he got their old set out – it was a 15" Ekco, rather nice – and got the local TV dealer to come out to retune the set from London to the North Hessary frequencies and install an aerial pointing at the transmitter site. Meanwhile, I got out a 1/2HP 110 volt motor and a % HP 220 volt motor and bolted them onto a base girder, so that the 1/2HP motor could drive the 220 volt motor as a generator by V-belt. This could produce a steady 240 volt output, enough for the TV. The noise level from the motor/gen set was tiresome, so it was shifted to the outer annex, by the solid fuel boiler. Excellent pictures were received, only spoilt by a trace of interference: that was cured by fitting four pi-section filters to the motor/gen, one very close to each brush, and a filter on the output. I found I could do nothing about the interference from the ignition systems of passing vehicles on the road – we just had to put up with this.

Now the TV was loading the poor battery yet more. Pop found a 110 volt air-cooled Petter horizontal twin set in (where else?) a farm sale. He set this up at the far end of the main workshop, and it could produce a useful output, but I never really liked it. It was noisy and the exhaust silencer was very poor, after the silky silence of the underground chamber. It was also sometimes really difficult to start – the TVO got into the sump oil surprisingly quickly, but it did produce a little useful warmth in that cold area.

A couple of years or so later the Grid was approaching the county boundary. Just before that magic moment, Pop accepted an offer for his (by now very successful) business, sold up and retired

further into Devon. Although I visited them there often, I never went back to the Esso garage again. It could never be the same without the home-made electricity, without the inspired engineering which went on, without the fine food in the cafe. I don't know whatever happened to that enormous International tractor which could tow anything, anywhere, and for which I had to stand on a small box to be able to reach the starting handle at all.. It had an excellent impulse starter on its magneto, thankfully!

So, after these experiences can you wonder that I got to like and respect Stationary Engines?

**BLACKSTONE**  
OIL ENGINES  
& AGRICULTURAL  
MACHINERY  
Established 1837