

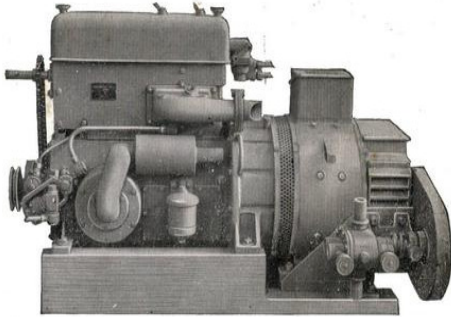
## Featured Engine No. 40

Stuart Turner H2M Diesel engine

By Peter Forbes & Kim Siddorn

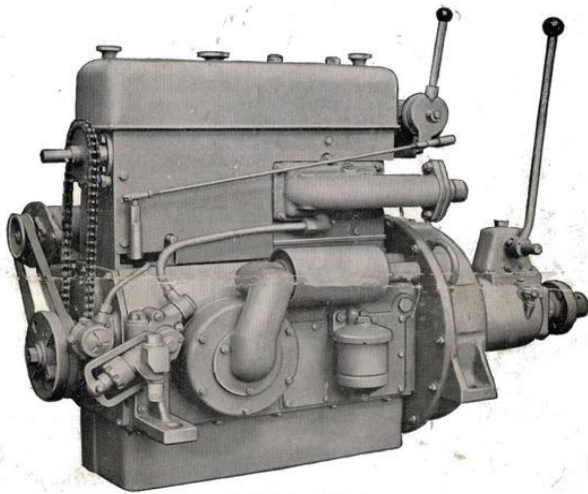
*Giving plenty of lead time, I'd like to feature a really interesting club member's engine here to celebrate reaching fifty Featured Engines. PLEASE get your thinking caps on and blow the dust off your typewriter! – Ed.*

The STUART TWIN CYLINDER DIESEL which was originally designed for boat propulsion has been successfully adapted for marine generating plants in sizes of 3, 4 and 5 kW. These can be supplied for any of the usual D.C. voltages, for battery charging, or for direct-running without batteries, D.C. or A.C. A drive can be taken through clutch and chain to a general service or bilge pump, as on the 4 kW plant illustrated. We shall be very glad to quote for plants within this range.



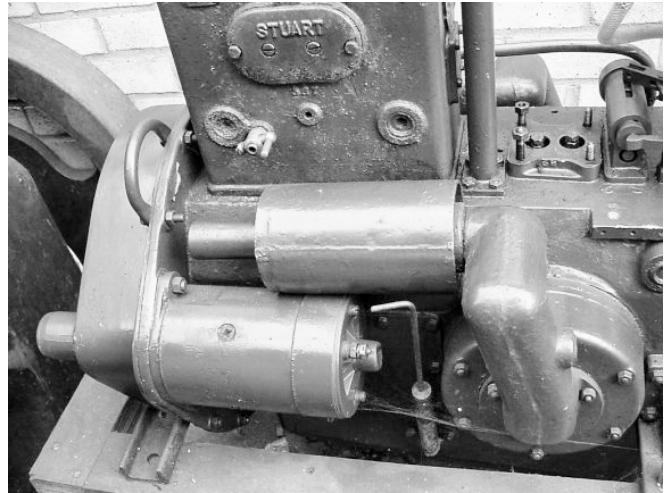
Marine Auxiliary Plant with a 4-kW., 24-volt dynamo and 1½-in. general service pump

There are two ways of getting more combustible mixture into a two stroke's cylinder – increase the intake manifold pressure by supercharging or reduce the exhaust backpressure. The H2M is 779cc twin cylinder two stroke Diesel weighing in at about 550lbs dry. Unusually for a marine engine of its day, it has an aluminium crankcase. Compression is low by modern standards at 16.5:1 and the unit produces 9 BHP at 1,500 RPM. This is enough to easily power a beamy 26 foot fishing boat. It is an interesting unit, being pressure scavenged by two horizontally opposed pistons, driven off the engine crankshaft – see the line drawing for a clearer idea of the arrangement.. The series was very short-lived, with less than 500 built. There are a few in preservation in



the UK, and maybe a couple overseas.

Right hand view of the engine. The reciprocating water pump is immediately recognisable to Stuart fans, with the water-cooled manifold above and to the right of the engine. The brass-topped tube in the centre is the oil filler, while the two other round brass nuts are for the top engine cover. The actual cylinder block is only half the length of the crankcase, the rest of it being taken up by the



scavenge pistons and silencers, the fuel injection pump (tappets only in view here) and the mechanical governor. The fuel filter is at the top inside of the hand-start support bracket. The fuel lift-pump is behind the water pump, while the oil filter and precariously placed oil light switch are at the right side of the sump.

Above, the starter motor and the other scavenge pump housing. Dipstick in the darker depths of the foreground, plus the other lifting loop on the bellhousing.

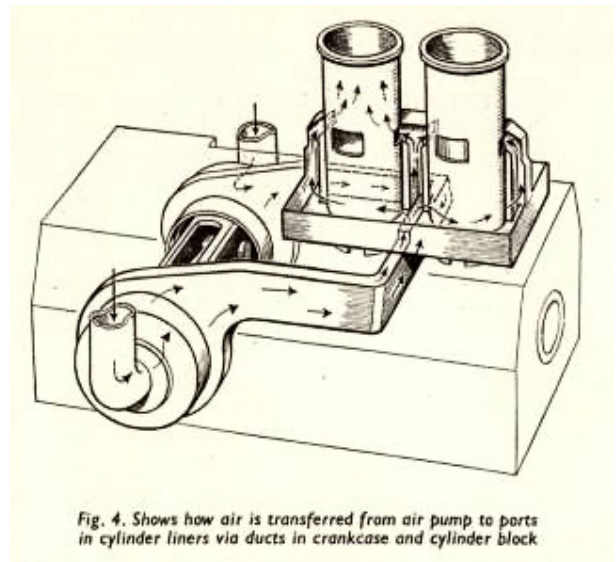
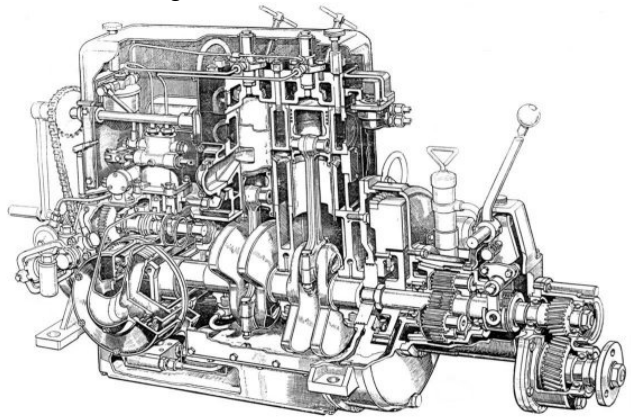


Fig. 4. Shows how air is transferred from air pump to ports in cylinder liners via ducts in crankcase and cylinder block.

## Calendar of Events

### Key. Event – E. Club night - CN

- 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.** At Cranmore Station. Bring something military if you can!  
Phone Keith 01749 831229
- July 26<sup>th</sup> **CN. Crank up** at the Court Hotel
- Aug 14/15<sup>th</sup>. Beach Party in Trowbridge Park. Wanted engines, driven machinery etc. Contact Eric on 01225 754374
- Aug 23<sup>rd</sup> **CN. NOT BH Monday!** Guest Speaker: Henry Body  
**A Talk On Speed Records**
- Sat 4<sup>th</sup> (only) Carnival Country Fair in Trowbridge Park  
Contact Eric on 01225 754374
- 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,** South Parade Club, Frome.  
Phone Diane Davis 01373 464982
- 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*)

By Brian Baker

**THE CLUB IS IN CRISIS.** I have just received the resignation of yet another committee member; Paul Chant has resigned due to personal problems. This leaves just two committee members plus the Chairman, Vice- Chairman, Treasurer, and Editor. The fact we have no secretary puts the continuity of the club in jeopardy, the annual returns to Company House is now due, and if this is not sent in by the required date the officers of the club (the committee) can be heavily fined and the club struck off the company register. It is in the hands of **YOU THE MEMBERS** if you wish this club to continue, the alternative is for the club to be wound up. Surely out of a total membership approaching three hundred there must some of you willing to take on some of the tasks to ensure the clubs survival. Please answer this urgent appeal and join the committee to help run the club. The meeting on March 29<sup>th</sup> at the Court Hotel had a large audience entertained by guest speaker Peter Goodchild giving an illustrated talk entitled "My life as a Spy" Peter served in the RAF as a national serviceman, later to sign on as a regular. He undertook to learn Russian and was then trained to listen in and eavesdrop on Russian radio transmissions; these were then decoded to see what they were up to. This was the basis of his title "My life as a spy" His reminiscences of national service life brought back memories to a lot of the assembled audience as most of us had "been there, done that" I asked him how he came to have a cushy post to

Pucklechurch when I had to spend two years in the Malayan Jungle. This was a very good evening's entertainment by an excellent speaker who went through his entire programme without once referring to notes. The evening was rounded off with the usual raffle for club funds. Many thanks to members who brought along prizes.

### **Social news**

By Jackie Lambert

Club members Brian Munt and John Emery celebrate their birthdays in April. Junior member Henry Baker was 16 on 23<sup>rd</sup> March and Oliver Baker is 14 on the 26<sup>th</sup> May. Happy birthday to all!

### **Mells Dafodill Day, Easter Monday**

By Brian Baker

Mells always attracts a large entry of stationary engines and this year was no exception. Robin had to cap this year's entry as he has been getting hassle from the organisers for the space he has been taking up. This year he accepted an entry of 80 engines and ended up with a waiting list of 10 more members who wanted to come if he had any cancellations. On the day, 19 of those entered failed to turn up or notify him, thus robbing 10 members of the club of a pleasant day out with their friends.

Leaving all that aside the day was brilliant, dry weather for a change, despite a horrible weather forecast early in the week. The variety and standard of the engines on display was superb, and quite a few of them caught my eye. Gerald and Hazel Atherton added to the atmosphere of the event with their delightful little fairground organ. John Emery had his extensive spark plug collection on display, Joe Davis had his enormous range of petrol cans displayed for all too see. Ed and John Thorne from Bridgewater had their beautifully restored 1903 2hp National and their 1912 Hornsby Oil Engine, both running like the proverbial well oiled watches.

Eric Gay presented a cup for the best engine displayed; this was won by junior member Luke Coates with his Petter 1 ½ hp model V2 of 1929 vintage, well done Luke.

One of the largest engines on show was owned by Andy Vincent from Bruton who had a 4 ½ hp Widdop, a really magnificent trailer mounted engine.

A nice little engine I liked was a Norman twin driving a Bristol compressor, superbly restored, and a credit to its owner Tony Davis.

There is so much to see at Mells with all the attractions, stalls etc, the organiser's claim that 10,000 people visit during the day, what an achievement.

The engines were too numerous to mention them all, the standard of the restorations were high and a credit their owners. The organisers (Robin and co) would like to thank you all for bringing them along and look forward to seeing you all in the future.

## Steaming at Stanton

By  
Eric Gay

Saturday the 20th of March, cold and wet, do we don't we? Well the do bit won the day, we set off for Stanton Drew, down in deepest darkest Somersetshire to the village famous for its standing stones. So, now, listen to me all you sinners that dance on a Sunday, if you see a fellow all dressed in black, and he is willing to play his fiddle for you, he just could be the Devil himself and you could get turned into stone the same as the bride, groom and wedding guests at Stanton Drew.

We set off in the rain and cold, but as we got nearer to our destination the weather improved and the rain gave over but it remained cold.

We were going to Stanton Drew to visit the Steam collection of Kelston and Alan Sparks, and what a great time we had with around thirty members coming along and it was good to see a few members I had not seen for some time.

Now Shed One, our first port of call, two ploughing engines and a Showman's Engine awaiting a new set of boiler tubes. This had a light inside the boiler so one could see what had to be done to retube a boiler. In the same shed, a heavy haulage engine & two road rollers, one being in steam.

All the engines could be fired up and run inside their huge purpose built shed, as in the roof is an extraction system for the smoke from the engines. Stood at the bottom corner of this building was a 6" scale Showmans engine & to the rear of the heavy haulage engine was a small scale steam lorry.

Inside one part of the workshop was a new build living waggon, still being worked on. Tony Davis I am told was just longing to get to work on it but he forgot his tool kit, but don't forget Tony you would be welcome any Wednesday. (Wednesdays are engine work and play days down at Stanton Drew.

Just inside the first building was something for we stationary engine men, one large open crank air start engine that was running just like new.

Shed Two was full of vintage tractors about which I know little - but there were some rare old girls among them.

I did not want to leave Shed Three as this was the workshop and oh boy would I like the chance to spend some time working there! Being restored at this time is a Fowler Ploughing engine, totally stripped down for boiler work, new tubes, new front tube plate, new fire box new wrapper plate to boiler crown, all new fire box, stays, front tube plate as well as minor things like the cylinder block still had to be taken off the boiler. New bearings and motion work, the crank and flywheel lay on the workshop floor waiting its turn to be refurbished along with a hundred and one other jobs to get this great engine back into steam.

Now behind this engine was a large portable, well on the way to completion. This had been fitted with a new boiler, fire box and smoke box as well as a great deal of other work.

Going outside the sheds there were two portables in steam and one was working hard for a living driving a large rack saw. This was a new acquisition and this was the first time it had been used in anger.

Tea, coffee, biscuits and cake were on offer in the large Portacabin and freely available against whatever donation you felt fitting to stuff in the pot! You can imagine my surprise when around lunch time I was called into the cabin and given the money that had been collected for the refreshments and told that this was to sent to The Children's Hospice South West. As this is the charity we try to help with the Midsummer Vintage Gathering at Semington. I cannot thank the Sparks Family enough for their very kind donation and for making us all so very welcome.

This was a wonderful place for a club visit and I know you would all like me to thank Brian Verrall for all his hard work in arranging this visit for us. Thank you very much Brian.

## 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

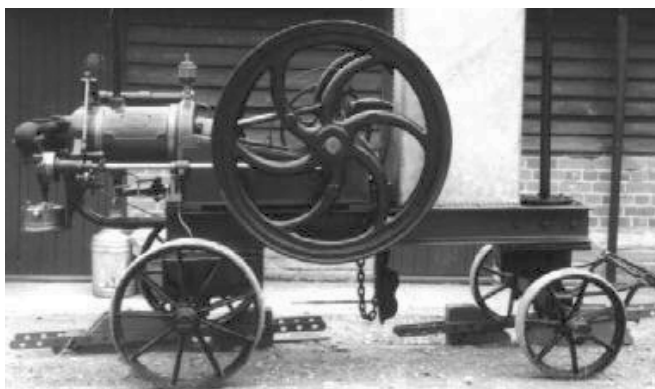
So, very generously, he offered to buy me my first car. This was in late 1950 — almost all new cars were then being exported and any good secondhand car would have cost much more than a new one! Even an old banger cost more than I could afford — we scanned the evening paper ads for any small car and 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. 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



A hot-bulb Blackstone (not the one described)

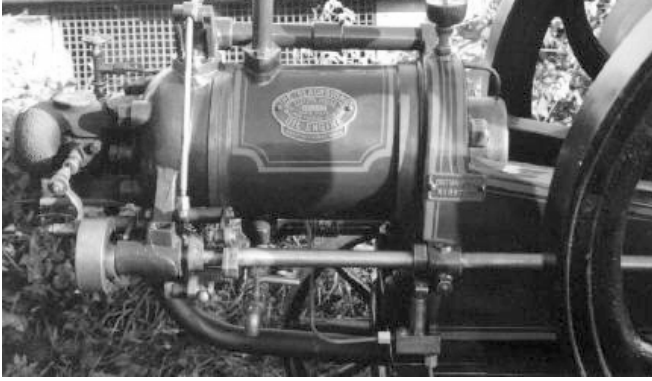
from the cafe. A lovely welcome, then Pete dragged me off. "Come and see what's here!"

"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  $\frac{1}{2}$ HP 110 volt motor and a  $\frac{1}{2}$  HP 220 volt motor and bolted them onto a base girder, so that the  $\frac{1}{2}$ HP 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?