

Sugarcane Locos – Where are they now?

The Tongaat Bagnalls

The Tongaat Sugar Company had a supply relationship with W G Bagnall of Stafford England which endured over 40 years and involved 14 locos for its 2' gauge tramline system. In fact only one of Tongaat's steam locos bought new was not a Bagnall and that was the first loco the company purchased which was a 0-4-0 Fowler named 'Hope' – works number 8123 of 1898. (Three additional steam locos were acquired second hand when Tongaat acquired the Umhloti Valley Central Sugar Company - an Orenstein and Koppel 0-4-0 no 3460 of 1909, an Andrew Barclay 0-4-2 no 1459 of 1916 named 'Umhloti' and allegedly an 1899 Avonside purchased from Rand Mines in 1920. There is scant information about this last loco.)

The first three of Tongaat's 14 Bagnalls, all 4-4-0 tank locos apart from the first which was a 2-4-0, were works numbers 1800 of 1906, 1873 of 1907 and 1929 of 1910 named 'Tongaats', 'Success' (photograph 1 in appendix 1) and 'Repeat' respectively. These had cylinder sizes 9" x 14". Some sources allege that the first loco namely 'Tongaats' was sold to Rustenburg Platinum Mines as their no 1 but Alan Baker believes the loco was scrapped in 1932. (Refer appendix 4 for an article on the Tongaat Bagnalls by Alan Baker). It is perhaps significant that another loco of the same name arrived in 1933. 'Repeat' was scrapped probably prior to the Second World War. 'Success' was sold to R Scott in 1948 but whether this was the entire loco or just the boiler which was not removed from the boiler register until July 1953 is not known..

The next 11 locos all had larger cylinder sizes – 10" x 15" and were numbered and named as follows:

2287 of 1926 – 'Sinembe'

2342 of 1928 – 'Mona'

2374 of 1929 – 'Isibutu'

2471 of 1932 – 'Wewe'

2479 of 1933 – 'Tongaats'

2522 of 1935 – 'Simpola'

2599 of 1939 – 'WJ Mirrlees'

2627 of 1940 – 'A Boulle'

2647 of 1941 – 'Edward Saunders'

2819 of 1946 – 'Charles Whytock'

2820 of 1946 – 'Egolomi' (renamed 'Robert Armstrong')

Bearing in mind the 11 locos were built over a period of 20 years it is not surprising that there were many quite significant differences between them e.g. tanks, bunkers, boiler sizes, boiler pressure, even wheelbases and types of design and construction. (Refer appendices 2 and 3 respectively for drawings and a schedule of differences between the locos – both compiled by Leith Paxton).

Inevitably given the passage of time and the dimming of memories there is also some controversy surrounding the locos. For example, a distinguishing feature of many Bagnall narrow gauge locos including the Tongaat ones was that they were built with a so called marine (circular) firebox and “bull head” boilers. Some have alleged that the former made maintaining the fire and clearing the firebox of ash a more difficult task than normal. Others refute this and maintain that the task was ‘dead easy’!

The proponents of “bull head” boilers would maintain that that they had significant advantages, namely:

- Cheap to build because of the relatively low number of stays
- Easy to repair
- Foolproof in use (unskilled personnel could handle them without damaging them)
- Not susceptible to bad water/scaling/sand etc (Graeme Walton-Binns has reported that he took barrow loads of muck, mainly sand from the shells of his locos inferring that maintenance was minimal at least in their later years. He also reported finding scores of bits of old electric household wire stuffed in the ‘lube’ system of two of the locos. Despite the neglect and abuse to which they were subjected, they still worked – a tribute to the designers and builders).

However, even the company in the form of the then Managing Director of W G Bagnall, W A Smyth, following a visit to South Africa in 1954 intimated that:

“All our locomotives here have the ‘bull head’ boiler which gives a fair amount of trouble with cracked throatplates and boiler rings (details available). When the new inquiry is issued we should offer a conventional steel firebox and not the ‘bull head’ type.”

Nevertheless, the fact that Tongaat kept going back for more is indicative of operational robustness and that overall the advantages of the locos outweighed the disadvantages.

In trying to account for the fate or current location of the Tongaat Bagnalls, as late as 1963 with the exceptions of no 2471 ‘Wewe’ and no 2522 ‘Simpola’ (on loan to Illovo), according to Frank Jux in an article in ‘The Industrial Locomotive’ all 11 of this class were present at Maidstone, albeit out of use or

being used as stationary boilers. There is speculation that 'Wewe' was to be the subject of an experiment for conversion to diesel power. There is evidence of parts being ordered for this purpose but no proof of the work being undertaken. From boiler records it has been established that the original boiler from 'Wewe' was sold to a Rhodesian buyer in 1951 but the rest of the loco remains unaccounted for. Its most likely fate was the scrapping torch in the early sixties.

'WJ Mirrlees' was in a derelict condition in 1964 and was probably scrapped.

A loco named 'Tonga' but carrying works no 2342 i.e. 'Mona' was donated to the Durban City Council who plinthed it in Bulwer Park in September 1967 (photograph 9). In 1992 this loco was moved to Midmar Dam but following the demise of the Midmar Historical Village was removed to Inchanga (photo 10) where the frame and running gear reside with the boiler being stored at Mason's Mill in Pietermaritzburg.

In October 1966 a loco named 'Edward Saunders' but bearing the works number 2287 i.e. 'Sinembe' was donated to a children's playground at Maidstone (photo 4) later being acquired by a UK purchaser and moved to the Welsh Highland Railway in 1994 (photo 5).

'Charles Whytock' was placed on display at the company offices at Maidstone but moved to Prospecton around 1976 at the inception of the industrial estate there (photo 8). It was returned to Maidstone in 1981 but was acquired by the same purchaser of 'Edward Saunders' (i.e. 'Sinembe') and was moved to the UK at the same time as that loco.

'Edward Saunders' itself i.e. works no 2647 was in use as a stationary boiler at the mill until withdrawn in 1968. It was scrapped in 1978.

5 of the Tonga Bagnall locos were sold to Sezela: 'Sinembe' ('Isibutu') (photo 3), 'Tonga', 'Simpola', 'A Boulle' (photo 2) and 'Robert Armstrong' ('Egolomi') (photos 11 and 12). Because of the habit of the sugar companies to swap parts around on the locos, although carrying the name plate 'Sinembe' this loco also bore works number 2374 so to the purist was actually 'Isibutu'!

'Isibutu' and 'Tonga' were scrapped at Sezela around 1976.

Four of the Bagnalls were eventually returned to the UK and one ('Simpola') went to the USA and currently as far as is known resides on the Bucher Estate, Hempstead, Texas, condition unknown.

The four locos returned to the UK are as follows: works numbers 2287 ('Sinembe'), 2627 ('A Boulle' after a sojourn as a stationary boiler on a farm/sawmill in Himeville), 2819 ('Charles Whytock') and works no 2820 'Egolomi' renamed 'Robert Armstrong' and now even more confusingly not only carrying 'Isibutu's' name plate but confirmed to have boiler no 27438 from 'WJ Mirrlees'!

The first three of the four belong to Mr Graeme Walton-Binns and are currently under restoration at Cargo Fleet in Yorkshire. The work is being undertaken by the owner by himself. Given the state the locos were in when acquired one can only marvel at the patience and dedication required to restore them to running order. The task has been truly massive. A few examples will illustrate the point.

On 'Charles Whytock' the front cross frame bracing is a huge pressing. The builders forgot to drill it for the bogie cross play and pivot oiling pipes. These had never been oiled since new hence there was no side play as the bogie was seized solid. The result was the loco ran as a sort of long wheelbase 0-8-0 all its life and had huge flange wear on the rear wheels. One can only speculate the wear on the track as a result!

It took five months of work to free the seized bogie side play mechanism and the wheels had to be re-profiled down to the last turning. One of the wheels had a flaw requiring its replacement and sadly it too had to be machined down to the smaller diameter to match the other three.

'Sinembe's' wheelbase (4') is longer than all the others (3'6") but the engine is much shorter with two long side bunkers only, a smaller boiler and smaller dome. This loco had been crashed resulting in the front frames being badly bent. These have been straightened and the rear frame extensions removed.

All three locos have been fitted with new exact profile cast chimneys. New correct profile dome covers, tanks and bunkers have been made.

Fortuitously, not only have three locos from different batches been preserved by Mr Walton-Binns but they also have the "correct" (not original, but originally fitted to the locos concerned) boilers as follows:

- 2287 'Sinembe' – 'original' - boiler no 27514 150psi built 1941
- 2627 'A Boule' – 'intermediate' - boiler no 27718 160psi built 1948
- 2819 'Charles Whytock' 'final design' – boiler no 27622 160psi built 1946

'Sinembe's' and 'A Boule's' boilers were swapped by Mr Walton- Binns to achieve this result.

'A Boule' has the 'final design' or 'improved' boiler which is the same as the one on 'Charles Whytock' except for the existence of two large manholes, to facilitate inspections, on the former. One of the manholes is located in the bottom of the firebox and the other in the bottom of the boiler drum.

This rebuild project has taken 12 years and is far from finished yet but with the boilers having been hydraulically tested, the valve gear etc on 'Charles Whytock' re-assembled, the wheels re-profiled, new brass nameplates cast, exact replica works plates with correct details and new chimneys made, the back of the job has been broken and what an incredible achievement for a 73 year old working by himself!

2820 ('Egolomi' but carrying 'Isibutu's' plates) upon its return to the UK prior to 1972 first went to the Knebworth Park Railway (photo 6) but later spent many years at Toddington on the North Gloucestershire Railway. After a visit to the West Highland Railway (Porthmadog) in 2007 during which a troublesome regulator valve was encountered, the loco was taken directly to Statfold Barn Railway in Warwickshire for repairs. Subsequently the loco was acquired by Statfold Barn and therefore 'Isibutu', neé 'Egolomi' and sometime 'Robert Armstrong' now resides in operational condition in the loco's home county of the builders, Staffordshire (photo 7).

It is remarkable that including 'Mona' (and by the way who is going to take up the challenge of restoring that loco? Would it not be a fine sight to see 'Mona' running on the Ixopo/Ncalu or Sandstone lines?) 6 out of the 11 (or 14 if the earlier ones are included) Tongaat Bagnalls have survived and will be preserved for posterity. With respect to those which were not so fortunate there is still uncertainty surrounding them, particularly the dates when they were moved or scrapped. Please will anyone who can clarify the situation contact me, David Cairns at shares@iafrica.com or telephone number 082 653 5642. For the sake of copying/recording for posterity, any photos particularly cine shots of any of these locos would be welcome.

Anyone interested in building a model of this class of loco in 16mm scale can follow a construction series by Keith Bucklitch which commenced in May 2009 in the UK bi-monthly publication "16 mm Today" (photo 13).

The assistance of John Middleton, Gary Barnes, Graeme Walton-Binns, Leith Paxton and Frank Jux in compiling this article is gratefully acknowledged.

W. G. BAGNALL, LTD.

FOUR WHEELS COUPLED WITH FOUR WHEEL LEADING BOGIE.

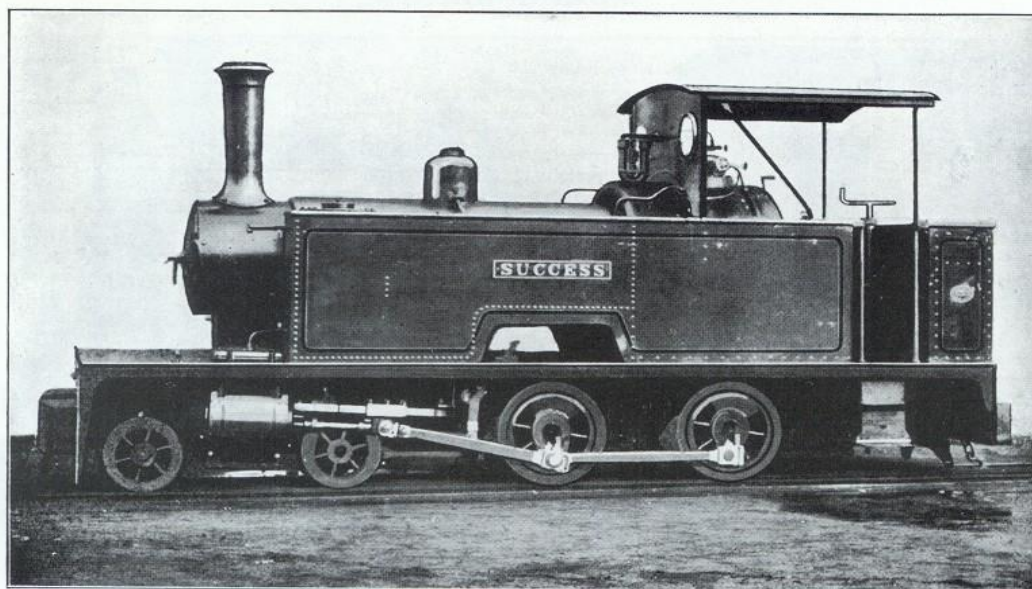


Fig. 332.

TYPE—"SUCCESS."

Code Word—Deedifca.

Side Tank Locomotive with 4 wheels coupled and 4 wheel leading bogie. A very well balanced engine and specially designed to suit the requirements of Tea and Coffee Planters, Sugar and Rubber Estates, and all Mines and Quarries having narrow gauge railway and sharp curves. All wearing parts have ample wearing surfaces and the details have been carefully thought out. Fitted with steel fire box and steel tubes. Suitable for gauges of 2' 6" to 3' 6".

SIZES AND APPROXIMATE SHIPPING PARTICULARS.

Size of cylinders in inches.	Approx. H.P.	Weight in working order tons	Code word.	Packed in one case.		Packed in parts.	
				Gross weight cwt.	Measurements.	Heaviest package cwt.	Total cubic feet
7 × 12	40	9	Deedifim	165	16'-0" × 6'-0" × 7'-6"	67	800
8 × 12	60	11	Deefest	202	17'-9" × 6'-1" × 8'-5"	80	930
9 × 14	80	13½	Deegel	270	20'-0" × 6'-6" × 8'-6"	84	1170
10 × 15	90	17	Deegelbau			89	1300

Can be fitted for burning wood fuel, with extra large fire box and wood rack, and can also be made suitable for using oil as fuel. Spark arrester and any type of cab can be fitted to suit special requirements. Other additions and variations to design can be made on receipt of full particulars. For particulars of loads engine will haul, see page 4.

WHEN ORDERING USE PRIVATE CODE AT END OF CATALOGUE.

CASTLE ENGINE WORKS, STAFFORD.

2. A BOULLE



3. ISIBUTU (The real McCoy!)



4. EDWARD SAUNDERS (SINEMBE) (in park at Maidstone)



5. SINEMBE (at Welsh Highland Railway)



6. ISIBUTU (EGOLOMI) (at Knebworth Park)



7. ISIBUTU (EGOLOMI) (at Statfold Barn)



8. PROSPECTON (Charles Whytock) (at Prospecton in late Seventies?)



9. TONGAAT (Mona) (at Bulwer Park)



10. MONA (formerly Tongaat)



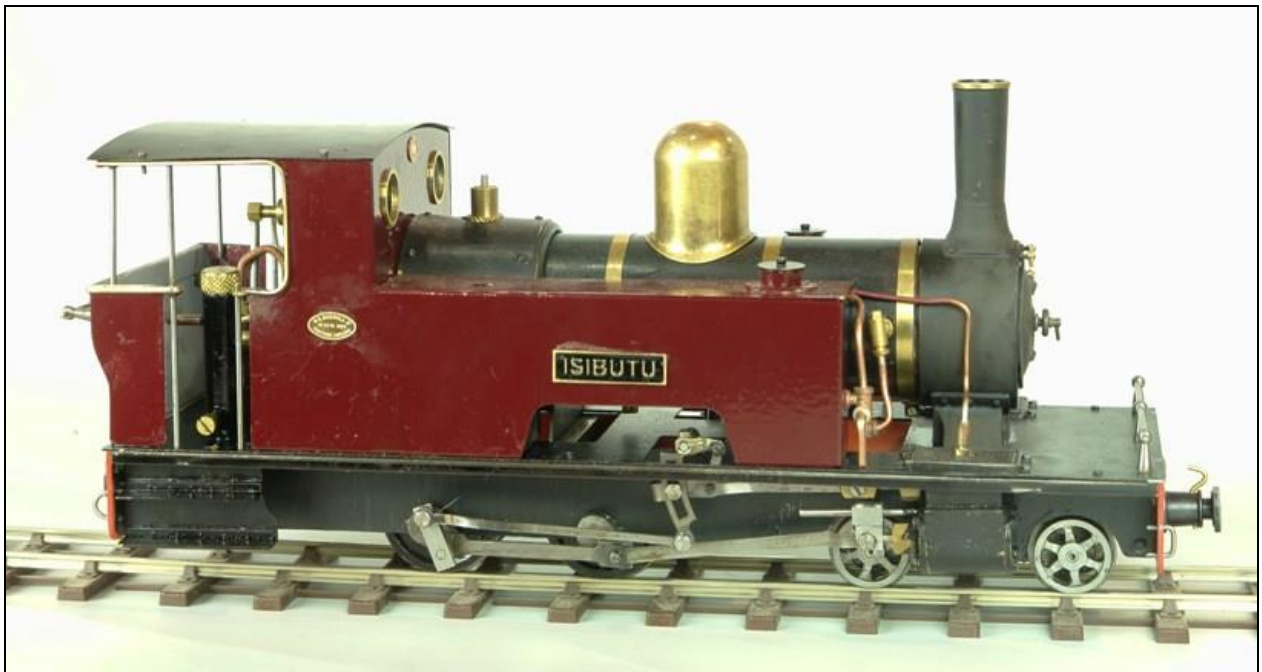
11. ROBERT ARMSTRONG (Egolomi)



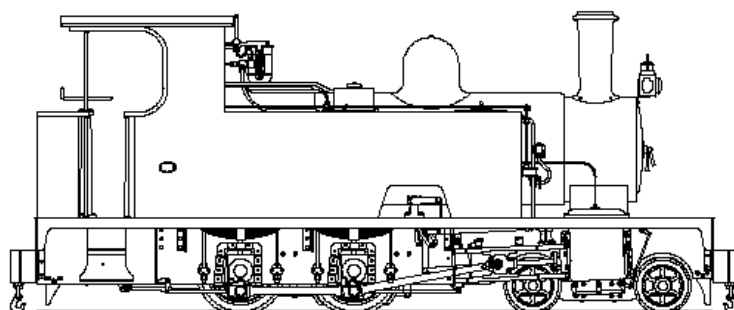
12. ROBERT ARMSTRONG (Egolomi)



13. MODEL OF ISIBUTU (Egolomi) 16MM Gas Fired

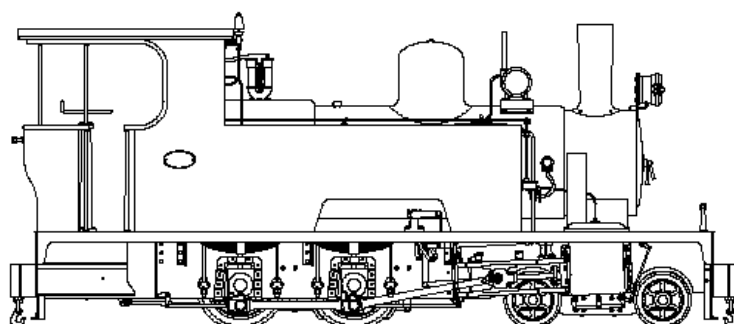


APPENDIX 2 – LOCO DRAWINGS



W.G.Bagnall 2342/28 for Tongaat Sugar Co 'Mona'
W.G.Bagnall 2374/29 for Tongaat Sugar Co 'Isibutu'

Drawn by L. Paxton © 2005



W.G.Bagnall 2819/46 for Tongaat Sugar Co. 'CHARLES WYTOCK'
W.G.Bagnall 2820/46 for Tongaat Sugar Co. 'EGOLOMI'

Drawn by L. Paxton 2005

Appendix 3

	Horns	Posi of Check from tubeplate	Cab Roof	Bunker parallal	Tank cutout	Water lifters	Whistles	Steps	Chimney	Sand boxes	Frt Buffer beam H/R	Life gaurds	Outside Steam pipes	Electric lighting	Dome	Turret
2287 SINEMBE	?	6"	short	no bunker	long+with water in front space	yes	one	short	flare	yes	no	yes	inside	no	small	On S/V's
MONA 2342/28	parallel	6"	short	parallel	small+no water in front	yes	one	short	flare	yes	no	yes	inside	no	small	On S/V's
ISIBUTU 2374/29	taper	3"	short	parallel	small+no water in front	yes	one	short	flare	yes	no	yes	inside	no	small	On S/V's
WEWE 2471/32	taper	3"	long	rollover	long+with water in front space	no	two	short	flare	yes	no	yes	inside	no	small	On S/V's
TONGAAT 2479/32	taper	3"	long	rollover	long+with water in front space	no	two	long	parallel	yes	no	yes	inside	no	small	On S/V's
SIMPOLA 2522/34	taper	3"	long	rollover	long+with water in front space	no	two	long	parallel	no	yes	angle	inside	no	small	On S/V's
W.J.MIRRELES 2599/38	taper	3"	long	rollover	long+with water in front space	no	two	long	parallel	no	yes	angle	inside	no	small	On S/V's
A BOULLE 2627/40	taper	3"	long	rollover	long+with water in front space	no	two	long	parallel	no	yes	angle	Outside	yes	small	On S/V's
EDWARD SAUNDERS 2647/40	taper	3"	long	rollover	long+with water in front space	no	two	long	parallel	no	yes	angle	Outside	yes	small	?
CHARLES WYTOCK 2819/44	taper	3"	long	large	long+with water in front space	no	two	long	parallel	no	yes	angle	Outside	yes	large	In Cab
EGOLOMI 2820/44	taper	3"	long	large	long+with water in front space	no	two	long	parallel	no	yes	angle	Outside	yes	large	

Bagnalls for Tongaat

by Allan C. Baker

Elsewhere in this issue, Frank Jux has mentioned that Bagnall supplied much of the motive power at Tongaat, and the following notes may be of interest. The Tongaat Estate ordered their first Bagnall in February 1906 and the Castle Engine Works produced an engine based very much on their established practice. Works no. 1800 was a 2-4-0 side tank with inside frames $\frac{1}{2}$ " thick, outside cylinders 9" x 14" and fitted with Bagnall-Price valve gear. A steel boiler, having a circular steel marine type firebox and brass tubes was utilised and this was fed by two No. 5 m/m Gresham patent backhead injectors from comparatively large tanks holding 300 gallons of water. A rear bunker, spartan cab, circular smokebox and single mounted sandbox completed the design. Carrying the name TONGAAT and costing £690, this locomotive was delivered later the same year. It had a standard Bagnall cast iron chimney on despatch, but this seems to have given way to an ungainly spark arrester which Tongaat appear to have manufactured themselves. All later engines left Stafford with either the cast variety or a simple stovepipe only to be fitted with spark arresters on arrival.

The second engine was supplied in the following year (works no. 1873) named SUCCESS; she differed from the first by being of a 4-4-0 wheel arrangement but, apart from the substitution of a leading bogie for the pony truck and consequential lengthening of the main frames, the design was substantially the same. The firebox carried Ramsbottom safety valves, braking was confined to a hand arrangement and a sight feed displacement indicator, mounted in the cab, provided an oil feed for valves and pistons. An identical machine, works no. 1929 named REPEAT, followed in 1910.

These three locomotives seem to have sufficed for the traffic over the next few years and not until 1925 was a further order placed; this was given works number 2287 and named SINEMBE. In this locomotive the design was altered somewhat while retaining the 4-4-0 wheel arrangement. To assist stability outside frames were used (the bogie retaining inside frames) together with an increase in cylinder size to 10" x 15". Still retaining the circular firebox, a barrel mounted dome to house the regulator replaced the previous firebox mounted arrangement. However, Ramsbottom safety valves were retained on this and all subsequent orders, sandboxes being removed to the tank tops. Forward mounted injectors, on the fronts of the side tanks, were used instead of the former back-head type, the feed clacks being mounted immediately above them. Cab design was improved to give the crew more protection but the rear bunker gave way to two side mounted ones in the cab itself; this arrangement was destined to be used on only this one locomotive, later orders reverting to the rear type. Brass boiler tubes gave way to steel and the price increased considerably, to £1485.

As events turned out, successive orders over the following years were based very much on SINEMBE but with slight variations; as already noted the side bunker arrangement was not proceeded with and in the next engine, works no. 2342 of 1928 named MONA, the fixed wheelbase was reduced slightly to 3'6" and the water capacity increased.

About this time Bagnalls submitted to Tongaat, presumably at their request, a design for a much larger engine with a 4-4-2 wheel arrangement. This was clearly based on the 4-4-0 design but with larger dimensions all round and a total weight in working order of some 20 tons; it would have made a handsome machine. However, nothing was done with it and 4-4-0's continued to be the order of the day. MONA was followed by ISIBUTU (2374/29), WEWE (2471/32), TONGAAT (2479/33), SIMPOLA (2522/35) and W.J. MIRPLEES (2599/39).

From 2471 the water tank capacity was reduced a little but general strengthening of the design increased the weight by over a ton. All these and later engines had axle boxes fitted with wedge adjustment, heavier springing and stop cocks fitted to the boiler feed clacks. In addition, again from 2471 onwards, two whistles were provided, one high and one with a low note. Nos. 2287, 2342 and 2374 were equipped with Gresham & Cravens No. 4 water lifters together with a length of hose for line side replenishment of their water tanks. For some strange reason there was no sand gear fitted to any Tongaat engine after 2479, and that fitted to those locomotives already delivered seems to have been dispensed with.

The remaining engines were A. BOULLE (2627/40), EDWARD SAUNDERS (2647/41), CHARLES WYTOOK (2819/46) and EGLOMI (2820/46). These had an increased boiler pressure, outside steam pipes and electric lighting; the latter consisted of a turbo generator and standby battery; it would seem that the earlier locos. were similarly fitted on site. The higher boiler pressure had the effect of increasing the tractive effort.

Tongaats were obviously pleased with their Bagnall engines to keep coming back so often. In 1954 W.A. Smyth, Managing Director of W.G. Bagnall Ltd. made a business visit to customers old and new in South Africa; a visit to Tongaat was included and a copy of his report is included as an appendix to this article. Note the comments about the 'Bull-Head' boiler (i.e. circular type firebox) and mention of a new locomotive. This never came to fruition, nor did they go to another manufacturer; instead, they gradually phased out the rail network.

It now remains to record how the locomotives performed and what eventually happened to them. Some modifications carried out on site have already been mentioned and it would also seem that most of the fleet eventually received the outside steam pipes used from new on the more modern examples. The following spare boilers were supplied over the years although it is not always possible to say for which locomotive they were intended; all were built to carry the higher boiler pressure of 160psi:

General Order 8319 of 12/1944 - One boiler
General Order 4567 of 2/1947 - One boiler for works no. 2374
General Order 6093 of 9/1947 - Three boilers for 2287, 2342 and 2471.
General Order 5820 of 5/1953 - Two boilers (see Mr. Smyth's report)
In November 1958 Tozer, Kemsley & Millburn Ltd. of South Africa ordered for works no. 2471 WEWE a collection of parts, said to be for conversion of this locomotive to a diesel. Given general order numbers 7505-9, a self changing gears 4 speed epicyclic gearbox, a self changing gears final drive unit and a set of propeller drive shafts and couplings were supplied. Strangely, nothing further is known about this and there is no mention in Bagnall records of any design work being done or any diesel engine being ordered. However,

there seems to be no doubt that these parts were actually supplied. At about this time Tozer, Kemsley and Millburn appear to have been involved in ordering spare parts for a number of Bagnall locomotives operating in South Africa although A. & H. McNay were the official Bagnall agents for Tongaat and a number of other sugar plantations.

Mr. Smyth's report indicated that in 1954 11 locomotives were still in existence and presumably 1800, 1873 and 1929 had been disposed of, the latter two for scrap but opinions differ on the disposal of 1800. The Railway Society of Southern Africa in their book 'Industrial Locomotives of South Africa' (Union Publications, 1963) state that she was sold to the Rustenburg Platinum Mines Ltd. as their No. 1; however, I have a note that she was scrapped in 1932. As the second TONGAAT arrived in 1933 it would be logical that she should disappear about this time. This book also states that by 1963 2479 had also been disposed of and that 2627 and 2819 were in use as stationary boilers, 2820 having been renamed ROBERT ARMSTRONG. An engine bearing the name TONGAAT but carrying number 2342 is now preserved in Bulwer Park, Durban and a further example, 2647 EDWARD SAUNDERS, reposes in the childrens playground at Tongaat.

Frank Jux paid a visit to Tongaat in 1963 and, apart from SIMPOLA which he mentions in his article, all the later 11 examples were present with the exception of WENE; perhaps this loco. had departed for conversion to a diesel and never returned. On closure of the Tongaat system at least five of the class migrated to the Reynolds Brothers Umtwalumi Valley and Sezela Estates, as noted by F. Jux, and these were ISIBUTU, SIMPOLA, SINEMBE, ROBERT ARMSTRONG and A. BOULLE; however, it is obvious that much exchanging of cabs, tanks etc must have taken place as some of the works numbers did not tally and the engine carrying the name SINEMBE had the number 2374 and the short wheelbase! Apart from the one mentioned below, the subsequent fate of these locos. and those remaining at Tongaat is not known to me, but no doubt they are all scrapped by now.

One locomotive was fortunate enough to return to this country, due to the efforts of our Chairman. This engine, generally described (for reasons I know not) as ISIBUTU is WGB 2820; this works number seems to be stamped all over her - should she not be ROBERT ARMSTRONG, or better still EGLOMI? She is at present at Knebworth Pleasure Gardens in Hertfordshire and available for inspection whenever the gardens are open and the railway operating.

So ends the story of an interesting collection of South African industrials; rarely can one customer have been so faithful to one builder over such a long period of time and it is fitting that three examples should be preserved, including one in the country of its origin. In conclusion I would like to thank a number of people for assistance with this short article. In particular, Allen Civil, my co-author in 'Bagnalls of Stafford', W.A. (Bill) Smyth, Andy Forrest of G.E.C. Traction Ltd. and, of course, G.E.C. Traction Ltd. themselves, as successors to W.G. Bagnall Ltd., for permission over many years to study the Bagnall records. Last, but by no means least, to Frank Jux, whose contribution is obvious.

Copy of a report prepared following a visit by Mr. W.A. Smyth, Managing Director of W.G. Bagnall Ltd. to South Africa. 1954

Customer: Tongaat Sugar Co. Ltd., Maidstone, Natal.
 Agents: A. & H. McNay (Pty) Ltd.
 Date of Visit: 25/2/54 with Mr. Olufsen (of McNay's)
 People seen: I.R. Gunn, Chief Engineer; J.H. Baker, Transport Manager; Arthur Keen, Locomotive Foreman; J.P.N. Bentley, Factory Manager.
 Gauge of Track: 2' 0 1/2" (Bagnalls always quoted gauge as built as 2')
 Track Mileage: About 90 miles, including one branch of 17 miles.
 Weight of Rail: 35lbs at present, new track to be 60lbs.
 Loco. Stock: 11 locomotives in commission, all Bagnall built.

General Report

This company, registered in 1899, is the largest of its kind in Africa and the second largest in the Commonwealth. Last year 750,000 tons of cane were processed to make 92,000 tons of sugar. 40% of this was transported over two unconnected railway systems. It is proposed to connect these two systems by a new line several miles in length. Throughout its history Tongaat have used only Bagnall locos. (sic) and have had no less than 14 of which 11 remain in service. No new locomotives have been bought since 1945 but it is hoped to order one or possibly two in the near future and these will definitely be ordered from us. They will be heavier than the existing types and full details of the track and loads to be hauled will be supplied with the enquiry. The maintenance here, unlike other places visited, is first class and in keeping with the high standard of cleanliness and efficiency noticed about the estate.

All our locomotives here have the "bull head" boiler which gives a fair amount of trouble with cracked throatplates and boiler rings (details available). When the new enquiry is issued we should offer a conventional steel firebox and not the "bull head" type. Two spare boilers now on order are urgently required (order no. 5820 of 1953-ACB) and everything possible should be done to see that they are delivered when due. The throat plate and back end on order are due in March and are urgently required.

Action: McNays will keep in touch and send on enquiry when issued. WGB to check delivery position of spares now on order and urge forward.

APPENDIX 2: DATES, COSTS and NAMES OF LOCOMOTIVES SUPPLIED.

No.	Date Ordered	Date Delivered	Cost	Name
1800	12. 2. 1906	5. 1906	£690	TONGAAT
1873	18. 9. 1907	1908		SUCCESS
1929	1. 10. 1910	1911		REPEAT
*2287	12. 12. 1925	18. 3. 1926	£1485	SINEMBE
*2342	28. 3. 1928	11. 6. 1928	£1585	MONA
*2374	6. 2. 1929	12. 4. 1929	£1585	ISIBUTU
*2471	21. 3. 1932	23. 5. 1932	£1585	WENE
*2479	21. 9. 1932	31. 1. 1933	£1550	TONGAAT
2522	25. 10. 1934	20. 2. 1935	£1550	SIMPOLA
2599	24. 8. 1938	1939		W.J. MIRRLES
2627	18. 3. 1940	1940		A. BOULLE
2647	4. 12. 1940	1941		EDWARD SAUNDERS
2819	3. 5. 1944	1946		CHARLES WYTOCK
2820	3. 5. 1944	1946		EGLOMI

APPENDIX 3 - DIMENSIONS

<u>Works No. :</u>	<u>1800</u>	<u>1873</u> <u>1929</u>	<u>2287</u>	<u>2342/74</u>	<u>2471/9</u> <u>2522/99</u>	<u>2627/47</u> <u>2819/20</u>
Cylinders (ins.)	9x14	9x14	10x15	10x15	10x15	10x15
Dia. of driving wh.	2'3 $\frac{1}{2}$ "	2'3 $\frac{1}{2}$ "	2'6"	2'6"	2'6"	2'6"
Dia. of leading wh.	1'6 $\frac{1}{8}$ "	1'7"	1'7"	1'7"	1'7"	1'7"
Fixed wheel base	4'0"	4'0"	4'0"	3'6"	3'6"	3'6"
Total wheel base	8'6"	12'0"	13'0"	13'0"	13'0"	13'0"
Heating surface:(sq.ft)						
tubes	216	216	338	338	338	338
firebox	21.3	21.3	25.3	25.3	25.3	25.3
total	337.3	337.3	363.3	363.3	363.3	363.3
Grate Area (sq.ft)	5.5	5.5	6.5	6.5	6.5	6.5
Tank Capacity (galls.)	300	300	300	488	450	450
Bunker Cap. (cu.ft)	18	28	28	26	26	26
Weight Ety. (tons/cwt)-	-	-	13.2	13.2	14.9	14.9
Weight in Wkg.order "	13.15	13.10	16.9	16.9	18.1	18.3
Wkg.Pressure (psi)	150	150	150	150	150	160
Tractive Effort at						
85% Wkg. Pressure	5275	5275	6375	6375	6375	6800
Boiler Feed	All two No.5 m/m injectors					
Tubes	-	-	95 x 1 $\frac{1}{2}$ " outside diameter,			
			7'11 $\frac{1}{8}$ " long.			
Rail, to centre of	4'11"	4'11"	5'0"	5'0"	5'0"	5'0"
boiler						

Extract from 'Proceedings of the Institution of Mining Engineers', Vol.27, 1903/04. In some correspondence about an article on compressed air locomotives in American mines, Mr. H. Lawrence of Newcastle wrote:

"Locomotives worked by compressed air were introduced into the mines of the Earl of Durham by essrs. W. Lishman and W. Young about 1885, and one was exhibited by the Grange Iron Co. in the hauling ground of the Newcastle Exhibition in 1887, and formed part of the exhibits of several systems of underground haulage".

Does anyone know whether illustrations of this locomotive exist? The Grange Iron Co. also built steam locomotives - what is known of their history and output? (P. Jux)

(The Grange Iron Works was located at Belmont, near Durham City. According to I.R.S. Handbook L, little is known about the firm, which was concerned largely with foundry work and structural engineering. A small number of locos. were built - some estimates say not more than six. The works closed about 1920. Handbook 'L' mentions two Grange locos.:
 CARBON 0-4-OST OC Grange /1866 First known with North Bitchburn Coal Co.Ltd., Gordon House Colliery, Cockfield; to same firm's Randolph Colliery, Evenwood /1931, and to Randolph Coal Co.Ltd., (both firms subsidiaries of Pease & Partners Ltd.) who took over colliery in 1/33. Nothing further known.
 No.5 0-4-OST OC Grange /1873. With South Durham I & S. Co.Ltd., West Hartlepool Works until about 1918, when scrapped.
 Are any other products of this firm known, or anything further of its history? - RW)