

THE DARMSTADT TRIALS

Tony Howgrave-Graham



1929. The Dummy Cigarette Tax Labels.

There were 18 trial of these using all 7 inks and 3 papers before the Dummy stamps.

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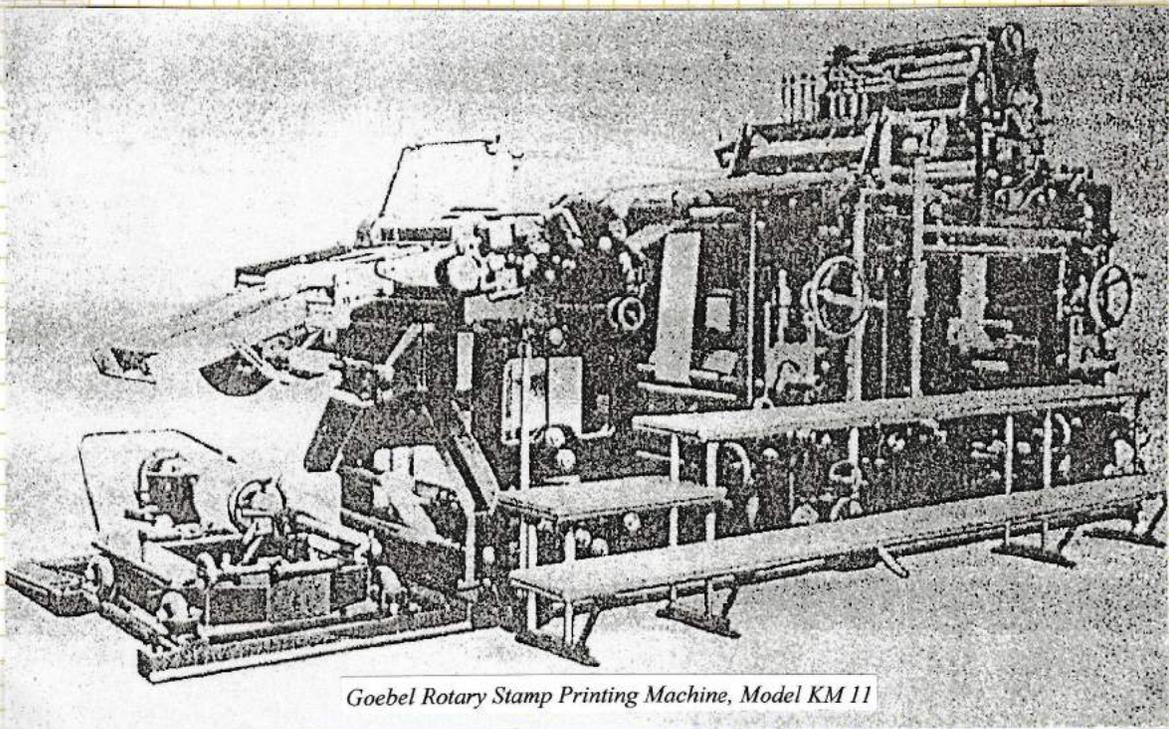
postmaster@southafricanphilatelyclub.com



ROTOGRAVURE

South Africa took over the Waterlow typographic plates for the ½d, 1d & 6d in 1927 and then wished to print all stamps at the Government Printing Works in Pretoria. During 1928 Maj J J Kruger, the Government Printer, toured Europe and America to look at the possible methods of stamp production and came to the conclusion that a new process of "screenless" rotary photo-gravure would be most suitable.

The process is one of etching a photographic image onto a cylinder rather than engraving a flat plate. *Nederlandsche Rotogravure Maatschappij NV*, of Leiden, were pioneers of the process and had developed a, then secret, method of engraving cylinders. *Goebel AG*, of Darmstadt, had manufactured a machine (*vide infra*) for rotogravure printing. Only 3 existed, 2 of them having been sold to Italy who issued their 1st stamp so printed on 4 Jan 1929 (the 50th anniversary of the death of Victor Emmanuel commemorative). Because of the complexity of the process Italy only issued monocolour stamps. South Africa wanted bicolour so needed the new cylinders of *NRMNV* of Leiden.



Goebel Rotary Stamp Printing Machine, Model KM 11

A decision was made to settle for this mode of printing subject to satisfactory trials being carried out. To this end South Africa appointed a Mr Standige on a 2 year contract to oversee the project aided by a technician from the Government Printing Works, Mr Pegler. They also appointed *Hunter Penrose*, a newly formed British Printing Company, to act as agents to set up the trial and accept the results, if satisfactory. They further sent a young man, Johnnie Booyen, to Europe to study the rotogravure process.

The trials involved preparing the cylinders in Leiden and then testing the printing on the *Goebel* machine in Darmstadt. The conditions for the trials were complicated and detailed and would still be unknown had not Prof. Victor Dix gained access to the files in the early 1950's. His report to the RPS, London, forms the basis of current knowledge. The 71 different trials were numbered by him according to their file numbers, which causes some confusion as they are not in any seemingly logical or chronological order.

THE 1929 DARMSTADT TRIALS

INTRODUCTION

In the late 1920's the South African Government was keen to take over the printing of their own stamps. They had already got the ½d, 1d & 6d plates from Waterlow for the printing of these values in Pretoria from 1927. In 1928 a Maj. Kruger toured Europe and America to look at possible methods for printing stamps, including the 1927-30 flat bed, recess printed, larger pictorials. He came up with rotary photogravure as a cheaper option. This is a process where designs are etched onto copper cylinders so that continuous sheets can be produced.

Nederlandsche Rotogravure Maatschapij NV (NRMNV) of Leiden had developed a, then secret, method of engraving cylinders.

Goebel AG of Darmstadt had manufactured a machine capable of printing from these cylinders. They had 3. Two had been sold to Italy who produced monocolour stamps from them.

It was decided to trial this process for suitability for adoption in South Africa

THIS DISPLAY:-

..... shows examples of every trial that took place at Darmstadt, except, for lack of space, some of the dummy cigarette labels. It follows the chronology of the trials and some of the problems with inks, papers and a damaged cylinder, along with some of the ensuing arguments. It includes two printings made on the non-rotary printer at Leiden and concludes with first issue of 1d stamps printed from the rotogravure machine in Pretoria in 1930.

THE CAST

Hunter Penrose, the London Printers who designed and oversaw the trials. **Mr Pegler** from the Gvt Printing Works in Pretoria, who oversaw the trials in Darmstadt with a view to having to replicate them in South Africa. **Mr Teller**, the NRMNV representative who conducted the trials at Darmstadt. **Johnnie Booysen**, a young man officially studying rotogravure in Europe (he spent most of his time in Leiden).

The Cylinders, originally 4 made in Leiden (for dummy cigarette labels, dummy stamps, the vignette for the 1d ship stamps & the frames for the same. These had to be replaced half way through the trials). **The Papers**, 1: Samuel Jones paper with a clover leaf watermark on the whole sheet, or just in the right 3 or 4 vertical columns (this all originated from Leiden), 2: Samuel Jones plain, unwatermarked and uncoated paper. 3: Coated paper which had been stored at Darmstadt for some time and developed creasing. 4: Samuel Jones gummed esparto paper without watermark and 5: Official SA paper with Sprigbok's head watermark. **The Inks**, the cause of much controversy, with black, red, green & yellow being provided by Shuck Maclean in England and black, red & brown being supplied from Germany.

REFERENCES

London Philatelist Oct 1950, Vol.59, No.695, pp.189-96 V.Dix S.A.Philatelist various issues 1938-54
The Springbok 1953 Vol.1, No.6, pp112-7, 1985 Vol.33, No.5, pp100-02 C.P.Ravilious The London Philatelist Oct 1995 No.104, pp112-17 Alec Page.

THE DARMSTADT TRIALS

THE INKS

The inks proved a source of controversy right throughout the trials. Much of this stemmed from the non-realisation by Shuck Maclean and Mr Pegler that the ink required for the screenless process is considerably thicker than for the screened. Mr Teller, the NRMNV representative at the trials, played with the inks even, at one stage, adding varnish. This infuriated Pegler as the results would then be non-replicable. Notwithstanding the contract for English inks to be used, the German red ink performed consistently better than the English.

1. English Inks:- made by Shuck Maclean – Black, red, green and orange



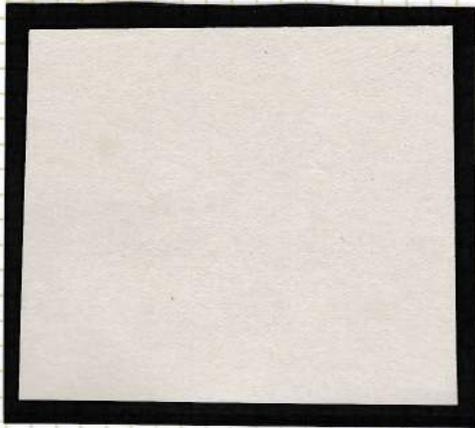
2. German Inks:- made in Berlin – Black, red and brown



(German black ink was only used in the stamp part of the trials)

THE PAPERS

1. Samuel Jones uncoated paper.
(ungummed and with no watermark)



2. Coated Paper (made by the official SA suppliers,
incorrectly labelled "Harrison". No gum. No Wmk.)



(stored at Darmstadt for some time pre-trial it became creased
so that pre-printing creases are a common feature of its use)

3. Samuel Jones Paper watermarked "clover leaf"



(this exists with the whole sheet watermarked or with just
the right 3 or 4 rows wmkd. This latter paper was held at
Leiden and had to be forwarded to Darmstadt when their
supply of the first type ran out.)

4. Official Gummed Paper Wmk Springbok's Head



(gum as officially used in SA at the time)

5. Samuel Jones Gummed Esparto Paper without Wmk.



(shiny gum not used in SA)



Coates Harrison paper.

LEIDEN - THE CYLINDERS

Four cylinders for use in the trial were prepared by Nederlandsche Rotogravure Maatschaapij NV of Leiden to designs forwarded by Hunter Penrose. These designs were varied in order to test the suitability of the process for different sizes of stamp and types of design.

1. Dummy Cigarette Duty Labels



2. Hunter Penrose Labels (dummy stamps of the SA pictorial range size)



3. Vignette for SA 1d Ship (from a photograph of the Typo head plate)

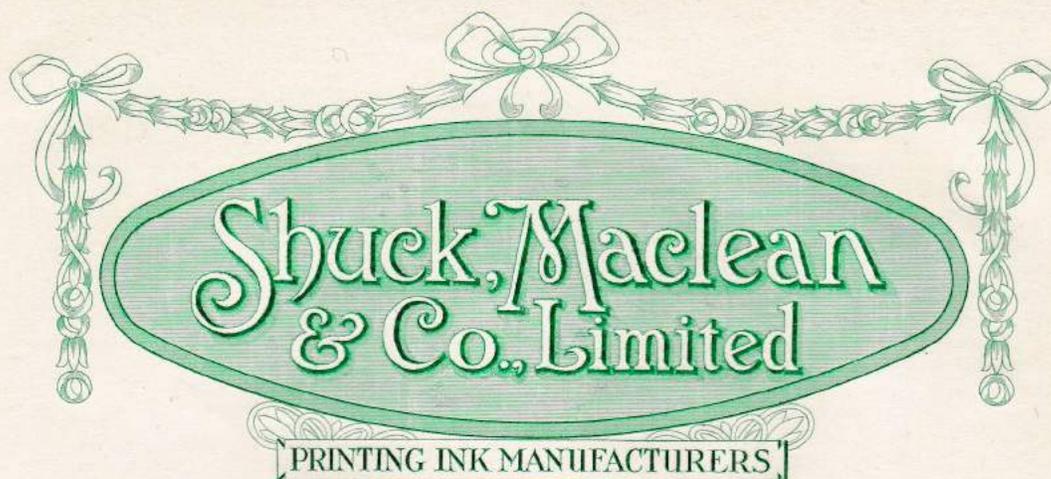


4. Frame for the SA 1d Ship (from a photograph of the Typo frame plate)



(this cylinder had the 1st stamp in the sheet with an Afrikaans language setting)

THE INKS



Telephone: City 66057
Telegrams: Shamac, Cent, London.
Code: Bentleys.

Professor V.W. Dix,
31, Broadwater Down,
TUNBRIDGE WELLS, Kent.

5, 6 & 7, Ireland Yard,
St. Andrews Hill,

[LONDON, E.C.4.
19th July, 1950.

Dear Sir,

We are in receipt of your favour of the 16th inst, together with two sheets showing South African stamps and also patterns of the equivalent shades of our Photo-gravure inks and note your remarks.

We regret to say that the information we can give is very limited since our premises and most of our records were destroyed during the War but we can say that the particular inks designated were supplied to the Government Printer Pretoria prior to 1932 and to the best of our recollection were used to print the stamps shown. The writer is particularly sure that quantities of the Grey shown on the 2d stamp were supplied at the above date and we know of no other use and can remember no other purpose for which the ink was used.

Trusting that this information will assist you,

We are,

Yours faithfully,
SHUCK, MACLEAN & CO. LTD.

James Maclean
MANAGING DIRECTOR.

JM/TM.
ENCLS.

Shuck, Maclean & Co., Ltd.

Continued.

.....192



1d STAMP.



RED No. A.2189

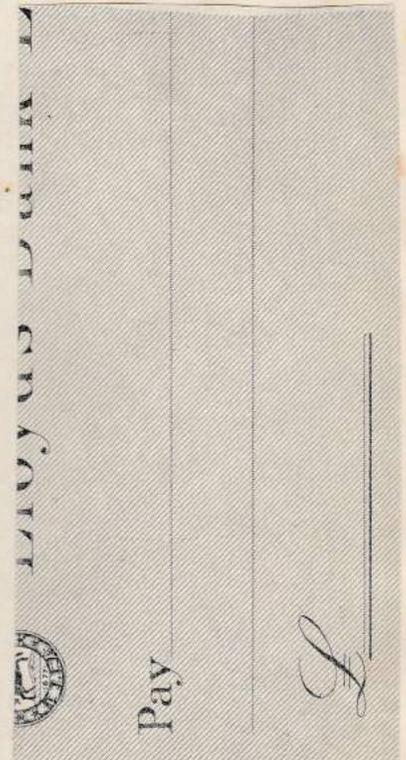
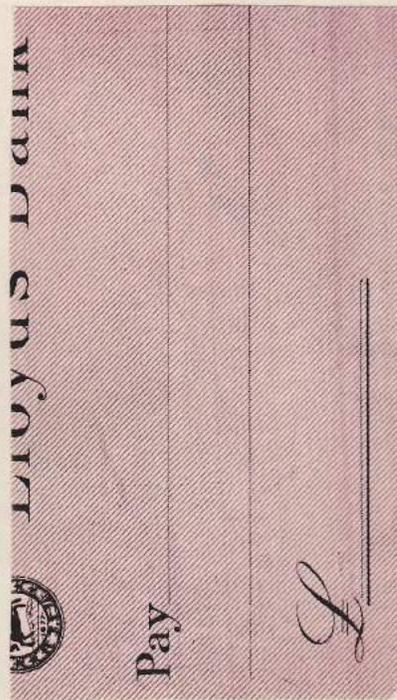


BLACK No. A.2192

Shuck, Maclean & Co., Ltd.

Continued.

.....192



2d STAMP

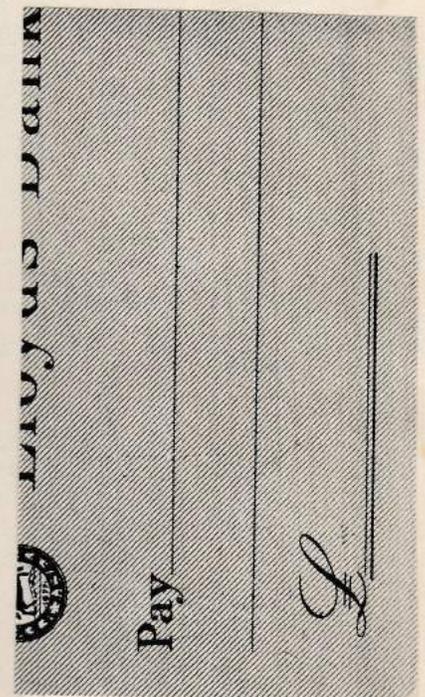
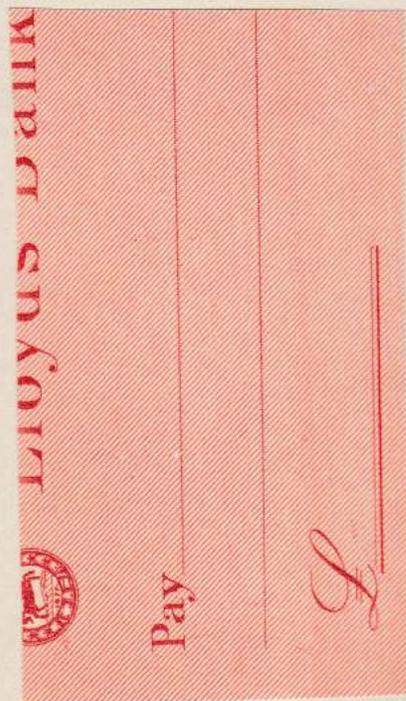
MARCON No. A 2275

GREY No. A 2377

Shuck, Maclean & Co.. Ltd.

Continued.

192



3d STAMP

RED No. A 2276

BLACK No. A 2192

Shuck, Maclean & Co., Ltd.

Continued.

.....192



6d STAMP.

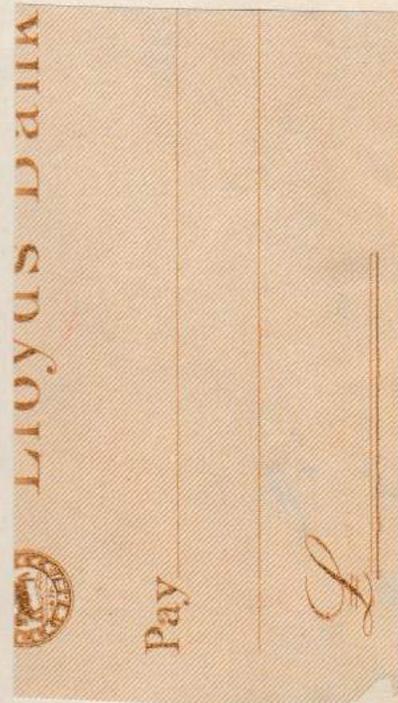
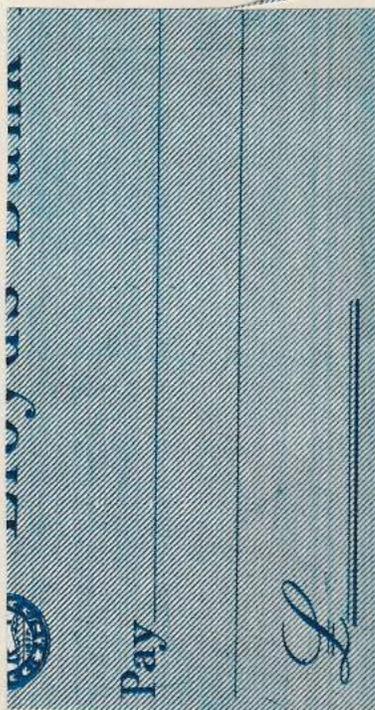
ORANGE No. A.2191

GREEN No. A.2190.

Shuck, Maclean & Co.. Ltd.

Continued.

.....192



I/- STAMP

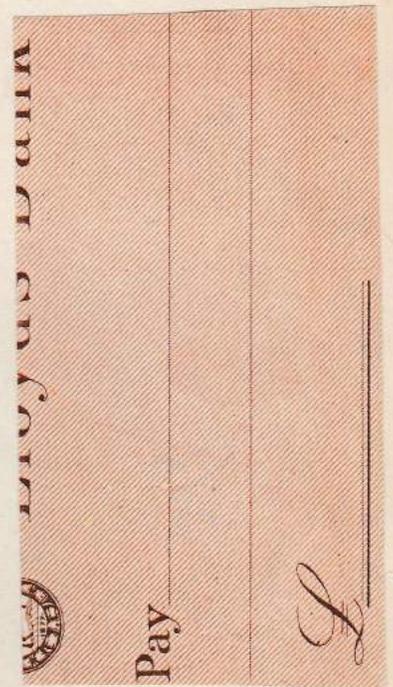
BLUE No. A 2277

BROWN No. A2278

Shuck, Maclean & Co.. Ltd.

Continued.

.....192



2/6 STAMP

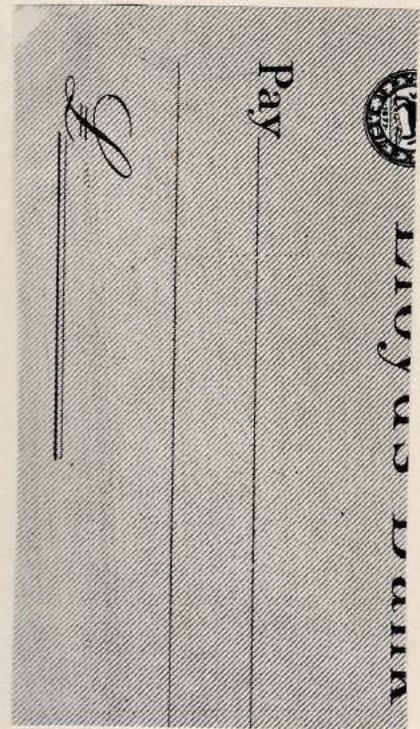
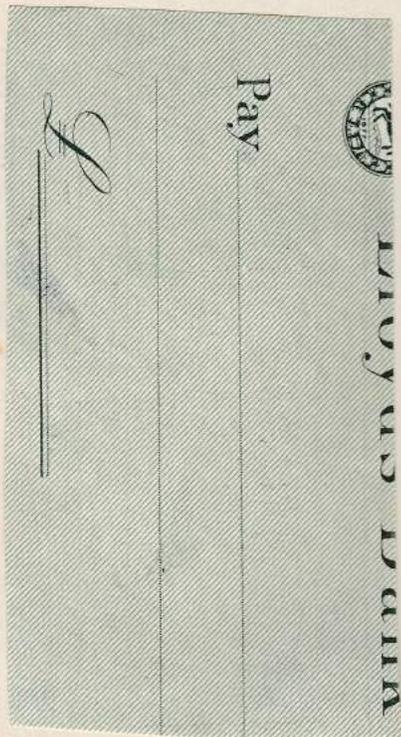
BLUE GREEN No. A 2279

BROWN No. A 2280

Shuck, Maclean & Co., Ltd.

Continued.

.....192



5/- STAMP

GREEN No. A2281

BLACK No. A 2192

Shuck, Maclean & Co., Ltd.

Continued.

.....192



10/- STAMP BLUE No. A 2277

BROWN No. A2282

THE DARMSTADT TRIALS

THE DUMMY CIGARETTE TAX LABELS

The printing of these started on, or soon after, 21 August 1929. There were 18 trials using all 7 inks and 3 different papers. They were followed by the printings of Dummy stamps. All were monocolour (single cylinder) printings and were completed in 10 days.

(Dix 1) English black ink



(Dix 4) English red ink



(Dix 10) English green ink



(Dix 13) English yellow ink



(Dix 16) German brown ink



THE DARMSTADT TRIALS

THE DUMMY CIGARETTE TAX LABELS (con)

Samuel Jones uncoated paper (con)

(Dix 13) English yellow ink



(Dix 16) German brown ink



2. on Samuel Jones paper watermarked "clover leaf" and gummed

(Dix 2) English black ink



(watermark inverted)

(Dix 6) English red ink



(watermark upright)

(watermark inverted)



THE DARMSTADT TRIALS

Samuel Jones paper watermarked "clover leaf" (con)

(Dix 7) German red ink



(Dix 11) English green ink



(Dix 14) English yellow ink



(Dix 17) German brown ink



3. Coated paper, no watermark & ungummed

(Dix 3) English black ink



THE DARMSTADT TRIALS

Coated paper, no watermark & ungummed (con)

(Dix 8) English red ink



(Dix 9) German red ink



(Dix 12) English green ink



(Dix 15) English yellow ink



(Dix 18) German brown ink

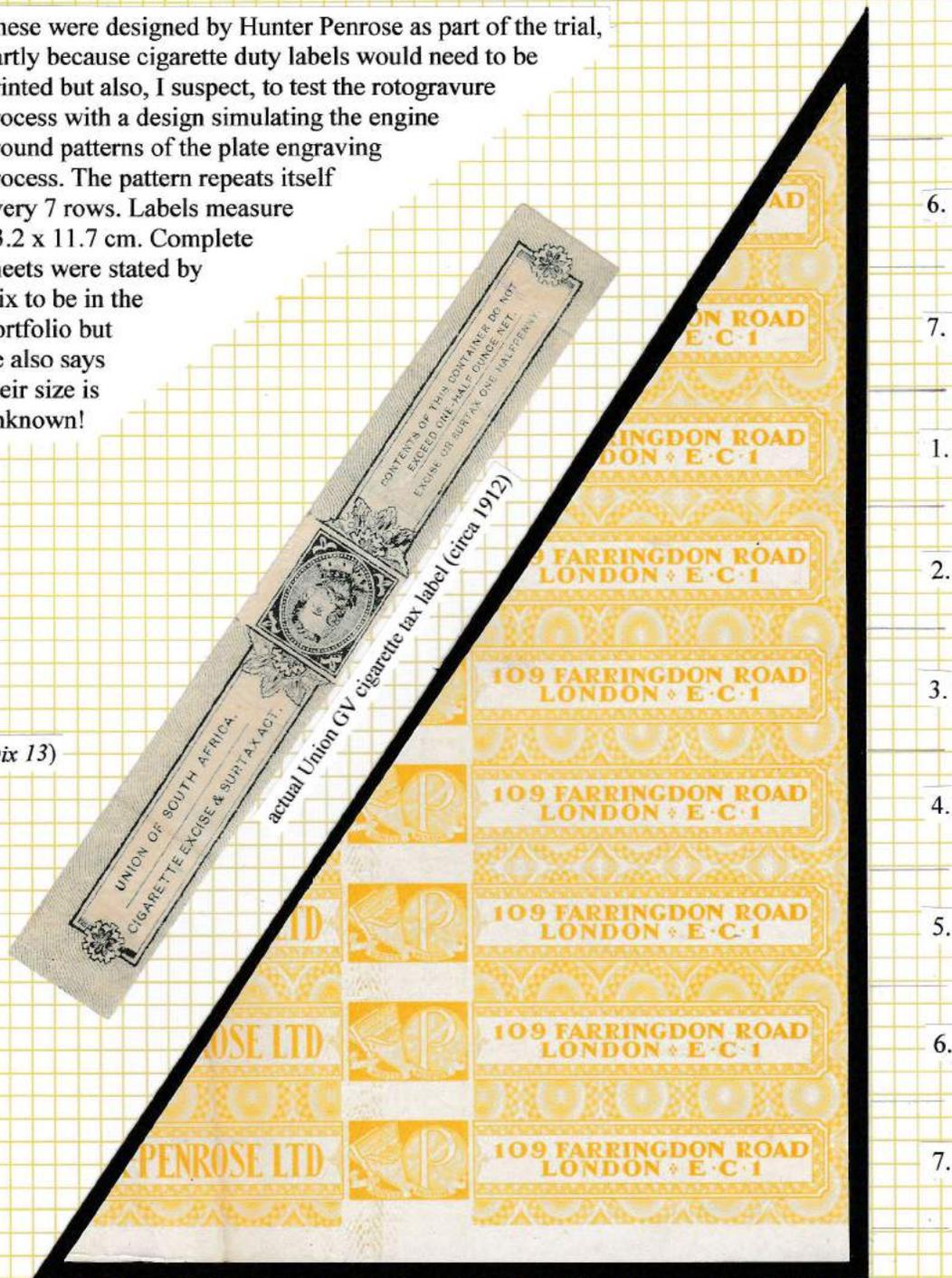


THE DARMSTADT TRIALS

THE DUMMY CIGARETTE DUTY LABELS

These were designed by Hunter Penrose as part of the trial, partly because cigarette duty labels would need to be printed but also, I suspect, to test the rotogravure process with a design simulating the engine ground patterns of the plate engraving process. The pattern repeats itself every 7 rows. Labels measure 13.2 x 11.7 cm. Complete sheets were stated by Dix to be in the portfolio but he also says their size is unknown!

(Dix 13)



THE DARMSTADT TRIALS

THE HUNTER PENROSE DUMMY STAMPS

Designed to be the same size as the pictorial stamps it was though the portrait was of Penrose. Considerable doubt has been thrown upon this and it is probably just a generic figure.

1. on Samuel Jones uncoated paper, unwatermarked and ungummed



English black ink



English red ink



German red ink



English green ink



English yellow ink



German brown ink

2. Coated paper, unwatermarked and ungummed



German red ink



English green ink



German brown ink

THE DARMSTADT TRIALS

3. Samuel Jones paper watermarked "clover leaf" (sideways)



English black ink



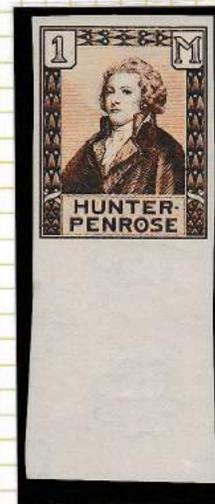
English red ink



German red ink



English green ink



German brown ink

4. Uncoated paper, no wmk, no gum, Opt "S.W.A."



(The date of the overprinting is unknown. The overprint is identical to the actual and it has been suggested that the overprinting took place in Pretoria. Its appearance in the Hunter Penrose files means that either it originated from Darmstadt, or was sent from South Africa to them, to complete their files.)

LEIDEN

July 1929 : The Leiden Proof

Inks unspecified on paper watermarked "clover leaf" in the right three vertical columns only



(Dix 44)

Gummed and perf 15x14

(This proof was run off on the press at Leiden prior to the trials starting at Darmstadt, it is thus, strictly speaking, photogravure rather than rotogravure.)

The Booyesen Essay

Johnnie Booyesen produced this essay, also on the press at Leiden, whilst the trials were progressing at Darmstadt.



Booyesen had been sent to Europe to study the rotogravure process. He hadn't been authorised to produce a stamp himself and although it's a fair effort and he, no doubt, learned a lot in the process, he was quite severely censured by the Authorities.

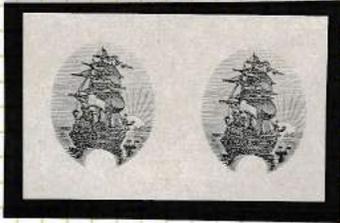
Oddly the collectors of the '40's and early '50's considered this to be a genuine essay whilst all the Darmstadt material was considered highly suspect.

THE DARMSTADT TRIALS

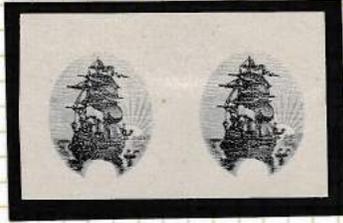
Early September:- 4 printings were made from the vignette cylinder and 7 from the frame.
The Goebel's machine was fitted with both cylinders to enable printing of the whole stamp
on September 13th.

Vignette Cylinder on uncoated, ungummed paper with no watermark

(Dix 48) Inks unspecified



(Dix 49) Inks unspecified

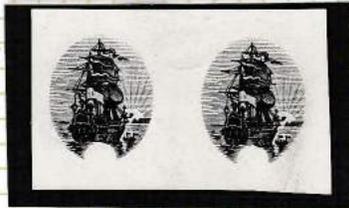


(Dix 58) Inks unspecified



perf 15x14

(Dix 35) German inks, Coated paper



Frame Cylinder on uncoated, ungummed paper with no watermark

(Dix 45) Inks unspecified



(Dix 46) Inks unspecified



(Dix 61) Inks unspecified



"After Fine Etching"

THE DARMSTADT TRIALS

Frame Cylinder on uncoated, ungummed paper with no watermark, perf 15x14

(Dix 59) Inks unspecified



"Before Fine Etching"

(Dix 60) Inks unspecified



"Before Fine Etching"

Frame Cylinder on gummed paper, wmk "clover leaf", perf 15x14

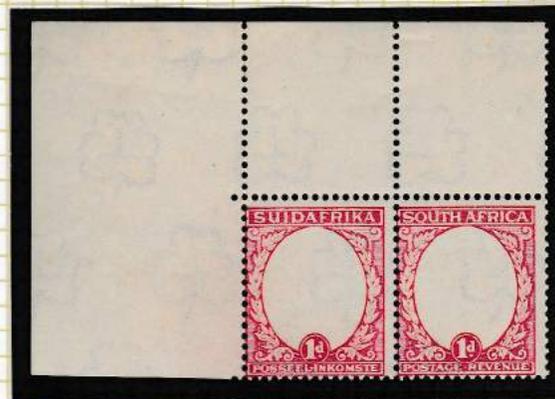
(Dix 62) Inks unspecified



"Last proof after Mr Teller had rubbed down the insides. Made big hollow spaces."

(Dix 63) Inks unspecified

(Both these proofs are frame cylinder 1 control items as they have "A1" language setting)



"Last proof. Background clear with full air on the cylinder."

(Dix 64) Inks unspecified, gummed paper wmk "clover leaf", perf 15x14

This proof has "A1" setting and was thus printed before 16 September



"Final Proof (approved Teller)"
Mr Teller was the agent acting for NRMNV in Darmstadt

On September 16th the frame cylinder was damaged during the process of fine etching. According to Dix both Vignette and Frame cylinders were replaced from Leiden.

THE DARMSTADT TRIALS

19-20 September

Mr Pegler is reported to have returned from Leiden with the new cylinders on 19 September. It seems likely that he also brought with him a supply of paper watermarked "clover leaf", but only in the right 3 or 4 vertical columns. It is known that this paper originated from Leiden and was provided at about this time when supplies of the paper with the whole sheet watermarked ran out.

It is likely that the two trials below are testing the new internal cylinder.

(Dix 47) English ink, gummed unsurfaced paper wmk "clover leaf" in the right 3 vertical columns only



perf 15x14

(Dix 37) German ink, gummed unsurfaced paper wmk "clover leaf" in the right 4 vertical columns only



perf 15x14

DARMSTADT TRIALS 19-20 Sep. 1929



(Dix 37) German Black Ink - (part serial Nos.)

Trials of the new cylinders on new paper which Mr Pegler brought back with the new cylinders from Leiden. The paper is watermarked trefoil in the right 4 vertical columns only.

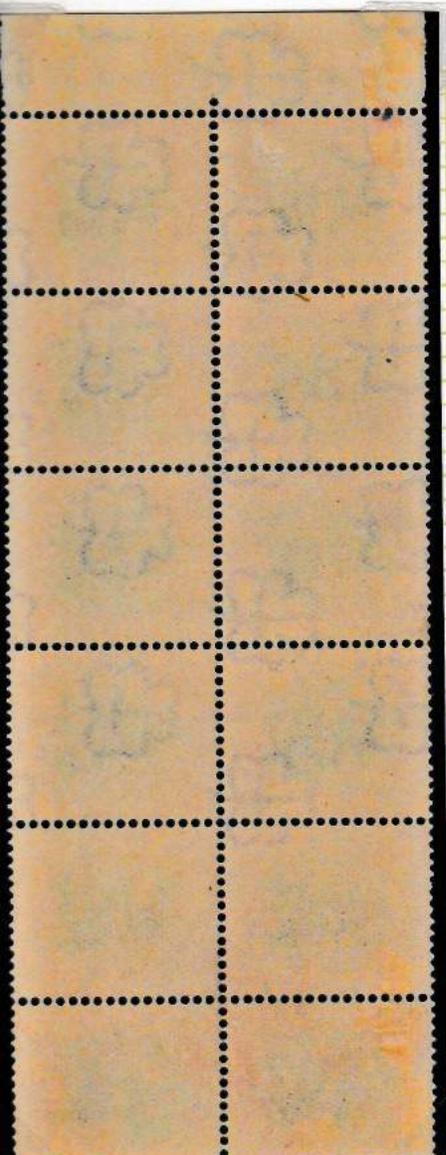
watermarked



watermarked

(Dix 38) German Inks - (part serial Nos.)

Reverse showing the wrnk in the 4 right columns



THE DARMSTADT TRIALS

19-20 September

Three further trials of the complete design took place

(Dix 43) English inks, gummed unsurfaced paper wmk "clover leaf" in the right 4 vertical columns only



(Dix 38) German inks, gummed unsurfaced paper wmk "clover leaf" in the right 4 vertical columns only



(Dix 38) Proving piece showing E1 setting
hence ex frame cylinder 2



(Dix 69) German inks, uncoated paper,
no watermark



perf 15x14

"The first 20 sheets per Goebel"

THE DARMSTADT TRIALS

20 September

(Dix 69) German inks, uncoated paper, no wmk., perf 15x14

This run was intended to conclude the trial and led to considerable acrimonious argument. According to the Hunter Penrose contract it should have used English inks and the 20 sheets were meant to be taken as every 50th sheet from the 1000 sheet run.



This printing also shows the master-negative frame flaw particularly clearly

Pegler, who had unwittingly signed the certificate, wrote to Hunter Penrose – *“I may say that the proofs sent you by Goebel’s are absolutely useless. I presume I must use a standard colour in SA. During the proofing of the 1000 sheets Mr Teller began to wangle the German black in with blue and red, which makes it utterly impossible for me to match the colour. The other proofs that you received are not a fair test as they added 20% varnish.”*

“E1” language setting – frame Cyl.2 control

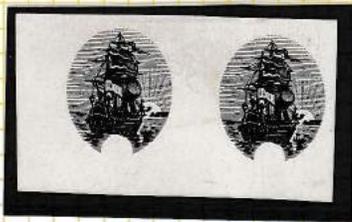


THE DARMSTADT TRIALS

Hunter Penrose replied to the letters from Goebel A-G and Mr Pegler on 23 September. It threatened a complaint to the High Commissioner if there were further evasions or difficulties. As a result further trials took place on 26 September in an attempt to satisfy the contract.

1. on coated, ungummed paper with no watermark

(Dix 39) English black ink



(Dix 36) German red ink



(Dix 40) German red ink



(Dix 41) English red ink



(Dix 42) English red ink



pre-printing paper crease
(not uncommon with the coated paper)

THE DARMSTADT TRIALS

26 September

2. Trials of the whole stamp on official paper watermarked "Springbok's Head"

(Dix 57) using English inks



(Dix 34) using English black ink and German red



As a result of these trials there was a consensus that the official paper was unsuitable for the inks and cylinders in use. The trials on coated paper were considered satisfactory but it had already been decided not to use coated paper in S.A. Samuel Jones were thus asked to provide a new gummed esparto paper for the rest of the trials and Shuck Maclean also provided new improved inks.

THE DARMSTADT TRIALS

Samuel Jones and Shuck Maclean clearly provided the new paper and inks remarkably quickly as 12 further trials of the complete stamp took place between 28th and 30th September.

Gummed Esparto paper with no watermark, Perf 15x14

(Dix 50) English red ink, black unspecified



(Dix 52) English inks



(Dix 67) English inks



(Dix 51) English black ink, red unspecified



Serial Numbers



THE DARMSTADT TRIALS

28-30 Sep. Gummed Esparto paper with no watermark, Perf 15x14 (con)

(Dix 66) English inks



"The last ink received, mixed with 30% of Shuck Maclean's previous consignment. The last ink was too thick & dried in the cylinders"

Paper Inclusion (Dix 66)



Affected the bottom row of 1 sheet. Progressive missing vignette from rt to lt. (here row 9)

(Dix 55) German inks



(Dix 54) German inks



(Dix 53) German inks



THE DARMSTADT TRIALS

28-30 Sep. Gummed Esparto paper with no watermark, Perf 15x14 (con)

(Dix 65) German inks



(Dix 68) German inks



(Dix 70) Inks unspecified



"Beginning of run"

(Dix 71) Inks unspecified



"End of run"

After assessment of these trials it was decided that the English red ink was still too thin and permission was given for German red ink to be used, if necessary. The contract's obligation to run 1000 sheets was also waived as the trial would have had to have been interrupted and the machine stopped in order to clean the cylinders.

8 October "The Final Proof" (Dix 56), English black ink, German red.

Gummed esparto paper
no wmk, perf 15x14



Endorsed
"Final Run"

This final proof was received by Hunter Penrose on October 11. It was accepted and the third of Goebel-AG's machines was purchased for £15,000 and shipped to South Africa.

THE ISSUED STAMPS

After the trials finished the Goebel AG machine and cylinders were taken to Pretoria. The latter proved too worn and new cylinders had to be prepared in Pretoria under the direction of Mr Pegler. The original master design was used and the photograph worked up into a "master negative" comprising a block of 4 frames with alternate language settings. (the "Quadruple Die"). This was etched onto the cylinder 60 times to give a 240 stamp sheet size. Three of each 4 master negatives had a distinguishing flaw.

April 1930 coil stamps



V. long leg to "R" row 4/10

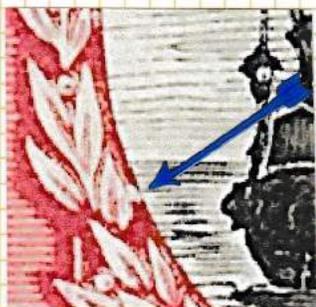
showing tooth marks ex vending machine



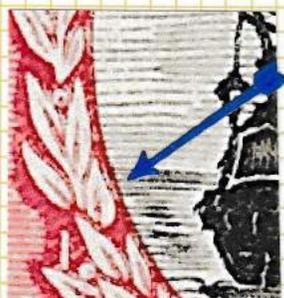
odd "A" stamps



odd "E" stamps



odd "E" stamps



usual inner frame

1. each odd numbered "E" stamp has the white flaw in the top rt corner (the only flaw remaining from the trial stamps).
2. each odd Nod. "E" stamp also has a white flaw at 80°c in the inner oval.
3. each odd Nod. "A" stamp has a missing line of shading under the right scroll.
4. each even Nod. "A" stamp has thinning of the bottom frame line under "L-IN".

May 1930 – sheet stamps



1.

2.



4.

even "A" stamps



odd "A" stamps



THE END

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04/05/2021

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