SOUTH PACIFIC PERFIN BULLETIN

NO. 66 JULY 2004

The South Pacific Perfin Bulletin is published by the Perfin Club of New Zealand and Australia four times each year. Club subscriptions (including payment for the Bulletin) are A \$10-00 p.a. for New Zealand and Australian residents and A \$15-00 p.a. for residents of other countries (including airmail postage). Back issues available from Secretary.

President: Dr Derek Pocock,, PO Box 670, Subiaco. Western Australia 6904 Australia

Secretary: John Mathews, 21 McConnel Cres, Kambah ACT 2902, Australia

email - JohnMa@ise.canberra.edu.au

Treasurer: Peter Wood, 9 Roslyn Street, Mt Martha Victoria 3934, Australia Librarian: David Coath, 4 Fleming Court, Research, Victoria 3095, Australia

Email - davidcoath@onthe.net.au

Editor: David Andersen, 260 Hawkesbury Rd, Winmalee NSW 2777, Australia

email- d.andersen@library.usyd.edu.au

Circuit Managers:

New Zealand Ray Bennett, PO Box 354, Timaru, New Zealand

Australia John Mathews, 21 McConnel Cres, Kambah ACT 2902, Australia

Assistant Treasurer (NZ payments): Richard Smolnicki, 19 Oakleigh Street, Maungaraki, Lower Hutt, New Zealand

EDITOR'S COMMENT

The draft for the next edition of Australian Official Perfins is coming together slowly. The primary reason is that the scope is larger than the first edition and while there are good articles and information for many of the pre 1913 issues these have not been updated recently nor are they consistent in the degree of detail provided. I have no doubt that a listing for Queensland does exist but I don't have a copy. Can you help? Is it worth putting out a new edition with information based primarily on earlier lists as there is little I can add myself? Can you help reviewing and adding to the lists of any State?

The next question is which catalogue numbers are best to use if any? My preference is not to use any catalogue numbers as all are problematical to some degree and the audience for the book uses a wide range of catalogues. Nor do I have any intention of including the catalogue numbers for more than one catalogue but intend to provide enough information to identify each stamp. No doubt heresy.

David Andersen

CLUB MEETING - SWAN RIVER 2004 STAMPSHOW

A meeting time and room has been arranged at this show to be held at the Fremantle Passenger Terminal, Perth, West Australia. The show is from 9 - 12 September 2004, and our meeting time is at 11.30 am on the Friday, 10 September. It is hoped that many of our members who will be attending the show will be able to come to the meeting and talk about our mutual hobby. It will not be a "business" meeting – bring along items of interest and meet other members.

WELCOME TO NEW MEMBERS

We extend a warm welcome to the following new members since the last edition:

#221 Ken Scudder, Newcomb Victoria

#222 Jason Rowe, Colac Victoria

AUCTION NEWS

Auction 1/2004 was a great success. Despite it having nearly 400 lots on offer, it attracted strong and early bidding, there being 26 bid sheets received before the end of May! Altogether, there were a record number of bidders. The results enclosed show that a high percentage of lots of most countries sold, many well above the reserve prices. Many items received tied top bids, emphasizing the advice that it pays to bid early!

With this Bulletin is a "bonus" auction catalogue. It is largely composed of covers and bulk lots from a "retired" collection, and has many attractive items. None of the items in this auction has been offered in a Club auction before.

VALE BRYAN TOOP (Neale Scott)

It is with great sadness that I notify fellow members of the passing of Bryan Toop.

Bryan collected his first stamp as a six (6) year old and commenced serious collecting as a twelve (12) year old. He continued collecting basically for the remainder of his life.

One of his few breaks from collecting was during his university years studying veterinary science in England. Following his graduation, he worked for a Veterinary practice in England and satisfied his collection addiction during downtime between client visits.

Bryan moved to Australia and settled in Victoria, becoming a passionate "VG" collector. That passion extended to assisting other collectors by publishing "Victorian Government Punctures" which not only identified stamps used by Victorian Government agencies but also positions on the stamp of the VG puncture and rarity ratings. He expended countless hours researching and collating information.

Unfortunately Bryan's publication was so respected by "VG" collectors that a small group of Brisbane opportunists (forgers) recognised an opportunity to "manufacture" copies of rating 5 stamps and also previously unrecorded stamps and positions.

I spent hundreds of hours working with Bryan to identify forgeries that forced cessation of the operation. Over a period of fifteen (15) years of corresponding and talking "VG"s with Bryan, he willingly assisted my every unusual request and not only was an authority on "VG"s but very humble.

Bryan was a great human being and the world would be a better place with more inhabitants like Bryan.

BNA PERFORATOR v.25 no.1 #124 (2004)

In addition to Auction #22 there are a number of short articles: Some perfin puzzles-missing hole in S7 and a distorted C27; Cover with MRMC pattern (Canadian) and CW/SLD (British); OHMS cover from Saint Dunstans College.

CLUB PERFIN ON MEMBERS' STAMPS

Members are reminded that they can get stamps perforated by the Club's perforator (PC/NZA) by requesting same of the Secretary. Stamps for perforating must have been issued after the first day of use of the perforator (February 1998) and must be mint. If members are unable to get the stamps they want from their local post office, your Secretary can get a wide range of recent issues from the Parliament House Post Office in

John Mathews)

n Killeen (Isle of OK" perforator of alia. I have gone such damage and

and was used for 5 uth Australia. The between the letters,

The figures blacked out in the NZ financial statement on page 7 are:

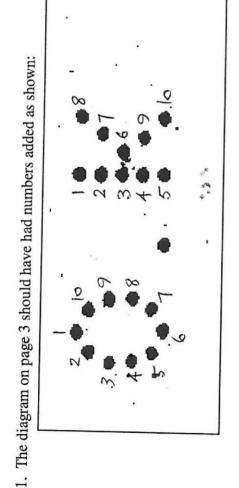
Cash on hand \$0.00

Bank to date

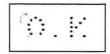
many specimens in is pin missing is ed

ing (as well as K9).

ner ng ○ F.



These are dated March 1916. I have one dated January 20, 1916 showing the same two pins missing. A copy dated April 1917 in my collection has a blind impression of K9, so it too may have been shortened by breakage rather than having fallen out altogether.



From November 1917 to at least November 1918, Ken has 5 specimens which show K10 missing and the pin present at O6. This may well have been due to replacement of the O6 pin which had fallen out (my April 1917 example with K9 "blind" did not show any impression at O6). Ken suggests that pin K10 may have been used to replace O6, but as I have one undated copy with O6, K9 and K10 all missing, this idea does not seem likely.

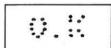
Some time after November 1918 (probably early 1919 – see later in this article) the perforator was repaired to its initial state. Ken has an example with full strike on SG59 (1½d deep red-brown KGV single wmk) which was issued on 2 June 1919, and I have a dated copy from 1923 with full strike.

Pattern OK.4 appears to be very close to that of OK.3, the main difference being the missing pin O1, and the slightly larger holes. It is quite possible that it is the same perforator which, in view of the history of pin damage described above, may have been re-drilled in 1927 and stouter pins inserted, only to have O1 fall out (or, less likely, to break) soon afterwards, never to be replaced. It is missing constantly in dated examples in my collection from 1929 to 1970.

Ken 1 1941.

Ken reports that pin K6 also became missing some time after March 1941. I have several examples of the "Zoological" definitive series in this state, but my earliest dated copy is from 1955. Then, from 1956

onwards, pin K3 also becomes missing. Thereafter, it appears that pins O1, K3 and K6 never got replaced before the perforator was taken out of service in 1970.



Then there is the enigma of the pattern illustrated as OK.2, identical to OK.3 except for the absence of a hole between the letters. Although its reported use is from soon after the perforator's arrival in South Australia, evidence from strips of stamps indicates that OK.3 was a single head device, and I suspect that reports of early usage of OK.2 may have been based on strikes where the letters are along the edge of the stamp such that the "missing dot" coincided with an edge perforation hole. These OK patterns are always with the base close to the edge of the stamp, the maximum distance from the edge indicating that the "stop" at the back of the perforator was only about 3.5-4 mm from the base of the pattern. Examples on British stamps show the same characteristic.

The only examples I have showing a "genuine missing dot" are from 1919 and 1922. If this is indeed just another state of the original perforator, that major repair to the original state must have been at the end of 1918 or the beginning of 1919.

S. HOFFNUNG & COMPANY LIMITED (John Mathews)

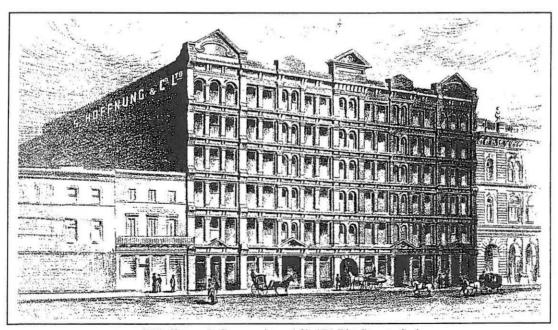
One of the leading traders in early Sydney was the House of Hoffnung. This was founded by a Polish Jew, Sigmond Hoffnung, whose family had fled the anti-semitism of their homeland to settle in more tolerant Britain. Sigmond was born in 1832 and educated in Liverpool, England. He began his commercial career as a travelling salesman in the English Midlands.

When gold was discovered in Australia, his friend Henry Nathan offered to lend him £500 to bring goods to Australia, and he set up business at 8 Wynyard Lane, Sydney, operating exclusively as a wholesaler with one employee. His original shipment included the first shipment of Bryant & May's matches to be seen in the colony. Hoffnung quickly sold everything at a high profit,



repaid his debt, and continued to buy cheap in England and sell dear in Sydney.

His business expanded rapidly and he moved to progressively larger premises at 339 George Street (1855), 2 Wynyard Street (1861) and 117 Pitt Street (1871). Trading commenced in Brisbane in 1872 in premises in Market Street. In 1877, Sigmond Hoffnung returned with his Australian-born wife, Elizabeth, and son, Sidney, to live permanently in London. By 1880, the House of Hoffnung employed over 60 people making saddlery and harness out of a total staff of 99 in Sydney and 40 in new premises in Charlotte Street, Brisbane. (In 1952, there were 500 employees in Sydney and 240 in Brisbane).



S.Hoffnung & Co premises, 163-171 Pitt Street, Sydney

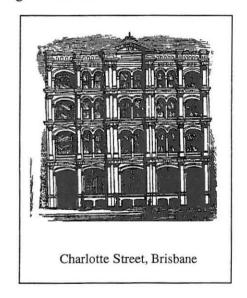
In 1882, the foundation stone was laid for a new six-storey store at 163-171 Pitt Street, next to the GPO, and this was occupied the following year. At the same time, the company built a warehouse at 367-371 Kent Street – this was destroyed by fire on 5 August 1938. The new warehouse, as with its predecessors, was the most modern of its day, no expense being spared in design and fittings. It was the first building of its kind in Sydney to install Grinell Automatic Sprinklers as a precaution against fire. Likewise, it was fitted with the first Hydraulic Passenger and Goods Lifts in the country, the firm of Waygood sending out a special engineer from England to supervise the installation – later changed to electric power.

Hoffnung's salesmen drove wagons bulging with the firm's imported tin-ware, canned goods, crockery, patent medicines, and so on throughout suburbs and country. In the cities, where it had become essential to "satisfy the desire for comfort and elegance, and the refinements of life" in middle-class villas and mansions, Hoffnung imported a huge range of the world's best pianofortes, harmoniums, clocks, bronze and marble furniture, jewellery, watches, perfumes, and similar luxuries of advancing civilization.

The company used one of the first commercial typewriters to come to this country – a weird and rather clumsy affair on 4 legs with key levers operating from underneath the machine. When telephone communication was introduced to Sydney on a commercial scale, the company was among the first to use this convenience, privately owning 2 lines to the General Post Office exchange for which it paid £2 rental per annum and no extra charge for calls!

On 30 April 1937, the premises at 163-171 Pitt Street was resumed by the Commonwealth to expand the Sydney GPO, and the company re-located to 153-159 Clarence Street.

In 1911, the company opened premises in Grenfell Street, Adelaide, and in January 1950 at 250 Flinders Lane, Melbourne.



Footnote: In 1905, Sidney Hoffnung paid for restoration work on Exeter Synagogue in memory of his grandfather Rev. S. Hoffnung (who had been minister at the synagogue from 1840 –1853) and his father Sigmond.

MERGER BETWEEN TWO COMPANIES WHO PERFORATED STAMPS?

Lindsay Parker has shown a cover of (Wm.) Dodgshun & Sons, Pty. Ltd., Melbourne, postmarked 1931, with a 1½d brown KGV with perfin SB.6 of Sargood Brothers. These two warehousemen firms were near neighbours in Flinders Lane, Melbourne until 1926 when the Dodgshun entry in the Melbourne Directory reads "Dodgshun Successors Pty. Ltd." In 1931, their premises were being rebuilt. It is likely that their business was taken over by Sargood Brothers. Such covers could lead to misleading identifications.

FINANCIAL STATEMENTS - June 30, 2004

Australian account

Receipts		Expenditure	
Bank Balance 1.7.03	6388.63	Bulletins	1770.25
Subscriptions	1648,13	Bank & Govt charges	85.20
Bank interest	0.88	Postage & stationery	75.50
Exchange Branch	9732.55	Exchange Branch	7830.30
Auction 1/03	2724.30	Auction 1/03	2441.85
Auction 2/03	1725.00	Auction 2/03	1841.55
Transfer from NZ	700.00	Miscellaneous (1)	100.00
Interest Term Deposit	257.17	Library	41.00
Handbook	4901.57	Handbook	6000.00
Bulletin Sales	225.00	Transfer to Term Dep	4000.00
From Term Deposit	3000.00		
Miscellaneous	36.83	Bank balance 1.7.04	7202.01
Total	31387.66	Total	31387.66
Bank reconciliation: Balance per statement Less unpresented cheque	7532.16 330.15		
Loss unpresented enequ			
	7202.01		

(Note 1) Includes donation and entry of Handbook to National level exhibition, Fremantle, September 2004

Term deposit - \$10,000.00 due 6.4.05 @ 5.3%

Included in total funds is \$1258.18 in credit and subs in advance

New Zealand account

Receipt	S	Expenditure	
Bank July 1 2003	\$90.21		
Circuits	\$258.00	sales	\$0.00
Subscription	\$228.35	to PCNZA	\$802.22
Interest	\$8.24	Postage	\$0.00
Auction	\$193.30	miscellaneous	\$0.00
Catalogue	\$175.00	Auction sales	\$61.65
2003 2003		Library	\$60.00
		Cash on Hand	- 50 AA
Commission	\$0.00	Bank to date	1.11.1674.23
	\$953.10		\$953.10

Our thanks go to Peter and Richard for their excellent work in their roles as Treasurer and Assistant Treasurer respectively.

MELBOURNE "OS" (Ken Scudder)

In Bulletin No.64, January 2004, the question was asked, "How many perforating heads with the "Melbourne OS" pattern did the Victorian Government Printer have available

prior to 1913". I would suggest there were two, one in Melbourne and one in Brisbane. A third may have been planned for Sydney but did not eventuate.

Victoria Issues All Victorian"Postage" stamps were perforated OS on the one Machine. 1d to 2/- Postage -The puncturing head consisted of 10 dies [not 12] in a vertical arrangement, as was recorded in Bulletin No. 64. This may, perhaps, be more clearly seen with the illustration from a sheet of the 1d. on the left. 1/2d - As was pointed out, for the ½d the same puncturing head was used using two operations. This may also be seen in the illustration on the right by the slight out of alignment of the two strikes. The fact of the puncturing head consisting of only 10 dies is supported by [a] The sheets of stamps were printed in 10 horizontal rows of 12 with a selvedge all round, and giving an almost square sheet. [b] Complete sheets, perforated OS, do not show any puncturing extending into the selvedges. 5/- Postage- These were printed in 10 rows of 10. With the stamps being the same height as the lower value stamps and virtually square, the OS could be accomplished on the same puncturing head. The OS's are mostly upright, but some sideways OS's are seen from the July 1909 printing. £1 & £2 Edward - These were printed in 8 horizontal rows of 10, again giving a nearly square sheet. The width of the stamps being very nearly the same as the height of the lower values, the sideways OS was accomplished with the same puncturing head.

Queensland Issues

Although using the same pattern die, the "Melbourne OS", the Queensland stamps were punctured with a head having 12 dies in a vertical arrangement. See illustration at the right reproduced from "The Postage Stamps [etc] of Queensland", by A.F.Basset Hull, published by the R.P.S.L. in 1930.

"1897" ½d to 2/- & 1899 ½d - These were printed in a sheet of 12 horizontal rows of 10. The "1897" ½d being of a horizontal format. The Australian Philatelist, Vol.XV, Feb.10, 1909, page 67 reports, "....Of the values ½d to 2s., five sheets are punctured at one operation, in rows [actually columns KS] of twelve."

Melbourne printed 9d - These were printed in the usual Melbourne square sheet layout of 10 horizontal rows of 12. The columns of 10 were 9-10mm longer than a 10 part column of the Queensland lower value stamps. This resulted in the 9d stamps at the top of the sheets having the OS near the bottom of the stamps and the stamps at the bottom of the sheets having the OS near the top of the stamps. This proves the point that all Queensland stamps, although being punctured with the "Melbourne OS", were punctured in Brisbane and not in Melbourne. In any case one would not want to send Brisbane printed stamps to Melbourne just for puncturing the OS's.

The Queensland 12 die puncturing head was almost certainly manufactured in Melbourne. An OS template, or drilling jig, could have been sent to Brisbane and the head manufactured there, although this is unlikely

High Values, 2/6 to £1 - These were printed in 6 horizontal rows of 5. The OS is always a variation of upright, never sideways. The puncturing method was described in the same article quoted above. "....Of the 2s.6d. to £1 large stamps, one sheet is foldedWe are told that inverted or reversed letters..... are accounted for by the fact that the sheets are "folded before perforation", two stamps being punctured at one operation. Normal, inverted, and reversed letters on the large stamps should therefore be equally plentiful." It must have been considered that sideways OS's were not acceptable, even though with the sheet, 5 stamps across the row, the OS would have been reasonably centralised. However, with the OS "upright", although the top and bottom rows could be lined up with a reasonably central OS, there were 5 dies between these top and bottom positions and not 4 as required for the 6 rows in the sheet, hence the need for folding.

The above explanation of folding the sheet, ie folding between the 2nd & 3rd rows and again between the 4th & 5th rows, and puncturing two stamps at a time [actually 6 stamps, or a complete column] gave good centralising of the OS, but resulted in the positional variations.

Note	: I have the following:-		
2/6d	vermillion, 1907 Litho. [SG 309]	upright;	inverted & reversed
2/6d	pale dull vermilion, late 1909 Litho.		inverted & reversed
2/6d	dull orange, 1910 Litho. [SG 309a]	upright;	inverted & reversed
5/-	rose, Beer Duty paper [SG 159]	upright;	inverted & reversed
5/-	rose, 1906 Litho. [SG 273]	upright	
5/-	rose, 1907 Litho. [SG 310]	upright	
10/-	brown, [SG 165]	upright	
£1	deep green, 1905 Litho. [SG 272]	upright	

I have not seen any just inverted. Neither have I seen any "1897" ½ punctured OS, and doubt whether these genuinely exist. However, it is possible that a few remainder sheets could have been used for Government use, but 7 years or so later is pushing it.

Western Australian Issues

<u>Printings from Melbourne Plates</u> The stamps and sheets were the same size as the Victoria stamps so the puncturing OS was done with the Melbourne puncturing head of 10 dies in a vertical arrangement. This resulted in those stamps with a horizontal format having the OS sideways.

Printings from De La Rue Plates

These stamps are marginally smaller and were printed in 4 panes of 60. With the horizontal format of these stamps, each pane consisted of 6 rows of 10. The Melbourne OS puncturing head did not fit a complete row of these D.L.R. printed sheets, a row of 10 being shorter by some 17mm. However, the sheet could have been split in two before puncturing. The few examples I have do show some high and low variation in the position of the OS.

Tasmanian Issues

Tasmanian Pictorials - The Melbourne printings were in sheets of 6 x 10, either 6 horizontal rows of 10 for the 1d & 4d, or 10 horizontal rows of 6, for the ½d, 2d, 3d, & 6d. The size of these stamps did not allow puncturing of 10 positions at a time, however, if the sheets were split in half, thus giving a column of only 5, the standard Melbourne puncturing head could be used. Supporting this suggestion is the variation found in the high and low positions of the OS, and the fact that only upright or sideways OS's occur which eliminates the possibility of the sheets being folded.

Printed from De La Rue Plates

Again, these are marginally smaller than the low value Victoria stamps, and were printed in 4 panes of 60. With the vertical format of the stamps each pane consisted of 10 horizontal rows of 6. Again, if the sheets were split in half to give columns of only 5, the standard Melbourne puncturing head could have been used. However, I do not have sufficient material to verify whether the same high and low positions of the OS exist here.

New South Wales Issues

The 6d and 1/-, listed in David Andersen's "Australian Official Perfins", must be viewed with some doubt until a very good reason is found for the existence of these. It is possible, of course, that there was some intention of sending a "Melbourne OS" puncturing head to Sydney and which never eventuated and, that a few of these two values were punctured in Melbourne as examples.

The 6d is listed as Yellow. There are many shades of this stamp. With a more specific definition of the colour it may be easier to determine a date of issue. Guybon John Hutson in his "The Stamps of New South Wales" has a note following a listing of what he considers to be Forgeries. "There is still another variety of OS, much larger, the 'S' with 12 holes, but I have only one example of this, the Sixpence, watermark Single A, and I have seen no reference to it." This would appear to be referring to the Melbourne OS. He does not state it to be a forgery but obviously has some reservation about it.

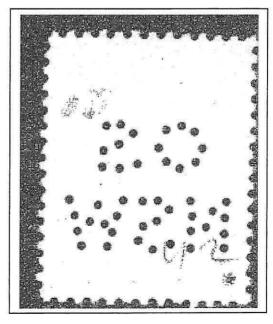
Comment

One of the possible solutions put forward in Bulletin No. 65 of, "....to puncture the bottom half of the pane of stamps with the top dies then reinsert the top of the sheet and puncture with the lower dies", surely assumes the sheet could be inserted from the ends of the perforating machine which is impossible.

OS/NSW TYPE B ON KANGAROO: AN UPDATE

A 2/- Kangaroo issue with the OS/NSW Type B pattern was reported in the October 2002 Bulletin. Recently a similar item was discovered in a collection submitted for sale in the current Club auction. This item is illustrated below. Of interest is the Cordalba, Queensland postmark. Considering the source of this collection, it seems unlikely that the perfin is a "recent" production. Are there any further Roo issues to report with this pattern?





AUCTION WATCH

Items of perfin interest from auctions/direct sales since the last Bulletin include the following. Thanks to Harold Waite, Tony Nobilo, John Amiet, Geoff Legge and Bryan Magee for passing on their spotting of perfin lots in auctions. Prices in A\$ unless indicated.

				Est
a.	The Robert Samuel collection of 'BNZ' perfins on UK stamps. 4 (plus 3 singles), QV 5/- x 2, QV 10/- x 4(incl 2 with double	perfins), KEVII		NZ\$700
	KGV 2/6 x2 (Classic Stan			
b.	Collection of 'J. Ballantyne' overprints on stamps Many on reco 3 x 1 1/2d KGVI, 7 x 2d Peace and 13 x 2d KGVI Ex Samuel (0			NZ\$200
c.	USSCo Eight specimen perfins on paper (Classic Stan	ips May 04)	150	NZ\$ 80
d.	W/McA on 2d second side face Rare Ex Samuel (Classic Star	nps May 04)		NZ\$400
e.	'Stewarts and Lloyds Limited' overprints(1926-27) on 2/-, 4/- a inverted) 1882 Long Queens	nd 7/- (double	O/P one	NZ\$125
f.	Perfins on commercial covers & PPCs including 'RH/&Co', dia	gonal A/M/P (2	2), HJ/D,	\$250
		lately May 04)		
g.	1911 illustrated advertising cover for Law Somner & Co. to US		nd NSW	\$250
		ilately May 04)		
h.	1897 envelope 1d die 1 HG B7 with HJ/D perfin (Prestige Phi			\$100
i	5 1/2d emu with clear' Tatter-/sall' security underprint in violet -			\$ 10
	issues (Tasmanian Stamp		ist 04)	and the second of the con-
j.	Selection of 14 NZ "N.Z.F" perfins, various positions, on Newsp			NZ\$ 50
	(Len Jury aud			
k.	NZ "GNB/LD" perfin on 1d Universal (Len Jury aud			NZ\$ 48
1.		ction, May 04)		NZ\$ 30
m.	"Bell" perfin on GB QV 1883 1/- green, Glasgow "159" cancel"		0.000	254527 010
	(eBay, May 0		sold for	GBP 10+
n.	"OS" on Victoria £1. (eBay, May 04)	,	sold for	US\$ 86
0.	5/- Roo perf large "OS". GU/FU (Mowbray au		Description	NZ\$250
p.	"SH&CO" perfin on NSW 5/- "Map" issue (eBay, May 0-		sold for	US\$13.50
q.	Collection of over 950 KGV heads with private perfins. (eBay		sold for	US\$610
r.	BS&F.6 on 1913 6d Eng. Kooka, heavy parcel cancel. (Cygnet l	Philatelics sale,	Jun 04)	\$ 20
S.	Large WA Commissariat punctures on values 1d, 2d, 4d, 6d, 1/			\$ 50
		atelics sale, Jun		-2222 20
t.	Rhodesia 1898/1908 £10 perfin "BSA/C". (eBay, May 0		sold for	US\$ 31
u.		The state of the s	sold for	A\$120
V.		es sale, Jul 04)		NZ\$ 50
w.		es sale, Jul 04)		NZ\$ 20
X.		es sale, Jul 04)		NZ\$ 25
y.		trick sale, Jun 0	4)	NZ\$150
z.	1905 GB cover to Bremen with 2 ½ d KEVII perfin "RMS",			NZ\$ 40
	Royal Mail Steam Packet Coy. on flap. (Ashford Star	nps auction, Au	ıg 04)	

+ 3 copies of "Commercial Perfins of Australia" in different auctions.

