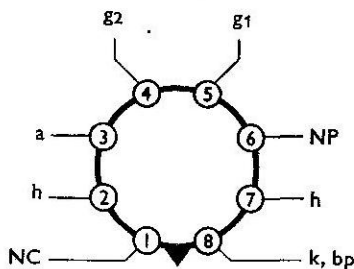


A beam tetrode with an absolute maximum anode dissipation rating of 32 watts. The KT77 is designed for use in the output stage of an a.f. amplifier. Two valves in Class AB1 give a continuous output of over 70W. The KT77 is also suitable for use as a series valve in a stabilised power supply.

BASE CONNECTIONS AND VALVE DIMENSIONS



Base: International Octal (B8-0)
Bulb: Tubular

Max. overall length: 113mm
Max. seated length: 89mm
Max. diameter: 33mm

HEATER

V_h	6.3	V
I_h	1.4 (approx)	A

MAXIMUM RATINGS

	Absolute	Design Max.	
V_a	850	800	V
V_{g2}	650	600	V
$V_{a,g2}$	650	600	V
p_a	32	25	W
p_{g2}	6.0	6.0	W
p_{a+g2}	35	28	W
I_k	200	180	mA
V_{h-k}	200	150	V
$-V_{g1}$	220	200	V
R_{g1-k} (cathode bias)			
$p_{a+g2} \leq 28W$		1.0	MΩ
$p_{a+g2} > 28W$		0.5	MΩ
R_{g1-k} (fixed bias)			
$p_{a+g2} \leq 28W$		0.5	MΩ
$p_{a+g2} > 28W$		0.25	MΩ
T_{bulb}	250	230	°C

CAPACITANCES (Measured on a cold unscreened valve)

C_{g1-a} : 1.0pF; C_{g1} —all, less a: 16.5pF; C_a —all, less $g1$: 9.0pF

KT77

CHARACTERISTICS

Tetrode Connection

V_a	250	V
V_{g2}	250	V
I_a	110	mA
I_{g2}	10	mA
g_m	10.5	mA/V
r_a	23	k Ω
μ_{g1-g2}	11.5	—

Triode Connection

$V_{a,g2}$	250	V
I_{a+g2}	120	mA
g_m	11	mA/V
r_a	1050	Ω
μ	11.5	—

TYPICAL OPERATION

Ultra-linear Connection. 43% Taps. Push-Pull. Class AB1. Cathode Bias

$V_{a(b)}$	430	V
$V_{a,g2}$	390	V
R_{g2}	2×22	Ω
R_k	$2 \times 470 \pm 5\%$	Ω
$R_{L(a-a)}$	6.0	k Ω
$I_{a+g2(o)}$	2×66	mA
$I_{a+g2(max)}$	2×80	mA
$p_{a+g2(o)}$	2×26	W
$p_{a+g2(max)}$	2×14	W
$-V_{g1}$	31 (approx)	V
$V_{in(g1-g1)(pk)}$	69	V
P_{out}	34	W
D_{tot}	2.5	%

Ultra-linear Connection. 43% Taps. Push-Pull. Class AB1. Fixed Bias

$V_{a(b)}$	600	500	400	V
$V_{a,g2}$	594	493	391	V
R_{g2}	2×22	2×22	2×22	Ω
$R_{L(a-a)}$	9.0	5.5	4.5	k Ω
$I_{a+g2(o)}$	2×47	2×57	2×70	mA
$I_{a+g2(max)}$	2×109	2×126	2×121	mA
$p_{a+g2(o)}$	2×28	2×28	2×27.5	W
$p_{a+g2(max)}$	2×28	2×28	2×24	W
* $-V_{g1}$ (approx)	56	43	31	V
$V_{in(g1-g1)(pk)}$	94	82	61	V
P_{out}	72	67	45	W
D_{tot}	1.5	1.0	0.8	%

*A negative bias range of $\pm 25\%$ of these values should be available for each valve.

Tetrode Connection. Push-Pull. Class AB1

The KT77 is designed primarily for use under ultra-linear conditions and this connection is recommended. However, similar performance can be obtained in the tetrode connected arrangement but the output impedance will be greatly increased. For tetrode connection the fixed screen supply must not exceed 300V.

Triode Connection. Push-Pull. Class AB1. Cathode Bias.

$V_{a(b)}$	430	V
$V_{a,g2}$	396	V
R_{g2}	2×22	Ω
R_k	$2 \times 440 \pm 5\%$	Ω
$R_{L(a-a)}$	5.0	k Ω
$I_{a+g2(o)}$	2×69	mA
$I_{a+g2(max)}$	2×75	mA
$P_{a+g2(o)}$	2×27	W
$P_{a+g2(max)}$	2×20	W
$-V_{g1}$	30 (approx)	V
$V_{in(g1-g1)(pk)}$	66	V
P_{out}	18.0	W
D_{tot}	1.2	%

Class A Series Stabiliser (see fig. 1)

V_{in}	400	400	V
V_{out}	200	200	V
Load current	0 to 100	100	mA
Voltage change	1.0	0.2	V
Stabilisation	—	0.1	%
Regulation	0.5	—	%

Stabilisation is defined as $\frac{\Delta V_{out}}{V_{out}} \times 100\%$ for a change in V_{in} of $\pm 7\%$ corresponding to the usual maximum permitted mains fluctuation.

Regulation is defined as $\frac{\Delta V_{out}}{V_{out}} \times 100\%$ for a change in loading from zero load to full load current.

LIFE PERFORMANCE

The average life expectancy of the KT77 when operated at absolute maximum ratings (see page 1) is at least 5000 hours. At a reduced absolute rating of $P_{a+g2}=25W$ a life of at least 10000 hours should be obtained. The environment must be a static one and the valve should be switched not more than 12 times in each 24 hours. Attention should also be paid to the recommendations of the British Standard Code of Practice CP1005 *The Use of Electronic Valves*.

A valve is considered to have reached the end of life when it is either inoperative or one or more of its characteristics have reached the following values:

P_{out}	50% of initial value	
$*g_m$	< 9.3	mA/V
*Measured at:		
V_a	250	V
V_{g2}	250	V
I_a	100	mA

INSTALLATION

The valve may be mounted in any position. Free air circulation around the valve is desirable.

When a pair of valves is mounted horizontally it is recommended that the centres of the valve sockets are not less than $3\frac{1}{2}$ in. apart and that the keyways on the spigots of each valve are in the vertical plane.

When a pair of valves is mounted vertically it is recommended that the centres of the valve sockets are not less than $3\frac{1}{2}$ in. apart and that the keyways on the spigots lie along the line joining the centres.

Provision of circuit information in this publication does not imply a right to use any invention which may be involved and which is the subject of patents by whomsoever owned.

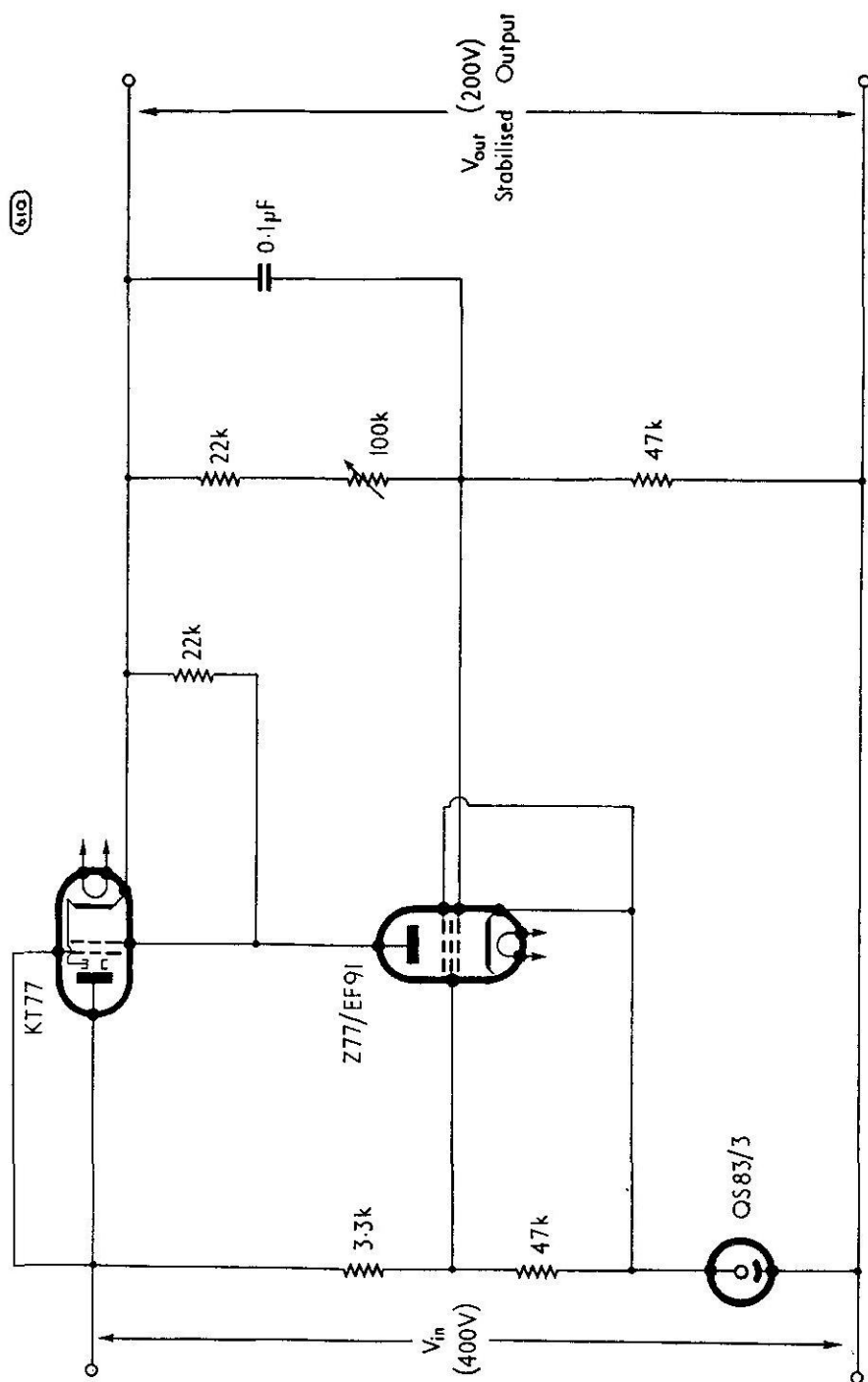


Fig. 1. Class A Series Stabiliser.

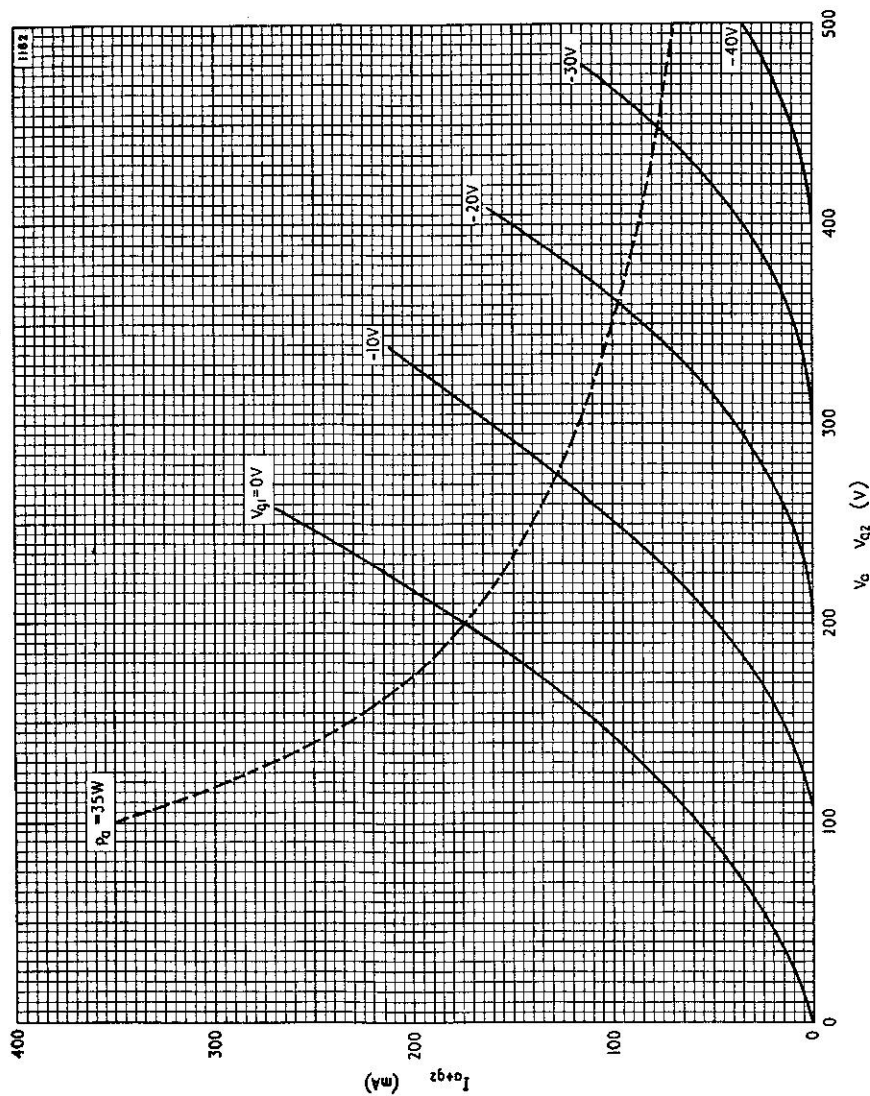


Fig. 2.

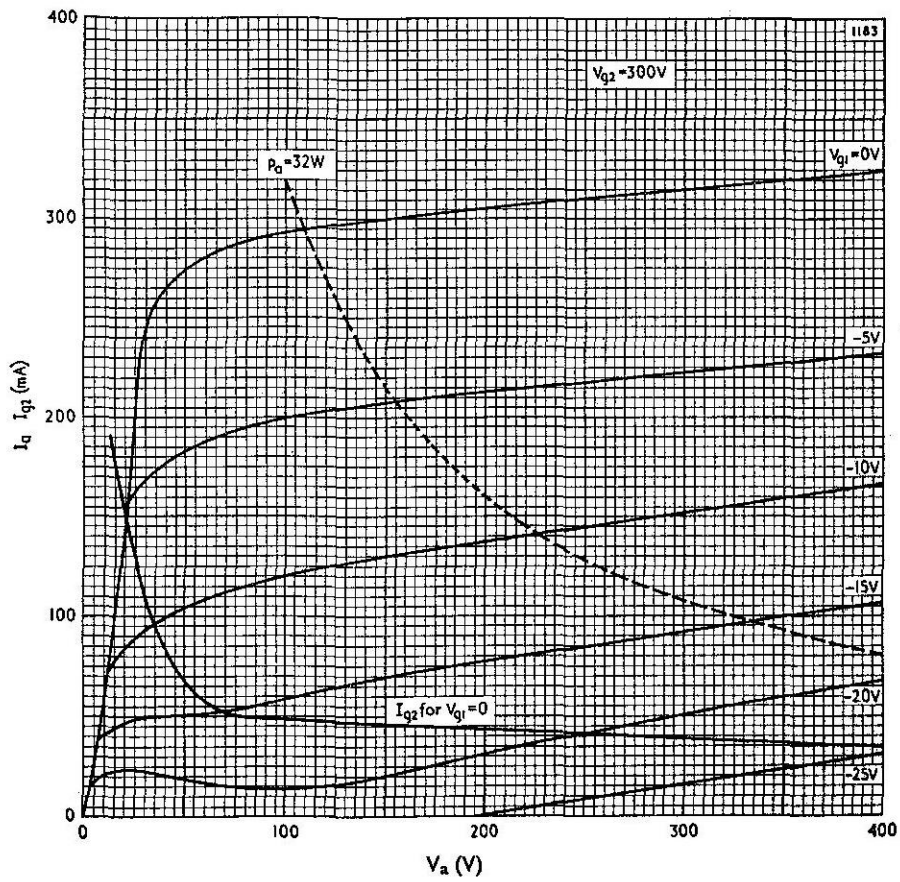


Fig. 3.

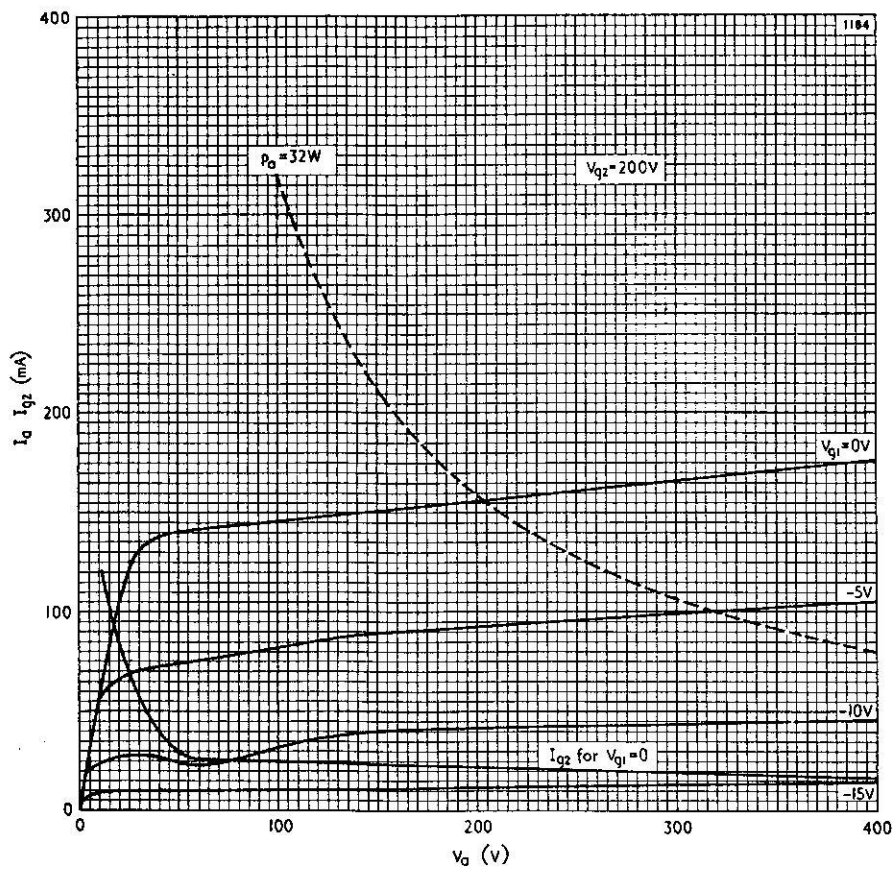


Fig. 4.

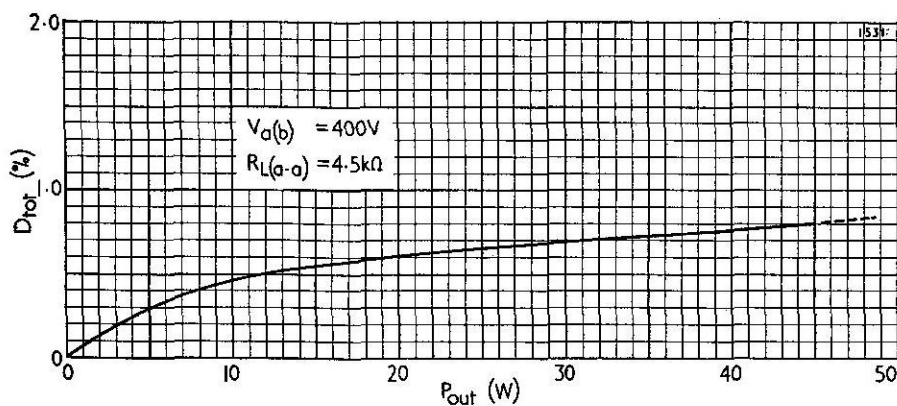


Fig. 5. Ultra-linear connection. 43% taps. Push-pull. Class AB1. Fixed bias.

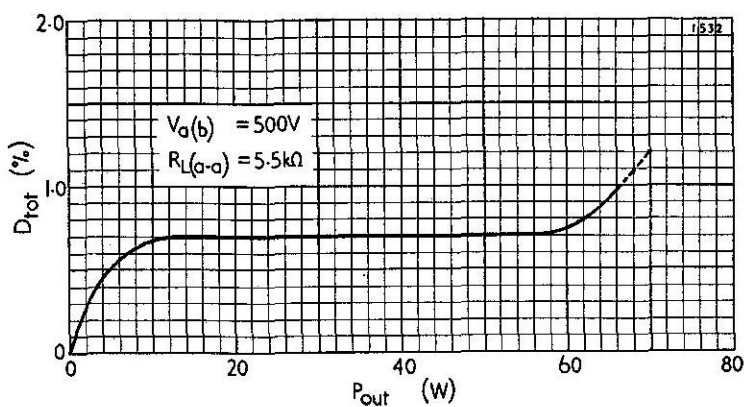


Fig. 6. Ultra-linear connection. 43% taps. Push-pull. Class AB1. Fixed bias.

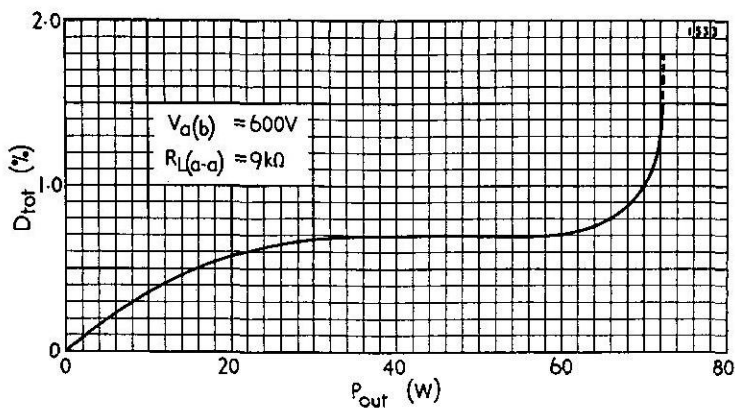


Fig. 7. Ultra-linear connection. 43% taps. Push-pull. Class AB1. Fixed bias.

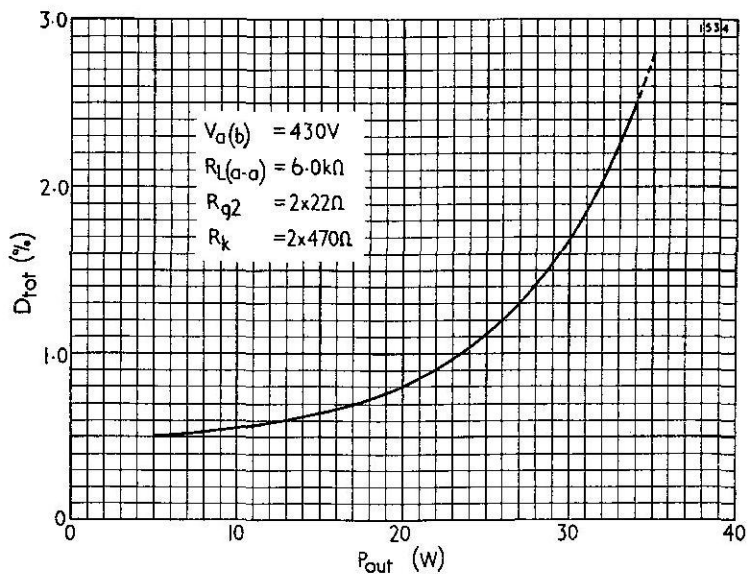


Fig. 8. Ultra-linear connection. 43% taps. Push-pull. Class AB1. Cathode bias.

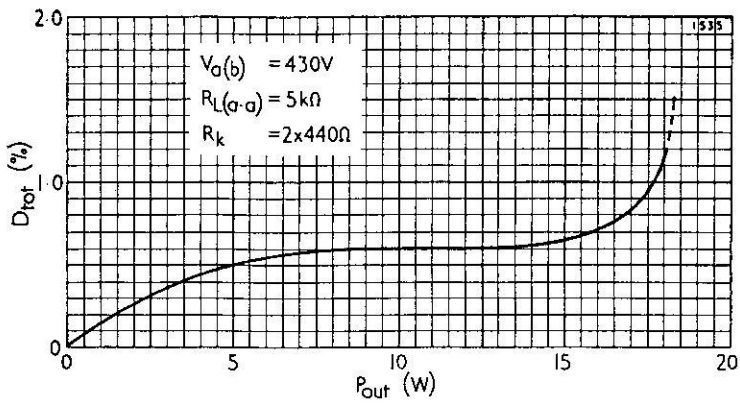


Fig. 9. Triode connection. Push-pull. Class AB1. Cathode bias.