

7H[WERRN FDQ EH SXUFKDVH

Â^a @ /HYHO

B40A C0& &RXUVH

c4Ý"•B# ´6 µ

,QWHUPHGLDWH &KLQHVH VW

µ+^•† WH[WERRNœ< &UHGLW

◁"•B# ´1b Â(~ µ c4Ý52 >´ µ

'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH &RPSUHKHQVLYH &RXUV

c4Ý"•B# B# ´6 µ

,QWHUPHGLDWH 2UDO &KLQHVH VW

◁"•B# ´1b Â(~ µ c4Ý B# ´ µ

'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH 6SHDNLQJ &RXUVH ,

c4Ý"•B# bÑ ´6 µ

,QWHUPHGLDWH &KLQHVH /LVWHQLQJ VW

◁"•B# ´1b Â(~ µ c4Ý bÑ ´ µ

'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH /LVWHQLQJ &RXUVH ,

Â^a A /HYHO

B40A C0& &RXUVH

c4Ý"•B# ´Â µ

,QWHUPHGLDWH &KLQHVH QG

µ+^•† WH[WERRNœ< &UHGLW

◁"•B# ´1b Â(~ µ c4Ý52 >´ µ

'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH &RPSUHKHQVLYH &RXUV

c4Ý"•B# C ∝ U c E] Q @ p ∈ 0` œ 0° Ä° Ä° ' 0 Ÿ à 111 Q% ux` Ð (g%

0` œ 0° Ä°

? a @ /HYHO

B40A C0& &RXUVH $\mu^+ \cdot \dagger$ WH[WERRNœ < &UHGLW
Q 4Ý"•B# ´ 6 µ ‹"•B# ´1b Â(~ µQ 4Ý52 >´ µ
\$GYDQFHG &KLQHVH VW 'HYHORSLQJ &KLQHVH
\$GYDQFHG &RPSUHKHQVLYH &RXUVH ,

Q 4Ý"•B# B# ´ 6 µ ‹ "•B# ´1b Â(~ µQ 4Ý B# ´ µ
\$GYDQFHG 2UDO &KLQHVH VW 'HYHORSLQJ &KLQHVH
\$GYDQFHG 6SHDNLQJ &RXUVH ,

Q 4Ý"•B# b Ñ ´ 6 µ ‹"•B# ´1b Â(~ µQ 4Ý b Ñ ´ µ
\$GYDQFHG &KLQHVH /LVWHQLQJ VW 'HYHORSLQJ &KLQHVH
\$GYDQFHG /LVWHQLQJ &RXUVH ,

? a A /HYHO

B40A C0& &RXUVH $\mu^+ \cdot \dagger$ WH[WERRNœ < &UHGLW
Q 4Ý"•B# ´ Â µ ‹"•B# ´1b Â(~ µQ 4Ý52 >´ µ
\$GYDQFHG &KLQHVH QG 'HYHORSLQJ &KLQHVH
\$GYDQFHG &RPSUHKHQVLYH &RXUVH ,,

Q 4Ý"•B# B# ´ Â µ ‹"•B# ´1b Â(~ µQ 4Ý B# ´ µ
\$GYDQFHG 2UDO &KLQHVH QG 'HYHORSLQJ &KLQHVH
\$GYDQFHG 6SHDNLQJ &RXUVH ,,

Q 4Ý"•B# b Ñ ´ Â µ ‹"•B# ´1b Â(~ µQ 4Ý b Ñ ´ µ
\$GYDQFHG &KLQHVH /LVWHQLQJ QG 'HYHORSLQJ &KLQHVH
\$GYDQFHG /LVWHQLQJ &RXUVH ,,

B#@6+UF? \$B4 • †

2SWLRQDO &RXUVHV DQG 7
IRU /DQJXDJH 6WXGHQW

6^a @ Æ /HYHO

B40A C0& &RXUVH

S4Ý"•B#B1Ī´6µ

(OHPHQWDU\ &KLQHVH 5HDGLQJ DQG :ULWLQJ , 'HYHORSLQJ &K

µ+^•† WH[WERRNœ< &UHGLW
<"•B#´1b Â(~µ S4ÝB1Ī´,µ
(OHPHQWDU\ 5HDGLQJ DQG :ULWLQJ

6^a A Æ /HYHO

B40A C0& &RXUVH

S4Ý"•B#B1Ī´Âµ

(OHPHQWDU\ &KLQHVH 5HDGLQJ DQG :ULWLQJ , , 'HYHORSLQJ &K

µ+^•† WH[WERRNœ< &UHGLW
<"•B#´1b Â(~µ S4ÝB1Ī´,µ
(OHPHQWDU\ 5HDGLQJ DQG :ULWLQJ

Â^a @ Æ /HYHO

B40A C0& &RXUVH

c4Ý"•B#L;B1´6µ

,QWHUPHGLDWH &KLQHVH 5HDGLQJ , 'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH 5HDGLQJ &RXUVH ,

µ+^•† WH[WERRN œ< &UHGLW

<"•B#´1b Â(~µ c4ÝL;B1´,µ

c4Ý"•B#Ī´´6µ

,QWHUPHGLDWH &KLQHVH :ULWLQJ , 'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH :ULWLQJ &RXUVH ,

<"•B#´1b Â(~µ c4ÝĪ´´,µ

9"•61B

9"•61B •0A´Â^a4Ý•†µ

7KH 7UDQVODWLRQ EHWZHHQ &KLQHVH DQG (QJOLVK

Â a A Æ /HYHO

B40A C0& &RXUVH

μ+^•† WH[WERRNœ< &UHGLW

c4Ý"•B#L;B1´Âμ

κ"•B#´1bÂ(~μ c4ÝL;B1´,,μ

,QWHUPHGLDWH &KLQHVH 5HDGLQJ ,, 'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH 5HDGLQJ &RXUVH ,,

c4Ý"•B#İ´Âμ

κ"•B#´1bÂ(~μ c4Ýİ´,,μ

,QWHUPHGLDWH &KLQHVH :ULWLQJ ,, 'HYHORSLQJ &KLQHVH
,QWHUPHGLDWH :ULWLQJ &RXUVH ,,

æ +6. 4ÝE»2

æ"•B#"j©69B W BNÎLü´+6. μ

1HZ +6. /HYHO 7XWRULQJ 6LPXODWHG 7HVW 3DSHUV IRU &KLQ

2SWLRQDO &RXUVHV IRU DOO

B40A C0& &RXUVH

œ< &UHGLW

c 3 œ+q

&KLQHVH &DOOLJUDSK\ DQG 3DLQWLQJ

c 3 Ōa

&KLQHVH .XQJIX