

7 c hhVi gʻ9b hX Y W_Y b.; Y g W l] W hY žʻB U hi f i b X; Y \ Y] a h] d d gʻZ Ø fʻF Y] g Y b X Y

K]``_ca a Yb']b'7chhVi gžY]bYf'W\Ufa UbhYb'GhUXh']a '< YfnYb'j cb 6fUbXYbVi f[ž'X]Y a]h']\fYf'fY]W\Yb'; YgW\]W\hYž UhYa VYfUi VYbXYb BUhi fii bXij cfnØ[`]WXYf; Ughfcbca]Y VY[Y]ghYfh"KYbbG]Y'UiZ'XYfGiWXY'bUWX'Y]bYa'FY]gYn]Y``g]bXž XUg'Y]bY'dYfZY_hY'A]gWXi b['Ui g'HfUX]h]cb'i bX'A cXYfbY'V]YhYhž $XUbb g]b X G]Y \]Yf [YbUi f]W h][~7 chhVi gž c Zh U g XUg Hcf ni f$ B | Y X Y f`Ui g | hn 'V Y n Y | W \ b Y hž `` \ \ \ X h ' G | Y ' Y | b \ \ z ' \ | b ' g Y | b Y ' \ \ \ ZUgn | b | Y f Y b X Y b 9fnà\`i b[Yb'Y]bni hUi W\Yb'i bX'X]Y'nU\`fY]W\Y': UWYhhYb'X]YgYf $GhUXh^ni YbhXYW_Yb^UJcb^1]ghcf]gWXYb^GYYbgk ØfX][_Y]hYbž^X]Y$; $YgWX]WXhYb^*Uig^*jYf[Ub[YbYb^*NY]hYb^*YfnÀ\^Ybž^*V]g^*\]b^*ni^*XYb^*$ [fØbYb°CUgYb°XYf°la[YVib[ž°X]Y°nia°9bhgdUbbYb°ibX $9f_i bXYbY]bYUXYbXX]YgYGhUXhYUhZØfYXYbYhkUgYniYV]YhYb"$ 6Y[`Y]hYbG]Yibg'UiZY]bYf'FY]gY'XifWX'7chhVig'ibX'`UggYb'G]Y $g]WX | cb XYb _i `]bUf]gWXYb <][\ `][\ hgžXYb _i `hi fY``Yb$ JYfUbghU`hi b[Yb'i bX'XYb'[Y\Y]a Yb'H]ddg'ZØf'≒\fYb'6Ygi W\]bgd]f]YfYb"AUWXYbG]Yg]WXVYfY]hž7chhVig]b'U```gY]bYf GWX Ob \ Y]h'_YbbYbni `YfbYb°

7 chhVi gžY]bY'W\Ufa UbhY'GhUXh']a 'Ògh`]W\Yb'HY]`'8 Yi hgW\`UbXgž V`]W_h'Ui Z'Y]bY'ZUgn]b]YfYbXY'; YgW\]W\hY'ni fØW_ž'X]Y'V]g']b'X]Y G`Uk YbnY]h'XYg'*"'\\\f\i bXYfhg'fY]W\h''I fgdfØb[`]W\'YbhghUbX 7 chhVi g'U`g'g`Uk]gW\Y'G]YX`i b[ž'VY_Ubbh'i bhYf'XYa 'BUa Yb ?chhVi g ž'k Ug'gc'j]Y`'VYXYi hYh'k]Y' 6i f['cXYf'K U`` ']b'XYf U`hYb'g`Uk]gW\Yb'GdfUW\Y"'8]YgYf'BUaY'gd]Y[Y`h'g]W\']b'XYf'BÀ\Y nif'GdfYY'ibX'XYb'ia`]Y[YbXYb'KÀ`XYfb'k]XYfž'X]Y'XYf'GhUXh ifgdfØb[`]W\'GW\ihn'VchYb"

=a '@Ui ZY'XYf'≯J\f\i bXYfhY'Ybhk]W_Y`hY'g]W\'7chhVi g'ni 'Y]bYf
k]W\h][Yb'<UbXY`gghUXh"'5V'XYa '%' "'₺J\f\i bXYfh'Yf`Ub[hY'X]Y
GhUXh'XUg'GhUXhfYW\hi bX'k i fXY'Y]b'VYXYi hgUa Yg'NYbhfi a 'ZØf
XYb'<UbXY`a]h'@UbXk]fhgW\UZhgdfcXi _hYb"'⇒\fY'@U[Y']a '<YfnYb
XYf'FY[]cb'a UW\hY'g]Y'ni 'Y]bYa '?bchYbdi b_h'ZØf'X]Y'JYfV]bXi b[
nk]gW\Yb'6Yf`]b'i bX'XYa '\Yi h][Yb'Dc`Yb"'8]Yg'ZØ\fhY'ni 'Y]bYa
fUgW\Yb'k]fhgW\UZh`]W\Yb'5i ZgW\ki b[ž'XYf'X]Y'9bhk]W_`i b['XYf
GhUXh'a U»[YV`]W\'VYY]bZi gghY"

=a '%- "'>J\f\i bXYfh'Yf'YVhY'7chhVi g'Y]bYb'k Y]hYfYb'5i ZgWkkib[
a]h'XYf'9]bZØ\fi b['XYf' ⊕ Xi ghf]U`]g]Yfi b["'8]Y'GhUXh'Ybhk]W_Y`hY
g]W\'ni a 'NYbhfi a 'XYf'6fUi b_c\`Y]bXi ghf]Yž'k Ug'ni 'Y]bYa
ghUf_Yb'6Yj Ò`_Yfi b[gk UW\ghi a 'ZØ\fhY"'J]Y`Y'A YbgW\Yb'nc[Yb']b
X]Y'GhUXhž'k Ug'ni 'Y]bYf'I fVUb]g]Yfi b['i bX'XYf'GW\UZZi b['bYi Yf
; YVÀi XY'i bX' ⊕ ZfUghfi _hi fYb'ZØ\fhY"'8]YgY'ŸfU'VfUW\hY'Ui W\
j YfgW\]YXYbY'gcn]U`Y'8]Ybgh`Y]ghi b[Yb'i bX
6]`Xi b[gY]bf]W\hi b[Yb'a]h'g]W\ž'X]Y'XYf'GhUXh']\fYb'a cXYfbYb
7\UfU_hYf'j Yf`]Y\Yb"

8 c W 'b] W h'U``Yg'k Uf']a ': `i gg'XYf'; YgW] W hY'Zf]YX`] W "K À\fYbX XYg'Nk Y] hYb'K Y`h_f]Y[g'k i fXY'Ui W '7 c hhVi g'gW k Yf'[Yhfc ZZYb" 8]Y'GhUXh'Yf`YVhY'@ ZhUb[f]ZZY'i bX'j]Y`Y']\fYf'\]ghcf]gW Yb; YVÀi XY'k i fXYb'VYgW ÀX][h"'BUW 'XYa '?f]Y['_Ua '7 c hhVi g']b X]Y'gck Yh]gW Y'6YgUhni b[gncbY'i bX'V`]YV'k À\fYbX'XYf'88F'V]g ni f'K]YXYfj YfY]b][i b['Y]b'k]W h][Yf'GhUbXcfh'XYf'7\Ya]Y!'i bX A YhU``]bXi ghf]Y"

A]h'XYf'K YbXY']b'XYb'%--\$Yf'\J\fYb'_Ua 'Yg'YfbYi h'ni
h]YZ[fY]ZYbXYb'J YfÀbXYfi b[Yb"'8]Y'GhUXh'\Uh'g]W\'YfZc`[fY]W\'Ub
X]Y'bYi Yb'k]fhgW\UZh`]W\Yb'6YX]b[i b[Yb'Ub[YdUgghi bX'ni
Y]bYa 'a cXYfbYb'6]`Xi b[g!'i bX'?i `hi fghUbXcfh'Ybhk]W_Y`h"'8]Y
<cW\\gW\\i'Y'Z\Øf'Ub[Yk UbXhY'K]ggYbgW\\UZhYb'7chhVi g!
GYbZhYbVYf['kifXY'[Y[f\ØbXYh'i bX'\Uh'g]W\'U`g'k]W\\h][Yf'5_hYif
]b'XYf'FY[]cb'YhUV`]Yfh"

<Yi hni hU[Y']gh'7chhVi g'VY_Ubbh'ZØf'gY]bY'`YVYbX][Y'?i `hi fgnYbYž
X]Y'g]W\']b'nU\`fY]W\Yb': YghYbž'?cbnYfhYb'i bX'5i gghY``i b[Yb
b]YXYfgW\`À[h"'8]Y'GhUXh']gh'ghc`n'Ui Z']\f'9fVY'i bX'VYgW\ÀZh][h
g]W\'U_h]j 'a]h'XYf'FYghUi f]Yfi b[']\fYf'\]ghcf]gW\Yb'Gh\hhYbž'i a
X]Y'fY]W\Y'JYf[Ub[Yb\Y]h'ZØf'ni _ØbZh][Y'; YbYfUh]cbYb'ni
VYk U\fYb"</pre>

9fghYfk À\bi b[*"`划\f\i bXYfh
9f\U`h'XYg'GhUXhfYW\hg	%' "`*J\\f\i bXYfh
?ifZØfgh]b'9`]gUVYh\'kÀ\`h	%) (\$
7 chhVi gʻU`gʻFYg]XYbn	
6Y[]bb'XYf'=bXi ghf]U`]g]Yfi b[%- "`ᢣJ\f\i bXYfh
GWXkYfY'NYfghÒfib[Yb']a	%- ()
Nk Y]hYb K Y`h_f]Y[
; fØbXi b['XYf' <cw.gw.i `y<="" td=""><td>% %</td></cw.gw.i>	% %

: Øf'a Y\f'±bZcfa Uh]cbYb'ØVYf'X]Y'; YgW\]W\hY'i bX'?i `hi f'j cb 7chhVi gž'UVYf'Ui W\'ØVYf'U_hi Y``Y'JYfUbghU`hi b[Ybž'VYgi W\Yb'G]Y X]Y'cZZ]n]Y``Y'K YVg]hY'j cb'7chhVi g"

BUhi f'di f. '8]Y'[fØbY'CUgY'fi bX'i a '7chhVi g

7 chhVi gži]a '< YfnYb'XYf'@Ui g]hn'[Y`Y[Ybžk]fX'cZh'U`g'X]Y'[fØbY GhUXh'VYnY]W\bYh"I a [YVYb'j cb'Y]bYf'J]Y`nU\`'Ub'BUhi f[YV]YhYbž V]YhYh'X]Y'FY[]cb'nU\`fY]W\Y'A Ò[`]W_Y]hYb'ZØf'BUhi f`]YV\UVYf i bX'Ci hXccf!9bh\i g]UghYb"'Jcb'k Y]h`Ai Z][Yb'DUf_Ub`U[Yb'V]g'\]b ni 'fi \][Yb'GYYb'i bX'Ui g[YXY\bhYb'K À`XYfb'' \]Yf'_ca a h'YXYfž XYf'X]Y'BUhi f`gW\Àhnhž'Ui Z'gY]bY'?cghYb"

9]b 'VY`]YVhYg'N]Y`']b 'XYf'B À\Y'j cb'7chhVi g']gh'XYf'GdfYYk U`Xž Y]b 'I B 9G7C!6]cgd\ÀfYbfYgYfj Uhž'XUg'VY_Ubbh']gh'ZØf'gY]bY Y]bn][Ufh][Yb': `i gg`UbXgW\UZhYb'i bX'Y]bY'ZUgn]b]YfYbXY'H]Yf!'i bX DZUbnYbk Y`h"'8]YgY'FY[]cb'k]fX'cZh'U`g'XUg' JYbYX][8Yi hgW\`UbXg 'VYnY]W\bYhž'XU'g]W\'\]Yf'Y]b'k Y]h'j Yfnk Y][hYg BYhn'j cb'K UggYfk Y[Yb'YfghfYW_hž'X]Y'a]h'6cchYb'Yf_i bXYh k YfXYb'_ObbYb"

- 6cchghci fYb. '9f`YVYb'G]Y'X]Y'a U`Yf]gW\Yb'? UbÀ`Y'Ui Z Y]bYf'hfUX]h]cbY``Yb'? U\bZU\fh"
- FUX! i bX K UbXYfk Y[Y. '9bhXYW_Yb 'G]Y 'X]Y i bVYfØ\fhY BUhi f'Ui Z'[i h'Ui g[YgW]`XYfhYb FUX! i bX K UbXYfk Y[Yb"
- FY[]cbU`Y`? Ògh`]WX_Y]hYb. DfcV]YfYb G]Y X]Y
 GdYn]U`]hÀhYb XYf FY[]cbž'k]Y X]Y VYfØ\a hYb'; i f_Yb'Ui g
 XYa GdfYYk U`X"

 $: \varnothing f `Y] b Y `Y b h g d U b b Y b X Y `5 i g n Y] h `V] Y h Y h `g] W `X Y f `H] Y f d U f _ \\ 7 c h h V i g `U b ž `X Y f `g] W `b] W h 'b i f `X i f W `g Y] b Y `[f c * Y `U] Y `Z U `h `U b H] Y f Y b `U i g n Y] W b Y h ž `g c b X Y f b `U i W `X i f W `X] Y `] X m `] g W Y D U f _ `U b X g W U Z h ž `X] Y `X Y b `[U b n Y b `D U f _ `i a [] V h " <] Y f `_ O b b Y b 6 Y g i W Y f `b] W h 'b i f `X] Y `j Y f g W] Y X Y b Y b `H] Y f U f h Y b `V Y g h U i b Y b ž g c b X Y f b `U i W `Y b h g d U b b h Y `G d U n] Y f [A b [Y `X i f W `X Y b `k Y] h `A i Z] [Y b D U f _ `[Y b] Y * Y b "$

- 9 9	
Gd]Y`!`i bX`9f\c`i b[gZÀW\Yb	; YdUfXYž'@Ua Ug
:∅∖fib[Yb¨ibX	GW, k. À b Y ž F c hY 'DUb X Ug
JYfUbghU`hib[Yb	
?]bXYfZfYi bX`]WXY`Dfc[fUa a Y	5 <i>Z</i> ZYž [*] K] [*] XgW\kY]bY

9]b'k Y]hYfYf'gW\ÒbYf'C fh'ZØf'Y]bYb'HU[']b'XYf'B Uhi f']gh'XYf'6fi bc!

8 U\``DUf_"'8]YgYf'DUf_'j YfY]bh'b]W\h'bi f'nU\`fY]W\Y

: fY]nY]ha Ò[`]W_Y]hYbž'k]Y'Gd]Y`d`ÀhnY'i bX'GdcfhUb`U[Ybž
gcbXYfb'Ui W\'gh]``[Y`Y[hY'HY]W\Y'i bX'[YdZY[hY'6`i a YbVYYhYž
X]Y'XUg'5i[Y'YfZfYi Yb"'<]Yf'_ÒbbYb'G]Y'Ui W\'Y]b'D]W_b]W_']a

; fØbYb'a UW\Yb'cXYf'Y]bZUW\'bi f'X]Y'GYY'Y'VUi a Y`b'`UggYb"

 $: \varnothing f`X]Y`Yb][Yb\check{z}`X]Y`Yhk Ug`k Y]hYf`\setminus]bUi g`a \grave{O}WkhYb\check{z}`V]YhYb`g]Wk`X]Y$

 $bu\Y[Y`Y[YbYb`@Ui\ g]hnYf`6Yf[Y`Ub"`8]YgY`FY[]cb`]gh`dYfZY_h\\ ZØf`K UbXYfi b[Yb`i bX`V]YhYh`UhYa VYfUi VYbXY`5i gV`]W_Y`Ui Z`X]Y\\ I a [YVi b["`8]Y`gUbZhYb`< Ø[Y``i bX`X]Y`k Y]h`Ài Z][Yb`K À`XYf`g]bX Y]b`]XYU`Yg`N]Y``ZØf`Y]bYb`HU[YgUi gZi [`]b`X]Y`BUhi f"`<]Yf`_ÒbbYbG]Y`Ui W\`j YfgW\]YXYbY`gY`hYbY`H]YfUfhYb`VYcVUW\hYbž`XUfi bhYf FY\Y`i bX`K]`Xj <math>O[Y`"$

K Ybb'G]Y'Yhk Ug'5Vk YWkg'i b['gi WkYbž'gc``hYb'G]Y'XYb'' 7chhVi gYf'GhUXhk U`X'VYgi WkYbž'XYf'g]Wk'X]fY_h'Ub'X]Y'GhUXh UbgWk`]Y \gg h''A]h'gY]bYb'[i h'Ub[Y`Y[hYb'K UbXYfk Y[Yb'i bX fi \][Yb'D`ÀhnYb']gh'XYf'K U`X'b]Wkh'bi f'Y]b'VY`]YVhYf'Cfh'ZØf GdUn]Yf[Àb[Yž'gcbXYfb'Ui Wk'ZØf'gdcfh`]WkY'5_h]j]hÀhYb'k]Y \approx [[]b['cXYf'FUX'ZU\fYb"'8]Y'X]WkhYb'6Ui a _fcbYb'V]YhYb'Y]bYb gWkUhh][Yb'FØW_ni [gcfhž'VYgcbXYfg'Ub'\Y] \gg Yb'Gca a YfhU[Yb"

I bX ZØf U``Y K UggYffUhhYb []Vh'Yg'XYb'; cYh\YdUf_'a]h'gY]bYa_'Y]bYb 'HY]W ž'XYf'b]W h'bi f'Y]b 'VY`]YVhYf'C fh'ZØf'9bhYb']ghž gcbXYfb'Ui W ']XYU`'ZØf': Ua]`]YbUi gZØ[Y"=a'GcaaYf'_ÒbbYb'G]Y\]Yf'XUg'K YhhYf'[Yb]Y»Ybž'k À\fYbX'X]Y'?]bXYf'Ui Z'XYaGd]Y`d`Uhn'GdU» '\UVYb"

CVk c\``7chhVi g`Y]bY`GhUXh`a]h`Y]bYf`fY]W\Yb; YgW\]W\hY`]ghž cZZYbVUfh`g]W\`X]Y`GW\Òb\Y]h`XYf`BUhi f`]b`XYf`I a [YVi b[`]b j c``ghYa `I a ZUb["`A]h`gY]bYb`j]Y`ZÀ`h][Yb`BUhi fgW\i hn[YV]YhYb i bX`DUf_g`V]YhYh`7chhVi g`Y]bY`dYfZY_hY`6U`UbWY`nk]gW\Yb i fVUbYa `@YVYb`i bX`bUhi fVY`UggYbYb`FØW_ni [gcfhYbž`X]Y`YXYb 6Ygi W\`ni `Y]bYa `i bj Yf[Ygg`]W\Yb`9f`YVb]g`a UW\Yb"

? i `]bUf]gW\Y'<][\`][\hg. '9ggYb'i bX'Hf]b_Yb]b'7chhVi g

7 chhVi gž·X]Y·[fØbY·CUgY·]b·XYf·@Ui g]hnž·\Uh·b]W\hrbi f·j]Y··ni
V]YhYbž·k Ybb·Yg·i a ·BUhi f·[Y\hž·gcbXYfb·Ui W\k Ybb·Yg·i a g
9ggYb·i bX·Hf]b_Yb·[Y\h"·8]Y·GhUXh·V]YhYh·Y]bY·Ui ZfY[YbXY
_i `]bUf]gW\Y·GnYbYž·X]Y·gck c\`·hfUX]h]cbY``Y·XYi hgW\Y·?ØW\Y·U`g
Ui W\i]bhYfbUh]cbU`Y·9]bZØggY·i a ZUggh"·

9]b 6Ygi W\]b 7chhVi g k λ fY b]W\ h j c \ gh λ bX][c \ bY X]Y

 $J Yfgi W i b [\check{z}'Y]b `GhØW `XYf'fY []cbU`Yb `? ØW Y `ni `dfcV]YfYb "`8]Y @Ui g]hn `]gh `VY _Ubbh `ZØf'] \ fY `\ Yfn \ UZhYb `; Yf]W hY \check{z}'X]Y `c Zh `a]h Zf]gW Yb `i b X `fY []cbU`Yb `Ni hUhYb `ni VYfY]hYh `k YfXYb "`<]Yf `g]b X Y]b][Y `_i `]b Uf]gW Y `<][\`][\ hgž `X]Y `Xi `b]W h'j Yfd UggYb `gc ``hYgh$

- @Ui g]hnYf'6]fbYbghc``Yb.'9]b'hfUX]h]cbY``Yg'; YVÀW_ž'XUg VYgcbXYfg'ni f'K Y]\bUW\hgnY]h'VY`]YVh']gh"'9g'\UbXY`h'g]W\ i a 'Y]bYb'gUZh][Yb'?i W\Ybž'XYf'a]h'6]fbYb'i bX'; Yk ØfnYb ni VYfY]hYh'k]fX"
- GUi YfVfUhYb. '9]b'_`Ugg]gW\Yg'XYi hgW\Yg'; Yf]W\hž'XUg']b XYf'FY[]cb'gY\f'[YgW\Ahnhik]fX"'8Ug'F]bXZY]gW\ik]fX ØVYf'a Y\fYfY'HU[Y'a Uf]b]Yfh'i bX'XUbb'`Ub[gUa [YgW\a cfhž'V]g'Yg'nUfh']gh"
- GWX k ÀV]gWX Yf'A Ui `hUgWX Yb.'8]YgY'HY][hUgWX Yb'[YZØ``h
 a]h': `Y]gWX ž'Gd]bUh'i bX'; Yk ØfnYb'g]bX'YVYbZU``g'Y]b
 <][\`][\h"'G]Y'k YfXYb'[YfbY']b'6fØ\Y'gYfj]Yfh'cXYf
 [YVfUhYb'Ub[YVchYb"

BYVYb`XYb`\Yfn\UZhYb`GdY]gYb`[]Vh`Yg`]b`7chhVi g`Ui W\`Y]bY
J]Y`nU\``Ub`[Ya Øh`]W\Yb`7UZÅg`i bX`FYghUi fUbhgž`X]Y`Y]bY`VfY]hY
DU`YhhY`Ub`; YhfÀb_Yb`UbV]YhYb"`8]Y`FY[]cb`]gh`VY_Ubbh`ZØf`]\fY
\Yfj cffU[YbXYb`6]YfY`gck]Y`Y]b][Y``c_U`Y`K Y]bY"`6Ygi W\Y`Y]bYg
XYf`7chhVi gYf`6fUi\Ài gYfž`k c`Xi`XUg`Zf]gW\`[YVfUi hY`6]Yf`X]fY_h
j ca `: Ugg`[Yb]Y»Yb`_Ubbgh"

: Øf K Y]b`]YV\UVYf V]YhYh X]Y I a [YVi b[i a '7chhVi g'Ui W 'Y]b][Y _`Y]bYfY K Y]b[ØhYfž X]Y fY[]cbU`Y K Y]bY UbV]YhYb" 8]YgY K Y]bYž X]Y c Zh Ui g 'HfUi VYb 'XYf 'bÀ\YfYb I a [YVi b['ghUa a Ybž g]bX 'Y\Yf i bVY_Ubbhž UVYf 'XYZ]b]h]j 'Y]bYb 'J Yfgi W 'k Yfh" <]Yfni '[Y\Ôfh Ui W 'XUg 'gc[YbUbbhY @Ui g]hnYf K Y]b! 7 UZÅ ž k c 'Xi 'X]Y j YfgW]YXYbYb K Y]bY 'j Yf_cghYb '_Ubbgh"

9ggYb']b'7chhVi g']gh'b]W\h'bi f'Y]bY': fU[Y'XYg'; YgW\a UW_gž gcbXYfb'Ui W\'Y]b'9f`YVb]g'ZØf'X]Y'G]bbY"'J]Y`Y'FYghUi fUbhgž'k]YXUg' GhUXhk]fhgW\UZh'7chhVi g ž'`Y[Yb'[fc»Yb'K Yfh'Ui ZFY[]cbU`]hÀh'i bX'BUW\\U`h][_Y]h"'<]Yf'_ca a h'b]W\hg'Ui Z'XYbH]gW\ž'kUg'b]W\h'Ui g'XYf'FY[]cb'ghUa a h'cXYf'Ufh[YfYW\h dfcXi n]Yfh'ki fXY"'8]Y'`]YVYj c``Y'Ni VYfY]hi b['XYf'GdY]gYb'i bX

X]Y'UbgdfYW\YbXY'DfÀgYbhUh]cb'a UW\Yb'YXYg'9ggYb'\]Yf'ni Y]bYa 'VYgcbXYfYb'9f`YVb]g"

K Ybb Xi 'X]Y '5VYbXY']b '7chhVi g 'Ui g_`]b[Yb '`UggYb 'a ÒWk hYghž'[]Vh Yg'j]Y 'Y '6Ufg'i bX '@ci b[Ygž']b 'XYbYb 'Xi 'XY]bY 'NY]h 'VY]'Y]bYa ; `Ug'7cW_hU]`g'cXYf'Y]bYa '[i hYb'; `Ug'K Y]b'[Yb]Y» Yb'_Ubbgh"'8]Y 5ha cgd\ÀfY']gh']b 'XYf'FY[Y`'YbhgdUbbh'i bX'ZfYi bX`]Wk ž'k Ug'XUni Y]b`ÀXhž'X]Y '`c_U`Y '@YVYbgUfh'ni 'Yf`YVYb"

<]Yf'Y]b', VYfV`]W_'ØVYf'Y]b][Y'Ya dZc\`YbY'@c_U`Y'i bX'XYfYb 5b[YVchY.

FYghUi fUbh	Hmd]gWXY; $Yf]WXhY$	6YgcbXYf\Y]h
GhUXhk]fhgWXUZh	GUi YfVfUhYbž	FY[]cbU`]hÀh
7 chhVi g	A Ui `hUgW\Yb	
@Ui g]hnYf^6fUi \Ui g	6]Yfjca:Ugg	<ui g[yvfui="" hyg<sup="">.6]Yf</ui>
@Uig]hnYfKY]b!7UZÅ	FY[]cbU`Y`KY]bY	K Y]bj Yf_cghi b[Yb

A]h'Y]bYf'J]Y`nU\``Ub'FYghUi fUbhgž'X]Y'g]W\`Ui Z'i bhYfgW\]YX`]W\Y ? ØW\Yb'gdYn]U`]g]Yfh'\UVYbž'Z]bXYgh'Xi `]b'7chhVi g'[Ubn'g]W\Yf Yhk Ugž'XUg'XY]bYa '; YgW\a UW_'Ybhgdf]W\h'''9[U`ž'cV'Xi '@ gh'Ui Z XYZh][Y'<Ui ga Ubbg_cgh'\Ugh'cXYf'`]YVYf'Yhk Ug'9I ch]gW\YfYg gi W\gh' 'X]Y'GhUXh'\Uh'ZØf'YXYb'; Ui a Yb'Yhk Ug'ni 'V]YhYb''

?i`hif'i bX'JYfUbghU`hi b[Yb.'K Ug'7chhVi g ni 'V]YhYb'\Uh

7 chhVi gžY]bY'GhUXh']a '< YfnYb'j cb'6fUbXYbVi f[ž']gh'b]W\h'bi f'ZØf]\fY'VYY]bXfi W_YbXY'; YgW\]W\hY'i bX'bUhØf`]W\Y'GW\Òb\Y]h VY_Ubbhž'gcbXYfb'Ui W\'ZØf']\f'`YVYbX][Yg'?i `hi f`YVYb'i bX nU\`fY]W\Y'J YfUbghU`hi b[Ybž'X]Y'XUg'[UbnY' \pm U\f'ØVYf'ghUhhZ]bXYb''?i `hi f]bhYfYgg]YfhY'i bX'9j Ybh`]YV\UVYf'Z]bXYb'\]Yf'Y]bY': Ø``Y'j cb A $\hat{O}[`]WX_Y]hYbZ'i$ a ']b'X]Y'`c_U`Y'?i bgh!ž'A i g]_!'i bX'H\YUhYfgnYbY Y]bni hUi W\Yb"

9]b'<][\`][\h']a '_i `hi fY``Yb'? U`YbXYf']gh'XUg'7chhVi gYf
:]`a ZYgh]j U`ž'XUg'^À\f`]W\']a 'Bcj Ya VYf'ghUhhZ]bXYh'''9g'nÀ\`h'ni
XYb'À`hYghYb'i bX'VYXYi hYbXghYb':]`a ZYgh]j U`g']b'8Yi hgW\`UbX
i bX'V]YhYh'Y]bY'D`UhhZcfa 'ZØf'Ui ZghfYVYbXY':]`a Ya UW\Yf'''N]Y``XYg
: Ygh]j U`g']gh'Ygž'\YfUi gfU[YbXY'DfcXi _h]cbYb'Ui g'XYa '6YfY]W\
XYg'Yi fcdÀ]gW\Yb':]`a g'ni 'dfÀgYbh]YfYb'''9]bk c\bYf'i bX
6Ygi W\Yf'\UVYb'X]Y'; Y`Y[Yb\Y]hž'nU\`fY]W\Y':]`a Y'ni 'gY\Ybž'Ub
gdUbbYbXYb'8]g_i gg]cbYb'hY]`ni bY\a Yb'i bX'X]Y'_fYUh]j Y'5fVY]h
j cb'FY[]ggYi fYbž'GW\Ui gd]Y`Yfb'i bX'DfcXi nYbhYb'\Ui hbU\'ni
Yf`YVYb"

9]bY'k Y]hYfY'nYbhfU`Y'_i `hi fY``Y'\bgh]hi h]cb']b'7chhVi g']gh'XUg GhUUhgh\YUhYf'7chhVi gž'XUg'a]h'Y]bYa 'UVk YW\g`i b[gfY]W\Yb Dfc[fUa a 'Ui g'CdYfbž'A i g]WU`gž'GW\Ui gd]Y``i bX'6U``Yhh Ui Zk UfhYh''8Ug'H\YUhYf'\Uh'g]W\'b]W\h'bi f'Y]bYb'BUa Yb'ZØf ei U`]hUh]j '\cW\k Yfh][Y'5i ZZØ\fi b[Yb'[Ya UW\hž'gcbXYfb'Ui W\'ZØf]bbcj Uh]j Y'i bX'a cXYfbY'\bgnYb]Yfi b[Ybž'X]Y'gck c\`'_`Ugg]gW\Y U`g'Ui W\'nY]h[YbÒgg]gW\Y'K Yf_Y'i a ZUggYb'''8]Y'?ca V]bUh]cb'Ui g hfUX]h]cbY``Yf'5fW\]hY_hi f'i bX'a cXYfbYa 'H\YUhYfVYhf]YV'a UW\h

Ni gÀhn`]W\ni 'X]YgYb'JYfUbghU`hi b[Yb'Z]bXYh']b'7chhVi g'Ui W\'XUg 7chhVi gYf'GhUXhZYgh'ghUhhž'Y]b': Yghž'XUg'@cWU`g'i bX'Hci f]ghYb ni gUa a YbVf]b[h"'<]Yf'k YfXYb'`c_U`Y'?Øbgh`Yfž': ccXhfi W_g'i bX <UbXk Yf_Yf'Ui g'XYf'FY[]cb'dfÀgYbh]Yfh"'5i Z'j YfgW\]YXYbYb 6Ø\bYb'_ObbYb'6Ygi W\Yf'@j Y!A i g]_'Ui g'i bhYfgW\]YX`]W\Yb ; YbfYg'Yf`YVYb' 'j cb'FcW_'ØVYf'Dcd'V]g'\]b'ni 'hfUX]h]cbY``Yf : c`_`cfY"

?i bgh! i bX ?i `hi fZfYi bXY '_ObbYb 'Ui W\ 'X]Y 'A i gYi a g`UbXgW\UZh]b '7 chhVi g 'Yf_i bXYb" '8 Ug '6]`Xi b[g! i bX '?i `hi fnYbhfi a 8 U\ `]hn T ']gh 'Y]b 'VYgcbXYfYf 'C fhž 'k c '5 i gghY ``i b[Ybž 'K cf_g\cdg i bX '@Ygi b[Yb 'ghUhhZ]bXYb" '<]Yf 'k]fX ']a 'K YW\ gY `_i bgh '[YnY][hž X]Y 'j cb 'fY[]cbU`Yb'? Øbgh `Yfb 'gck]Y 'j cb ']bhYfbUh]cbU`Yb'; ÀghYbghUa a hž 'k Ug 'Y]b Yb 'gdUbbYbXYb' '9]bV`]W_ ']b 'X]Y 'U_hi Y``Y?i bghqnYbY 'Yfa O[`]W\ h"

 $8\,]Y\,{}^{\circ}6\,fUb\,XYb\,Vi\,\,f[\,\,Yf\,{}^{\circ}GhfU_{\flat}\,Y\,{}^{\circ}]gh\,{}^{\circ}b\,]WX\,h\,{}^{\circ}bi\,\,f\,{}^{\circ}Y\,]b\,Y\,{}^{\circ}VY\,{}^{\circ}]Y\,V\,hY$

9]b_Ui ZgghfU» YžgcbXYfb'Ui W\'Y]b'_i `hi fY``Yg'NYbhfi a "'<]Yf Z]bXYb'fY[Y`a À»]['GhfU» YbZYghYž'?i bgha Àf_hY'i bX'Dfc'Y_hY'ghUhhž X]Y'@c_U`_c`cf]h'i bX'6Øf[YfYb[U[Ya Ybh'ZÒfXYfb"'6YgcbXYfg']a Gca a Yf'j Yfk UbXY`h'g]W\'X]Y'GhfU» Y']b'Y]bY'[YgY``][Y:`Ub]Yfa Y]`Yž'Ui Z'XYf'?cbnYfhY'i bX'H\YUhYfUi ZZØ\fi b[YbghUhhZ]bXYb"

9]b'k Y]hYfYf'k]Wkh][Yf'Di b_h']b'XYf'?i `hi fgnYbY']gh'XUg'7chhVi gYf?Ua a YfcfWkYghYfž'XUg'fY[Y`a À»]['?cbnYfhY']b'j YfgWk]YXYbYb@cWUh]cbg'XYf'GhUXh'[]Vh'''9g'fY]Wkh'j cb'_`Ugg]gWkYb'Gma d\cb]YbV]g'\]b'ni 'a cXYfbYb'GhØW_Yb'i bX'gcf[h'XUZØfž'XUgg'ZØf''YXYbAig]_[YgWka UW_Yhk Ug'[YVchYb']gh'''Ni 'XYb'VYgcbXYfYbJYfUbghU'hi b[Yb'[Y\OfYb'cZh'Ui Wk'?c``UVcfUh]cb'a]hHUbnWca dUbmg'i bX'7\OfYbž'X]Y'XYa 'Di V`]_i a 'Y]bi bj Yf[Ygg`]WkYg'9f`YVb]g'V]YhYb''

: Øf`X]Y Yb][Ybž`X]Y g]W\ ZØf`HfUX]h]cbYb`i bX`: YghY`]b`XYf`FY[]cb]bhYfYgg]YfYbž`]gh`XYf`A U]VUi a Ui ZghY``i b[g!i bX`XYf 9fbhYXUb_ZYgh`]b`7chhVi g`Y]b`YW\hYg`9f`YVb]g"`8]YgY`hfUX]h]cbY``YbJYfUbghU`hi b[Yb`n]Y\Yb`nU\`fY]W\Y`6Ygi W\Yf`i bX`Vf]b[Yb`X]Y; Ya Y]bgW\UZh`ni gUa a Ybž`i a `ni `ZY]Yfb`i bX``c_U`Y`6fÀi W\Y`ni dZY[Yb"

7chhVi gʻV]YhYhʻUi »YfXYa ʻj YfgWX]YXYbYʻK cf_g\cdgʻi bX
J YfUbghUʻhi b[YbžʻX]Yʻg]WXʻUi Zʻ`c_UʻYʻ<UbXk Yf_g_i bghʻi bX
HfUX]h]cbYbʻ_cbnYbhf]YfYb"ʻ8]YgYʻg]bXʻ]XYUʻʻZØfʻFY]gYbXYžʻX]Y
Yhk UgʻØVYfʻX]Yʻ?i `hi fʻi bXʻX]Yʻ_fYUh]j Yʻ; YgWX]WXhYʻXYfFY[]cb
YfZU\fYbʻa ÒWXhYb"ʻ8]YʻK cf_g\cdgʻXYW_Ybʻj YfgWX]YXYbY
6YfY]WXYʻUVžj cbʻHÒdZYfbʻV]gʻni '<UbX`YhhYf]b['i bX'k Y]hYfYb
_fYUh]j Ybʻ8]gn]d`]bYb"

$HcdGY\Ybgk\@fX][\ _Y]hYb.\Aigh!GYY\CfhY\]b$ 7 c hhVi g

7 chhVi gž'U`g'Y]bY XYf'À`hYghYb'GhÀXhY']b'6fUbXYbVi f[ž'\Uh'Y]bY
: Ø``Y'j cb'\]ghcf]gW\Yb'i bX'_i `hi fY``Yb'GY\Ybgk ØfX][_Y]hYb'ni
V]YhYbž'X]Y'Y]bYb'6Ygi W\'k Yfh'g]bX"'9[U`ž'cV'Xi 'Ub'; YgW\]W\hYž
5fW\]hY_hi f'cXYf'XYf'BUhi f']bhYfYgg]Yfh'V]ghž'\]Yf'g]bX'Y]b][Y'XYf
VYghYb'CfhYž'X]Y'Xi 'VY]'XY]bYa '5i ZYbh\U`h']b'7chhVi g'b]W\h
j YfdUggYb'gc``hYgh"

- GcfV]gWX Yg'A i gYi a ."HUi WX Y'Y]b']b'X]Y'fY]WX Y
 ; YgWX]WX hY'i bX'?i `hi f'XYf'GcfVYbž'Y]bYa 'g`Uk]gWX Yb
 J c`_ž'XUg']b'XYf'FY[]cb'`YVh"'8 Ug'A i gYi a 'V]YhYh
]bhYfYggUbhY'5i gghY``i b[Yb'i bX'JYfUbghU`hi b[Ybž'X]Y'X]Y
 HfUX]h]cbYbž'6fÀi WXY'i bX'XUg'@YVYb'XYf'GcfVYb
 VY`Yi WX hYb"
- ; `UX]hnYf'K]bXa Ø\`Y.'8]YgY'fYghUi f]YfhY'A Ø\`Y']gh'Y]b
 ZUbhUgh]gW\Yg'6Y]gd]Y`'ZØf'hfUX]h]cbY``Y'5fW\]hY_hi f'i bX
 V]YhYh'Y]bYb'k i bXYfgW\ObYb'6`]W_'ØVYf'X]Y'i a `]Y[YbXY
 @UbXgW\UZh"'9]b'6Ygi W\'\]Yf'[]Vh'X]f'Ui W\'X]Y'A O[`]W_Y]hž
 a Y\f'ØVYf'X]Y'A Ø\`YbhYW\b]_'XYf'JYf[Ub[Yb\Y]h'ni
 YfZU\fYb"
- GhUUhgh\YUhYf'7chhVig.'9]b'UVgc`i hYg'Aigg'ZØf ?i`hif]bhYfYgg]YfhY"8Ug'GhUUhgh\YUhYf']gh'b]W\h'bif'Y]b UfW\]hY_hcb]gW\Yg'AY]ghYfkYf_ž'gcbXYfb'V]YhYh'UiW\'Y]bY VfY]hY'DU`YhhY'Ub'5iZZØ\fib[Yb'jcb'CdYfbž'GW\Uigd]Y`Yb ibX'6U``YhhYb"
- DUf_g'i bX'; ÀfhYb.'8]Y'GhUXh']gh'fY]W\'Ub'; fØbZÀW\Yb"
 6YgcbXYfg'Yfk À\bYbgk Yfh']gh'XYf'DUf_'XYf'7chhVi gYf

- C ghX Yi hg W Y b ; A fhY b ž Y] b Y] b n] [Ufh] [Y f 'V c hUb] g W Y f ; UfhY b ž X Y f 'D Z Ub n Y b 'Ui g 'j Y f g W] Y X Y b Y b '? `] a Unc b Y b 'X Y f K Y `h 'V Y \ Y f V Y f [h"
- GWX `cgg'7chhVi g. '8]YgYg'Y]bXfi W_gj c``Y'6Ui k Yf_']ghY]b
 \Yfj cffU[YbXYg'6Y]gd]Y``ZØf'FYbU]ggUbWYUfWX]hY_hi f"'=a
 =bbYfYb'_ObbYb'X]Y'6Ygi WXYf'X]Y'j YfgWX]YXYbYb
 5i gghY``i b[Yb'Yf_i bXYbž'X]Y'X]Y'; YgWX]WXhY'XYf'GhUXh
 i bX']\fYf'6Yk c\bYf'XUfghY``Yb"
- Gh"'B]_c`U]!?]fWXY.'8]YgY'VYY]bXfi W_YbXY'?]fWXY'V]YhYh
 Y]bYb'6`]W_'Ui Z'X]Y'[ch]gWXY'5fWX]hY_hi f'i bX'Y]bY'fi \][Y
 5ha cgd\ÀfYž'X]Y']XYU`']ghž'i a 'X]Y'*bgd]fUh]cb'XYf'?i bgh
 i cb'*bbYb'ni '[Yb]Y»Yb"

9]bY'VYgcbXYfY'GY\Ybgk ØfX][_Y]hz'X]Y']b'XYb'`YhnhYb'\\J\fYb]a a Yf'a Y\f'Ub'6YXYi hi b['[Yk cbbYb'\Uhz']gh'XYf'GdfYYk U`X"Bi f'Y]bY'_i fnY': U\fh'j cb'7chhVi g'YbhZYfbh'_Ubbgh'Xi 'X]Y]Xm``]g\\Yb'K UggYfk Y[Y'i bX'X]Y'UhYa VYfUi VYbXY'BUhi f'XYg I B9G7C!6]cgd\\AfYbfYgYfj Uhg'Yf'YVYb'''<]Yf'\Ugh'Xi 'X]Y A \(\doldo[']\\X_Y]hz'?\Ubi \(Z\)\fhYb'ni 'i bhYfbY\\a Yb'cXYf'X]Y'fY[]cb\U`Yb\\GdYn]\U`]h\\AhYb'k]Y'X]Y'VYf\(\Omega\)\a hYb'GdfYYk \(\delta\)XYf'; i f_Yb'ni dfcV]YfYb"

$<]ghcf]gWXY^5hghUXh$

 $8]Y \cdot 5 \cdot hghUXhij cb \cdot 7 chhVi g \cdot]gh'Y]b \cdot k \ U \setminus fYg \cdot \cancel{k} \ k \ Y \cdot "A]h'] \setminus fYb \cdot [ih Yf \setminus U \cdot hYb \cdot Yb \cdot A \cdot gYfb \cdot U i g \cdot XYa \cdot \%, "ib X \cdot \% - "J \setminus f \setminus ib XYfh i b X \cdot XYb W \cdot Ufa Ub hYb \cdot GhfU \ Yb \cdot j \ Yfa]hhY \cdot h'g]Y \cdot Y]b Yb \cdot V Ygcb XYfYb \]ghcf]gW \ Yb : \ `U]f" \cdot 9]b \cdot Gd Un]Yf[\ Ub[\ Xi \ fW \ X]Y \cdot B \ Yi \ a \ Uf_ Yf \ GhfU \ Y \ i \ b X \ X \ Ug' < c gd]hU \ _]fW \ Y!J]YfhY \ `']gh Y]b \cdot A \ i \ ggži \ a \ X]Y \ `c_U \ Y \cdot 5 fW \]hY_hi \ f \ ni \ '[Yb]Y \ Yb \ i \ b X \ Y]b Yb \ '9]b Xfi \ W_j \ ca \ gh\ Xh]gW \ Yb \ @Y \ V Yb \ ']b \ Zf\ \ V \ Yf Yb \ NY]hYb \ ni \ `V Y_ca \ a \ Yb "$

GY\Ybgk ØfX][_Y]h	² ZZbi b[gnY]hYb	5 X f Y g g Y
GcfV]gW\Yg ⁻ AigYia	8]!Gc^%\$.\$\$!%+.\$\$	6Yf`]bYf'Ghf"'%*ž
		\$' \$(* ⁻ 7chhVi g
; `UX]hnYf	A c!: f'%\$.\$\$!%, .\$\$; `UX]hnž'\$' \$(*
K]bXaØ\`Y		7 chhVig
GhUUhgh\YUhYf	¥.p∩M	?Uf`!@]YV_bYW\h!Ghf"

GY\Ybgk ØfX][_Y]h	² ZZbi b[gnY]hYb	5 X f Y g g Y
7 chhVig	JYfUbghU`hib[&(ž'\$'\$(*'7chhVig
DUf_'XYf'7chhVigYf	HÀ[`]WX`\$\$\$!%,.\$\$	5a 'HY]W\ '%ž'\$' \$(&
CghXYi hgWXYb		7 chhVig
; ÀfhYb		

: Øf X]Y Yb][Ybž X]Y Yhk Ugʻa Y\fʻØVYfʻX]YʻI a [YVi b[gʻUbXgW\UZh j cb '7 chhVi gʻYfZU\fYbʻa ÒW\hYbž jghʻY]b '5i gZi [ˈni a ˈ**GWk UfnY Di a dY** 'VYgcbXYfgʻfY]nj c``"8]Y FY[]cb 'nY]W\bYhʻg]W\ 'Xi fW\']\fY VYY]bXfi W_YbXYbʻGYYbʻi bXʻA ccf[YV]YhYʻUi gž]b 'XYbYbʻg]W\'j]Y`Y J c[Y`UfhYbʻb]YXYf`UggYbʻi bXʻdYfZY_hYʻA Ò[`]W_Y]hYbʻni f J c[Y`VYcVUW\hi b[`V]YhYb"

5 V g W \] Y \ Y b X '] g h '7 c h h V i g 'Y X c W 'b] W h 'b i f 'Y] b Y 'G h U X h 'Z Ø f ; Y g W] W h h h j i g Y f 'C X Y f 'B U h i f `] Y V \ U V Y f " <] Y f '[] V h 'Y g 'U i W 'X U g ' 7 c h h V i g Y f 'D Z Y f X Y g d c f h n Y b h f i a ž'k Y `W Y g 'X U g '[U b n Y '\text{U} \ f ' Ø V Y f n U \ `f Y] W \ Y 'F Y] h i b X 'D Z Y f X Y g d c f h j Y f U b g h U `h i b [Y b 'U i g f] W \ h Y h '' 9] b 6 Y g i W \ \] Y f j Y f a] h h Y `h Y] b Y b ``Y V Y b X] [Y b '9] b X f i W _ 'X Y g D Z Y f X Y g d c f h g '] b 'X] Y g Y f 'F Y [] c b 'i b X '] g h 'Y] b Y 'h c ``Y '9 f Z U \ f i b ['Z Ø f X] Y [U b n Y ': U a] `] Y "

6Yk UZZbYh'a]h'X]YgYf'@]ghY'XYf'Hcd!GY\Ybgk ØfX][_Y]hYb']b
7chhVi gž'_Ubbgh'Xi 'g]W\YfghY``Ybž'XUgg'XY]b'5i ZYbh\U`h']b'X]YgYf
W\Ufa UbhYb'GhUXh'i bj Yf[Ygg`]W\'k]fX"; Yb]Y»Y'X]Y'?ca V]bUh]cb
Ui g'?i `hi fž'BUhi f'i bX'; YgW\]W\hY'i bX'Yf_i bXY'X]Y'j]Y`ZÀ`h][Yb
: UWYhhYb'X]YgYf'Y]bn][Ufh][Yb'GhUXh']b'6fUbXYbVi f["

; $Y \setminus Y = h \cdot d \cdot g \cdot Z \cdot G \cdot X \cdot Y \cdot b \cdot d \cdot Y \cdot f \cdot Z \cdot Y - h \cdot Y \cdot b \cdot G \cdot Y \cdot G \cdot W \cdot Y \cdot B \cdot G \cdot Y \cdot G$

7 chhVi gž c Zh U g; Y Y]a h]dd i bhY f X Y b GhÀ X hY b 6 f Ub X Y b Vi f [g Ub [YgY \ Y b ž \ Uh Y]b][Yg ni V]Y hY b ž X Ug U V gY]hg X Y g Ø V] W Y b H ci f]ghY b d ZU X Y g []Y [h " 9 [U ž c V X i Y]b ; Yg W] W hg]b hY f Y gg]Y f hY f ž B Uhi f] Y V \ UV Y f c X Y f : Y]b g W a Y W Y f V]ghž Y g [] V h j] Y Y j Y f V c f [Y b Y G W Àhn Y ni Y b h X Y W Y b " <] Y f g]b X Y]b][Y ; Y \ Y]a h]d d g ž X]Y X Y]b Y b 6 Y g i W] b 7 c h h V i g i b j Y f [Y gg] W a U W Y b k Y f X Y b "

%" 8]Y GdfYYUi Yb $^{\circ}$ 9]b j YfghYW_hYg B Uhi fdUfUX]Yg

K i gghYgh'Xi ž'XUgg'X]Y'GdfYYUi Yb'bi f'Y]bYb'_i fnYb'GdUn]Yf[Ub[j ca 'GhUXhnYbhfi a 'YbhZYfbh'g]bX3'8]YgYg'fi \][Y'; YV]Yh'Ybh'Ub[XYf'GdfYY']gh']XYU`'ZØf'Y]bYb'YbhgdUbbYbXYb'GdUn]Yf[Ub['cXYf Y]b'D]W_b]W_"'8]Y'5i Yb'`UXYb'b]W\h'bi f'ni f'9f\c`i b['Y]bž'gcbXYfb g]bX'Ui W\'Y]b'DUfUX]Yg'ZØf'J c[Y`VYcVUW\hYf"'5W\hY'VYgcbXYfg Ui Z'gY`hYbY'K UggYfj Ò[Y`k]Y'XYb'9]gj c[Y`"

&"'8 Ug'7chhVi gYf'GYYb`UbX' K UggYfgdcfh'i bX'5 VYbhYi Yf

9hk Ugʻk Y]hYfʻUi » Yf\U`Vʻ`]Y[h'XUgʻ7chhVi gYfʻGYYb`UbXž'k cʻXiʻX]WX a]hʻK UggYfgdcfhU_h]j]hÀhYbʻk]YʻGY[Y`bžʻK]bXgi fZYbʻcXYfʻgc[UfGhUbX!I d!DUXX`]b[ʻUi ghcVYbʻ_Ubbgh"ʻ9gʻ[]Vh'nU\`fY]WXYʻGhfÀbXYž UbʻXYbYbʻXiʻX]WXʻYbhgdUbbYbʻcXYfʻY]bʻD]W_b]W_ʻ]a ; fØbYb [Yb]Y» Ybʻ_Ubbgh"ʻ8]Yʻa U`Yf]gWXYʻ@UbXgWX UZhʻ]ghʻdYfZY_hʻZØfʻ: chcg i bXʻ`ÀXhʻXUniʻY]bž'X]YʻB Uhi f'ni 'Yf`YVYb"

""8 Ug`k i bXYfgW\ObY`GW\`cgg`6fUb]hn

CVk c\``XUg`GW\`cgg`6fUb]hn`U`g`GY\Ybgk ØfX][_Y]h`VY_Ubbh`]ghž []Vh`Yg`Y]b][Y; Y\Y]a h]ddgž`X]Y`cZh`ØVYfgY\Yb`k YfXYb"`8Yf GW\`cggdUf_ž`Ybhk cfZYb`j ca `VYfØ\a hYb`@UbXgW\UZhg[YghU`hYf <Yfa Ubb`j cb`DØW_`Yf!A i g_Ui ž`]gh`Y]b`k U\fYg`?i bghk Yf_"` JYfdUggY`b]W\h`X]Y`ZUgn]b]YfYbXYb`G]W\hUW\gYb`i bX`j YfghYW_hYb ; UfhYbfÀi a Yž`X]Y`X]W\`]b`Y]bY`UbXYfY`K Y`h`YbhZØ\fYb"

$("@c_U`Y?ibghgnYbY`Yf_ibXYb$

7 chhVi g`\Uh'Y]bY``YVYbX][Y'?i bghgnYbYž'X]Y'cZh']a 'GW\UhhYb'XYf [fc>Yb'AigYYb'ghY\h''GW\Ui'X]f``c_U`Y'; U`Yf]Yb'Ubž'k]Y'X]Y'; U`Yf]Yb'Ubž'k]Y'X]Y'; U`Yf]Yb'Ubž'k]Y'X]Y'; U`Yf]Y'ZØf'nY]h[YbÒgg]gW\Y'?i bgh'cXYf'X]Y'j YfgW\]YXYbYb 5hY`]Yf[YaY]bgW\UZhYbž'X]Y'cZh'JYfUbghU`hi b[Yb'i bX 5i gghY``i b[Yb'UbV]YhYb'''<]Yf'_Ubbgh'Xi 'hU`Ybh]YfhY'`c_U`Y? Øbgh`Yf'hfYZZYb'i bX'j]Y``Y]W\h'gc[Uf'Y]b'Y]bn][Ufh][Yg'GhØW_'a]h bUW\'\C\Ui gY'bY\aYb''

) "'GhfYYh': ccX'i bX'A Àf_hY' '9]b'_i `]bUf]gW\Yg'5VYbhYi Yf

 $\label{eq:continuous} I a \ \ `X]Y \ _i \ `]b \ Uf]g \ \ X \ \ Y \ \]Y \ \ ZU \ `h' \ 7 \ c \ hh \ V i \ g \ \ `ni \ \ 'Y \ f`Y \ V \ Y \ b \ z' \ gc \ ``h \ Y \ gh' \ X i \ \ 'X]Y$

`c_U`Yb`A Àf_hY`VYgi WXYb"`Jcf`U``Ya `XYf`k ÒWXYbh`]WXY`A Uf_h`Ui Z XYa `5`ha Uf_h`V]YhYh`Y]bY`: Ø``Y`j cb`Zf]gWXYb`DfcXi _hYbž \UbXk Yf_`]WXYb`@YVYbga]hhY`b`i bX`nY]hk Y]gYb`GhfYYh!: ccX! GhÀbXYb"'<]Yf`_Ubbgh`Xi `b]WXh`bi f``c_U`Y`? Ògh`]WX_Y]hYb dfcV]YfYbž'gcbXYfb`Ui WX`a]h`XYb`ZfYi bX`]WXYb`5bV]YhYfb d`Ui XYfb"

*" $^{"}$ VYfbUW\hi b[$^{"}$]b $^{"}$]ghcf]gW\Ya $^{"}$ 5a V]YbhY

K Ybb Xi 'Ui ZXYf'Gi W.Y'bUW. 'Y]bYf'Y]bn][Ufh][Yb , VYfbUW.hi b[ga Ò[`]W_Y]h'V]ghž'gc ``hYgh'Xi 'XUg' < c hY ` '/ F YghUi fUbh'5 `hY'GW i `Y']b XYf'B À\Y'j cb '7 chhVi g']b '6YhfUW.h n]Y\Yb"'8]YgYg'W.Ufa UbhY' < chY`'VYZ]bXYh'g]W.']b 'Y]bYa Y\Ya U`][Yb'GW.i `[YVÀi XY'i bX'V]YhYh'b]W.h'bi f'Y]bY'[Ya Øh`]W.Y , VYfbUW.hi b[ž'gcbXYfb'Ui W.'Y]bY']bhYfYggUbhY'; YgW.]W.hY"'8Yf \]ghcf]gW.Y'7\Ufa Y'k]fX'a]h'a cXYfbYa '?ca Zcfh'_ca V]b]Yfh"

+"'DZ`UbnYb`]YV\UVYf'Ui Z[YdUggh.'8Yf'7chhVi gYf6chUb]gW\Y'; UfhYb

, "'<]ghcf]gWXY'GhUXhfi bX[\dot{A} b[Y

 $8 \ Yb_`XUfUb \ Z`X]Y`GhUXh[YgWX]WX hY`Ui Z`Y][YbY`: Ui gh`ni `Yf_i b XYb", VYf`X]Y`\J\fY`k i fXYb`nU\`fY]WXY`GWX Ui hUZY`b`]b`XYf`GhUXh]bghU``]Yfh\ Z`X]Y`Yf_`AfYb \ Z`k Ug`Xi `Ub`j YfgWX]YXYbYb`C fhYb`g]Y\gh"9]b`GdUn]Yf[Ub[Xi fWX X]Y`5`hghUXh`j cb`7chhVi g`ZØ\fh`X]WX`Ub\]ghcf]gWXYb`; YVAi XYb`j cfVY]\ Z`XUfi bhYf`X]Y`VYY]bXfi W_YbXYGhUXh_]fWXY`Gh"`B]_c`U]`i bX`XUg`U`hY`FUh\Ui g"$

CV'Xi 'bif'Y]bYb'HU['cXYf'Y]b'[UbnYg'K cWXYbYbXY']b'7chhVig

j YfVf]b[Yb'a ÒWkhYghžX]YgY'; Y\Y]a h]ddg'\Y`ZYb'X]f'XUVY]ž'X]Y GhUXh'Ui g'Y]bYf'bYi Yb'DYfgdY_h]j Y'ni 'YbhXYW_Yb"'@Ugg'X]Wk'j cb XYb'j YfghYW_hYb'GWkÀhnYb'i bX'XYf'; UghZfYi bXgWkUZh'XYf 7chhVi ggYf'ØVYffUgWkYb°

8 YhU1`a

6Ygi WXYb G]Y i bg Ui Z Y]bY!fY]gY "XY