

HfU]bYf'FU`d\'<UgYb\Øhh`'[Yk À\fhgY`hYbY'9]bV`]W_Y'jcf'XYa 'GU]gcbghUfh

 $\label{eq:continuous} $JZ@^K c^ZgVif[!HfU]bYf'< UgYb^Øhh^h)^hy]^h'jcf^XYa ^GU]gcbghUfh $[Y[Yb^6UmYfb^9]bV^]W_Y^]b^XYb^HfU]bYfU^hU['ibX^VYhcbh': ^YI]V]^hAh''$

8 Yf'J Z@K c`ZgVi f['ghY\h'_i fn'j cf'XYa 'GhUfh'XYf'bYi Yb 6i bXYg`][U!GU]gcbži bX'X]Y'J cfZfYi XY']gh'gck c\`'VY]': Ubg'U`g Ui W\'VY]'Gd]Y`Yfb'gdØfVUf"'5a 'GcbbhU[ž'XYa '%) "' \$'I \fž']gh'Yg YbX`]W\'gck Y]h '8]Y'K Ò`ZY'hfYZZYb'Ui Z'XYb'FY_cfXa Y]ghYf'6UmYfb A ØbW\Yb"': Øf'HfU]bYf'F U`d\' < UgYb\Øhh`ž'XYf'gY]h'&\$\$(']a ; YgW\ÀZh']ghž'[Y\Òfh'XYf'Hfi VY`'i a 'gc`W\Y'Gd]Y`Y'Y]bZUW\'XUni "GY]b'5bgUhn']ghž'g]W\']b'gc`W\Yb'A ca YbhYb'Ui Z'XUg'K YgYbh`]W\Y ni '_cbnYbhf]YfYb'i bX'i bUi Z[YfY[h'ni 'V`Y]VYb"

<UgYb\Øhh``\Uhij]Y``9fZU\fi b[']a 'I a [Ub['a]h`XYf`8 mbUa]_ž`X]Y
]a ': i » VU```\YffgW\h" 8 Ug`9fghYž'k Ug`Xi ``Yfbghž'k Ybb`Xi 'HfU]bYf
V]ghž']ghž'ZYI]VY``ni 'gY]b ž'Yf_`Àfh`Yf"; YfUXY'j cf`Y]bYa 'k]W\h][Yb
Gd]Y``_ÒbbYb'i bj cf\Yf[YgY\YbY'<]bXYfb]ggY'Ui ZhfYhYbž'k]Y`ni a
6Y]gd]Y``J Yf`Yhni b[Yb'j cb'GW\`ØggY`gd]Y`Yfb"' 9g']gh'c Zh'gcž'XUgg
Xi 'U``Yg'ZØf'Y]bY'K cW\Y'd`Ubgh'i bX'XUbb'ZU``Yb'd`Òhn`]W\'XfY]
Gd]Y`Yf'Ui g"'8 Ug'[Y\Òfh'ni 'i bgYfYa '&V ž'gU[h'XYf'HfU]bYfž'XYf
hfchn'X]YgYf'<YfUi gZcfXYfi b[Yb'Y]bYb'_`UfYb': c_i g'Ui Z'gY]bY
5i Z[UVYb'\Uh"</pre>

9]b 6]W Ui Z X]Y HfU]b]b [ga Yh\c X Y b

< UgY b \ Øhh` ']gh' V Y_Ub b h' X U Z Øfž' X Ugg 'Y f' gY]b Y 'Gd]Y `Y f']b hY b g]j 'Ui Z
X]Y '< Y f Ui g Z c f X Y fi b [Y b 'j c f V Y f Y]h Y h'' '9 f' [`Ui V h' Ub 'X]Y 'K] W h h][_Y]h ž
g]W 'b]W h'j c b 'Ài » Y f Y b '9]b Z Øgg Y b 'UV `Y b _Y b 'ni '`Ugg Y b'' K] f' g]b X
X U Z Øf 'Y b [U[]Y f h ž' i b X 'Ui W 'b]W h' g W `Y W h' V Y n U \ `h'' K] f' a Øgg Y b</pre>

i bgʻa]h'XYbʻ; Y[YVYb\Y]hYbʻUi gY]bUbXYfgYhnYbž'X]Yʻk]fʻ\UVYb ž gcʻXYfʻHfU]bYf"ʻ8]YgYʻ9]bghY``i b['nY][hž'XUggʻYfʻYXYfnY]h'VYfY]h]ghžʻg]Wk'XYbʻk YWkgY`bXYbʻ; Y[YVYb\Y]hYbʻ]a': i »VU```ni 'ghY``Yb"

9]b VYgcbXYfg Ya ch]cbU Yf A ca Ybh k]fX ZØf < UgYb\Øhh XYf K]YXYfgY\Yb a]h Y]b Ya gY]b Yf Y\Ya U`][Yb GW Øhn`]b [Y gY]b" 6UmYfbg ?cbfUX @U]a Yf \ Uhi bhYf < UgYb\Øhh VY] F 6 @Y]dn][[Ygd]Y`hži bX XYf HfU]bYf \ Uhi [fc » Yb F YgdY_h j cf XYggYb 9bhk]W_`i b [" ?cbfUX @U]a Yf ``Aggh XUg < Yfn]a a Yf Ui Z XYa D`Uhn " = W \ \ UVY]\b]a a Yf gY\f [YgW Ahnh ž `cVh < UgYb\Øhh`gY]bYb ZfØ\YfYb Gd]Y `Yfž XYf g]W \]bnk]gW Yb Y]bYb D`Uhn]a VUmYf]gW Yb ?UXYf Yf_Aa dZh \ Uh"

8]Y'6Y[Y[bib['nk]gW\Yb'K c`ZgVif['ibX'6UmYfb']gh'b]W\h'bif'Y]b k Y]hYfYg'Gd]Y`']b'XYf'6ibXYg`][Už'gcbXYfb'UiW\'Y]b 5i ZY]bUbXYfhfYZZYb'nk Y]Yf'HfU]bYfž'X]Y'j]Y`'jcbY]bUbXYf Yfk UfhYb'''J]bWbh'?cadUbmž'XYf'bYiY'HfU]bYf'VY]'6UmYfbž']gh YaUbXž'XYb'<UgYb\Øhh`'U`g'[fc»Yb':i»VU``Yf'UbYf_Ybbh'''9f\UhVY]'AUbW\YghYf'7]hm'@Y[YbXYb!GhUhig'ibX']W\'Z]bXYž'Yf'\UhVY]'hg'Ub[YXYihYhž']b'kY`W\Y'F]W\hib['Yg'a]h'6UmYfb'[Y\Yb_ObbhY ž'Yf_`Afh'XYf'HfU]bYf''8]YgY'9]bgW\Ahnib[']gh'b]W\h'bif'Y]b?cad`]aYbhž'gcbXYfb'nY][h'UiW\'XUg'g]W\'Ybhk]W_Y`bXY

GhUf_Y'Ya ch]cbU`Y'6]bXi b[Yb']a :: i » VU``

8]Y'6i bXYg`][U!GU]gcb']gh'VY_Ubbh'ZØf']\fY'\bg]hÀhi bX'X]Y @Y]XYbgW\UZhža]h'XYf'X]Y'Gd]Y`Y'Ub[Y[Ub[Yb'k YfXYb''' < UgYb\Øhh`gdf]W\h'cZhij cb'XYf'Ya ch]cbU`Y'6]bXi b[ž'X]Y'X]Y'Gd]Y`Yf'ni a :i » VU```\UVYb'''G]Y'g]bX'b]W\h'bi f'5h\`YhYbž'gcbXYfb'Ui W\AYbgW\Ybž'X]Y']\fY'9fZU\fi b[Yb'i bX'?cbZ]_hY'Ui Z'XYa 'D`Uhn Ui g`YVYb'''8]Yg'[]`h'gck c\``ZØf'X]Y'Gd]Y`Yf'U`g'Ui W\`ZØf'X]Y'HfU]bYfž X]Y'cZh']b'Y]bY'5fh' GW\i hna cXi g '[Y\Ybž'i a 'a]h'XYa '8 fi W_i a ni [Y\Yb''

=b 'XYf'_ca a YbXYb 'DUfh]Y 'k YfXYb 'b]W\ h'bi f'gdcfh`]W\ Y
: À\][_Y]hYb 'YbhgW\ Y]XYbX 'gY]b" '8]Y ': fU[Yž'k]Y '[i h'X]Y 'HfU]bYf
]\fY 'HYUa g'Ui Z'X]Y '[Y[bYf]gW\ Yb 'GhfUhY[]Yb 'Y]bghY ``Ybž'k]fX

YVYbZU``g'Y]bY'Fc``Y'gd]Y`Yb"'Jcf'U``Ya ']b'X]YgYf'ZfØ\Yb'D\UgY'XYf GU]gcbž'kc''YXYf'Dib_h'nÀ\`Yb'_Ubbž'g]bX'hU_h]gW\Y':]bYggY'ibX aYbhU`Y'GhÀf_Y'YbhgW\Y]XYbX"

<UgYb\Øhn`g`fi\][Y`5fh`_ObbhY`g]W\`U`g`JcfhY]``YfkY]gYbž'kYbb
gY]b`HYUa`[Y[Yb`X]Y`6UmYfb`gd]Y`h"`8]Y`JcfVYfY]hi b[Ybž'i bhYf
XYbYb`X]Y`Gd]Y`Yf`UfVY]hYbž'g]bX`[fØbX`]W\`i bX`ghfUhY[]gW\"`¾XYg
8YhU]``k]fX`VYfØW_g]W\h][hži a`g]W\Yfni ghY``Ybž'XUgg`g]Y`cdh]a U`
j cfVYfY]hYh`g]bX"</pre>

DYfgdY_h]j Yb ZØf X]Y GU]gcb

8 Yf'GhUfh']b'X]Y'bYi Y'GU]gcb']gh'ZØf'XYb'J Z@'K c`ZgVi f['a Y\f'U`g bi f'Y]b'Gd]Y`"'9g']gh'Y]bY'; Y`Y[Yb\Y]h'ZØf'HfU]bYf'i bX'Gd]Y`Yfž'XUg Yf`YfbhY'K]ggYb'i bX'X]Y': À\][_Y]hYb']b'Y]bYf'fYU`Yb'G]hi Uh]cb Ubni k YbXYb"': Øf'F U`d\' < UgYb\Øhh`']gh'Yg'Y]bY'7\UbW'ž'X]Y K Y]hYfYbhk]W_`i b['gY]bYf'Gd]Y`Yf'ni 'nY][Yb'i bX'g]Y'Ui Z'X]Y < YfUi gZcfXYfi b[Ybž'X]Y'Y]bY'_ca d`YhhY'GU]gcb'a]h'g]W\'Vf]b[hž j cfni VYfY]hYb"'5b'X]YgYa 'GcbbhU['k]fX'b]W\h'bi f'i a 'Di b_hY [Y_Àa dZhžgcbXYfb'Ui W\'i a 'XUg'; YZØ\`ž']a ': i » VU``Yhk Ug YffY]W\h'ni '\UVYb"

8]Y'9bhk]W_`ib['XYg'JZ@'K c`ZgVif[']b'XYf 6ibXYg`][U

5_hi Y```]gh'XYf'J Z@'K c`ZgVi f[']b'Y]bYf'D\UgY'XYf'BYi Ui gf]W\hi b[i bX'j Yfgi W\h'i bhYf'HfU]bYf'F U`d\' < UgYb\Øhh`ž'X]Y'A UbbgW\UZh k Y]hYfni Ybhk] W_Y `b'i bX''\f b[Y'HU`YbhY'ni ']bhY[f]YfYb"

<UgYb\Øhh`g'9fZU\fi b['i bX'gY]bY'D\]`cgcd\]Yž': `YI]V]`]hÀh'i bX
GdcbhUb]hÀh']a 'HfU]b]b['ni 'ZÒfXYfbž'_ÒbbhYb'XUni 'VY]hfU[Ybž'X]Y
E i U`]hÀh'XYf'Gd]Y`k Y]gY'ni 'j YfVYggYfb'i bX'Y]b'_cb_i ffYbnZÀ\][Yg
HYUa 'ni 'Zcfa Yb"</pre>

8 Yf '9]b Z`i gg 'X Yg 'HfU]b Yfk Y W gY `g 'V Y] 6 UmYfb 'A Øb W Yb

?ca dUbmg·5bgUhn·_ObbhY·Y]bY·5V_Y\fijcb·XYb·hfUX]h]cbY``YbGd]Y`gh]`Yb·VYXYi hYbž·X]Y·]a ·XYi hgWXYb·: i » VU``·cZh·Xca]b]Yfh\UVYb"·8]Y·\DhY[fUh]cb·\Diby b[Yf·Gd]Y`Yfii bX·Y]b·XmbUa]gWXYfGd]Y`Ui ZVUi ·_ObbhYb·XYf·GWX`ØggY`·ni ·Y]bYa ·YfZc`[fY]WXYb6UmYfb·gY]b"·8Yf·X]fY_hY·JYf[`Y]WX·Ua ·GcbbhU[·k]fX·Y]bY·[i hY;YY[Yb\Y]h·ZØf·VY]XY·HfU]bYf·V]YhYbž·]\fY·D\]`cgcd\]Yb·Ui Z·XYaD`Uhn·ni ·dfÀgYbh]YfYb·i bX·X]Y·GhÀf_Yb·]\fYf·YkY]`[Yb·HYUag·ni nY][Yb"

GhUh]gh]_Yb ni f 6i bXYg`][U i bX XYb HYUa g

#D'XYf'YhnhYb'GU]gcb'VY'Y[hY'XYf'JZ@'K c'ZgVi f['XYb'+"'D'Uhn']b XYf'6i bXYg'][Už'k Ug'ni 'Y]bYf'YfbYi hYb'HY]'bU\a Y'Ub'XYf'I 9: 5 9i fcdU'@YU[i Y'ZØ\fhY"'8]YgY'D'Uhn]Yfi b['nY][h'X]Y'5a V]h]cbYb XYg'JYfY]bgž']a 'bUh]cbU'Yb'K YhhVYk YfV'k Y]hYf\]b'YfZc'[fY]W\'ni gY]b"'=a 'JYf['Y]W\'XUni '\Uh'6UmYfb'A ØbW\Yb'gY]h'\J\\fYb'X]Y Gd]hnY'XYf'HUVY''Y'Xca]b]Yfh'i bX'fY[Ya À»]['XYb'A Y]ghYfh]hY' [Yk cbbYb"'@Ui h'XYf'8Yi hgW\Yb':i» VU'''@][U'f8: @L'\Uh'6UmYfb']b XYb''YhnhYb'%\$'\J\\fYb'-'A Y]ghYfgW\UZhYb'[Yk cbbYbž'k À\fYbX K c'ZgVi f[']b'X]YgYa 'NY]hfUi a '\Ài Z][']b'XYf'cVYfYb

HUVY``Yb\À`ZhYž'UVYf'b]Y'i bhYf'XYb'Hcd'' 'fUb[]YfhY"'

8]Y'@[U']gh'VY_Ubbh'ZØf'\c\Y'K YhhVYk YfVgZÀ\][_Y]hž'k Ug'g]W Ui W\']b'XYb'Ni gW\Ui YfnU\`Yb'k]XYfgd]Y[Y`h"'8i fW\gW\b]hh`]W VYgi W\Yb'ØVYf'(\$"\$\$\$: Ubg'dfc'Gd]Y`'X]Y'GhUX]Ybž'i bX'X]Y :i » VU``'6i bXYg`][U'\Uh'g]W\'U`g'Y]bY'XYf'VY`]YVhYghYb'i bX a Y]gh[YgY\YbYb'@][Yb'k Y`hk Y]h'YhUV`]Yfh"'8Yf'9ZZY_h'XYf DUbXYa]Y'\Uh'nk Uf'nY]hk Y]gY'ni 'FØW_[Àb[Yb'[YZØ\fhž'X]Y 9f\c`i b[']b'XYb'GhUX]Yb']gh'YXcW\'VYa Yf_Ybgk Yfh"

8 YhU]`g

6Ygi WXYb G]Y i bg Ui Z b!U["XY