

6UmYfb gWk | a a h. ?]bXYf n]Y\Yb]a ?]bXYf[UfhYb a]h ? fUi `Yb 'U``Y 6`]W_Y 'Ub °

DYbn]b[.'@UbXhU[gdfÀg]XYbh]b'5][bYf'YfÒZZbYh'6UmYfbgWk]aah']a'?]bXYf[UfhYb"'?fUi`Yb'`YfbYb'ZØf'ZfØ\nY]h][YGWk]aaUigV]`Xib["



DYbn]b[ž8Yi hgW `UbX'! 5a '%+"'** `]'&\$&) 'k i fXY']a 'K i fnY`
Di fnY`'?]bXYf[UfhYb'X]Y'5i ZhU_hj YfUbghU`hi b['XYf'? Ua dU[bY 6UmYfb'gWkk]a a h '[YZY]Yfh"8]Y'@UbXhU[gdfAg]XYbh]b'i bX
GW]fa \Yff]b'=`gY'5][bYf'VY[fØ» hY'X]Y'?]bXYf'\Yfn`]W 'i bX
i bhYfghf]W 'X]Y'K]Wkh][_Y]h'XYf'GWkk]a a Ui gV]`Xi b['ZØf'U``Y
?]bXYf']b'6UmYfb" *XYYg'?]bX'gc``hY'gWkk]a a Yb'_ObbYb ž'gc
5][bYf"I a 'XUg'ni j YfXYi h`]W Ybž'ghY``hYb'JcfgWki `_]bXYf']\fY
GWkk]a a ZA\][_Y]hYb'j cf'XYb'5i [Yb'nU\`fY]WXYf': YfbgY_Ua YfUg
i bX'DfYggYj YfhfYhYf'i bhYf'6YkY]g"

6YgcbXYfg'YfZfYi`]W\'k UfYb'X]Y'[Ya Y]bgUa Yb'5_h]j]h\hYb'a]h 7\YW_Yf'*i`]Ubz'XYa 'VY_UbbhYb'?]?5!A cXYfUhcfz'XYf'a]h'XYb ?]bXYfb']a 'K UggYf'U_h]j 'k Uf"'8Yf'6YW_YbfUbX'k i fXY'j cb'@ch]z XYa 'ZfÒ\`]W\Yb'A Ug_chhW\Yb'XYf'K UggYfk UW\hž'VY`YVhž'XYf'ZØf [ihY'@UibY'gcf[hY'ibX'X]Y'?]bXYf'UbZYiYfhY"

?fUi `Yb ``YfbYb a]h @ch]

8 Yf: c_i g'XYf'J YfUbghU`hi b[``U['Ui Z'XYf'GW\k]a a hYW\b]_'XYg ?fUi `Ybgž'X]Y'U`g'YfghY'A Yh\cXY'ni a 'GW\k]a a Yb`YfbYb dfÀgYbh]Yfh'k i fXY"'8]Yg'[YgW\U\a]h\]`ZY'XYf'bYi Yb'A Yh\cXY ?fUi `Yb'`YfbYb'a]h'@ch] "'H\ca Ug'<i VYfž'XYf'@UbXYgj cfg]hnYbXY XYf'K UggYfk UW\h'6UmYfbž'VYhcbhY'k À\fYbX'XYf'J YfUbghU`hi b[ž k]Y'k]W\h]['X]Y'ZfØ\Y'GW\k]a a Ui gV]`Xi b['ZØf'X]Y'G]W\Yf\Y]h'j cb?]bXYfb']b'6UmYfb']gh''9f'k]Yg'ni XYa 'Ui Z'X]Y'VYgcf[b]gYffY[YbXY NU\`j cb'VYfY]hg'&+'9fhf]b_i b[gZÀ``Yb']b'XYf'U_hi Y``Yb 6UXYgU]gcb'\]bž'j cb'XYbYb'j]Y`Y']b'GYYb'ghUhhZUbXYb"

8]Y?UadU[bY:6UmYfb:gWk]aah gYhnhig]W\gY]hibi baY\fg]YVYb;J\fYb;ZØf;Y]bY;JYfVYggYfi b[xyf;GWk]aaZà\][_Y]hybjcb;?]bXYfb;Y]b;i bX;k]fX;Xi fWx;Y]bY;bYi Y;5fVY]hg\];ZY;ZØfGWk]aaUi gV];XYf]bbYb;i bX;!Ui gV];XYf;i bhYfghØhnh";8]YgYAUhYf]U`]Yb;g]bX;Y]bY;kYfhjc;`Y;FYggci fW;Zii ax]Y;@Y\faYh\cXYb]b;XYb;GWk]aagWi Yb;ni cdh]a]YfYb;i bX;?]bXYfb;Y]b;g]W\YfYgGWk]aaYb;ni YfaÒ[`]W\Yb"

=bhYfbUh]cbU`Y`DYfgdY_h]j Yb`Ui Z`XUg GWk]a a Yb`YfbYb

#hYfYggUbh']gh'Ui W\ XYf'J Yf[`Y]W\ XYf'GW\k]a a Ui gV]`Xi b[']b
j YfgW\]YXYbYb @ÀbXYfb" K À\fYbX']b'j]Y`Yb @ÀbXYfb k]Y
5i ghfU`]Ybž'9b[`UbX'i bX'XYb'I G5'?]bXYf'ni Yfgh'?fUi `!'i bX
FØW_YbgW\k]a a Yb ``YfbYbž'VY[]bbh']b'8Yi hgW\`UbX'c Zh'X]Y
5i gV]`Xi b['a]h'XYa '6fi ghgW\k]a a Yb"'8]YgYg'J cf[Y\Yb'k i fXY
]a '%- "'*₺\f\i bXYfh']b'X]Y'Gc`XUhYbUi gV]`Xi b[']bhY[f]Yfh'i bX
[Yb]Y» h'V]g'\Yi hY'\ÒW\ghY'6Y`]YVh\Y]hž'Ui W\ k Ybb'Yg'Y]b][Y
GW\k]Yf][_Y]hYb'a]h'g]W\ Vf]b[hž'k]Y'_ca d`]n]YfhY
6Yk Y[i b[gUV`Ài ZY'i bX'Y]bYb'Ubgdfi W\gj c``Yb'6Y]bgW\`U["

 $\pm 0.4 \text{ YI }]_\text{c.'} \\ \text{b[Y[Yb.'ghY \ Yb.']bhi]h]j Y.'A Yh \ cXYb.'k]Y.'XUg.' < i bXY! \\ \text{b.'} \\ \text{b.$

8]Y?Ua dU[bYibXiX]YiYb[U[]YfhYi5fVY]hiXYfiK UggYfk UWkh V]YhYbib]Wkhibi fiY]bigWkØhnYbgk YfhYgi?cbnYdhžigcbXYfbiUi WkY]bYiiYkffY]WkYiibXiYfa i h][YbXYiD`UhhZcfa iZØfini _ØbZh][YGWk]a a Yfi]bi6UmYfb"iA]hi[i hYbi=XYYbiibXiY]bYficfXYbh`]WkYbDcfh]cbi9bh\ig]Uga i gi_ÒbbYbik]fiU``Yi[Ya Y]bgUa iXUZØfigcf[YbžXUggiGWk]a a Yb`YfbYbiZØfi?]bXYfib]Wkhibi fiY]bDZ]Wkhdfc[fUa a žigcbXYfbiUi WkiY]bi[fc>YgiJYf[bØ[Ybik]fX"

: Øf'k Y]hYfY' ±b Zcfa Uh]cbYb' ØVYf'X]Y'? Ua dU[bY'i bX'X]Y'A Yh\cXYb XYg'GWk]a a Yb`YfbYbgž'_ÒbbYb'G]Y'X]Y'5fh]_Y`'j cb'5i [gVi f[Yf5``[Ya Y]bYž'K UggYfk UWkh'6UmYfb'i bX': UWkdcfhU`DÀXU[c[]_'VYgi WkYb"

8 YhU]`g	
Cfh	DYbn]b[ž'8Yi hgWX`UbX
EiY``Yb	• k k k "Ui [gVi f[Yf!U``[Ya Y]bY"XY
	kkk"kUggYfkUW\h"VUmYfb
	k k k "ZUWX dcfhU`!dUYXU[c[]_"XY

6Ygi WXYb G]Y i bg Ui Z a Y]b!k]Yb bYh