

## =bgY``]a 'K UbXY`. 'GhUV]`]g]Yfi b[ 'bUW\ Ji `\_UbUi gVfi W\']b FYm\_^Uj É\_

BUWX 'XYa 'Ji`\_UbUi gVfi WX 'Ui Z'=g`UbX`\Uh'g]WX 'X]Y '@U[ Y ghUV]`]g]Yfh/'X]Y '@Uj U'Z]Y » hž'YffY]WX h'UVYf'\_Y]bY < Ui dhghfU» Yb"

8 Yf J i `\_Ub Ui gVfi W `Ui Z'=g`Ub Xž XYf X]Y `5 i Za Yf\_gUa \_Y]h'j ]Y`Yf Ui Z'g]W `[ Ync [ Yb `\ Uhž nY][ h'bi b `5 bnY]W Yb 'j cb `GhUV]`]hÀh'' 8 ]Y 9 I dYfh]b `G][ f]Xi f `C g\_UfgXchh]f 'j ca `]g`Àb X]gW Yb `K YhhYfUa h VYfi \][ hY `X]Y `2 ZZYbh`]W \_Y]hž ]b XYa `g]Y `Yf\_`ÀfhYž XUgg X]Y `@Uj U nk Uf `k Y]hYf\]b `Z]Y » hž `g]W `YXc W `b]W h']b `Y]bYa VYgcf[ b]gYffY[ Yb XYb `A U » Y `Ui gXY\bh'' 8 ]Yg `[ UV `XYb `A YbgW Yb `]b XYf `FY[ ]cb `Y]bY `[ Yk ]ggY `9f`Y]W hYfi b[ ž XU `X]Y ; YZU\f `Y]bYf 6YXfc\i b[ `ZØf `k ]W h][ Y `J Yf\_Y\fgghfU » Yb `ni bÀW gh'U`g `[ Yf]b[ Y]b[ YgW Àhnh `k ]fX"

6YfY]hg'Ua '8cbbYfghU[UVYbX'\_Ua 'Yg'ni 'XYa '5i gVfi W\'Ui Z'Y]bYf < U'V]bgY`']b'XYf'BÀ\Y'XYf' < Ui dhghUXh'FYm\_'Uj ]\_"'Df]bn]d]Y``\UbXY`h'Yg'g]W\'i a 'Y]b'D\Àbca Ybž'XUg']b'X]YgYa '; YV]Yh'\Ài Z][jcf\_ca a h"'\#\bYf\U`V'XYf'`YhnhYb'bYi b'AcbUhY'\Uh'Yg'VYfY]hg'XYbgYW\ghYb'Ji`\_UbUi gVfi W\'[Y[YVYbž'k Ug'X]Y'Ji`\_UbU\_h]j]hÀh'Ui ZXYf'\#\bgY`'i bhYfghfY]W\h''8UVY]'YbhghY\Yb']b'XYf'FY[Y`'gc[YbUbbhYGdU`hYbYfi dh]cbYbž'VY]'XYbYb'X]Y'@Uj U'Ui g'`Ub[Yb'F]ggYb']b'XYf'9fXY'Z]Y\"hi bX'XU\Yf'aY]gh'\_Y]bY'[fc\"Yb'5gW\Ykc`\_Ybni f@W\_`Aggh"

#### 8]Y'U\_hi Y``Y'G]hi Uh]cb

A ca YbhUbʻ]ghʻXYfʻ@Uj Ughfca ʻghUV]`i bXʻYgʻgWkY]bhʻgcžʻU`gʻk ØfXYg]Wkʻi a ʻXYbʻ9fXf]ggʻY]bʻ@Uj UgYYʻV]`XYb"ʻ8]YgʻVYXYi hYhžʻXUggʻX]Y@Uj UʻUbqWkY]bYbXʻb]WkhʻX]fY\_hʻUi ZʻX]Yʻ<Ui dhi Yf\_Y\fqqhfU» Y

; f]bXUj É\_i fj Y[i f`ni ghYi Yfhž`X]Y`Y]bY`k ]W\h][Y`BcfX!GØX!

JYfV]bXi b[ 'Ui Z'XYf'+bgY``XUfghY``h"'8]Y'; YZU\fž`XUgg`X]Y`@Uj U

X]YgY`JYfV]bXi b[ 'YffY]W\h`i bX`a Ò[`]W\Yfk Y]gY`[YZÀ\fXYhž'k i fXY
U`gc`ni bÀW\gh'U`g`[Yf]b[ 'Y]b[Yghi Zh"

8 UgʻJ cf\ UbXYbgY]bʻj cbʻF Ui W\žʻXUgʻXi fW\ '@]j YghfYUa gʻUi gʻXYa Ji`\_Ub[YV]YhʻXc\_i a Ybh]Yfhʻk]fXžʻ]ghʻnk Ufʻg]W\ hVUfžʻUVYfʻb]W\ h [`Y]W\ VYXYi hYbX`a]hʻY]bYfʻYfbgh\ UZhYbʻ6YXfc\i b["'Gc`W\ Y G]hi Uh]cbYbʻg]bXʻb]W\ hʻi bhmd]gW\ 'ZØf`X]Yʻj i`\_Ub]gW\ Ybʻ5\_h]j]hÀhYb]bʻ=g`UbXžʻi bX`X]Yʻ9I dYfhYbʻUfVY]hYbʻXUfUbžʻX]Yʻ9bhk]W\_`i b[[YbUiʻ]a '5i[Y'ni 'VY\U`hYbži a 'dchYbn]Y``YʻF]g]\_YbʻZfØ\nY]h]['ni Yf\_YbbYb"

#### $K \ ]WX h][ \ \underline{Y}]h \ XYg \ 9fY][ \ b]ggYg$

 $8 ]Y'Ji`\_UbUi gVfØWXY'Ui Z'=g`UbX'g]bX'b]WX h'bi f'Y]b'gdY\_hU\_i `AfYg BUhi fgWX Ui gd]Y`žgcbXYfb'Ui WX'j cb'Yf\YV`]WXYf'[Yc`c[]gWXYf'i bX k ]ggYbgWX UZh`]WXYf'6YXYi hi b["'G]Y'V]YhYb': cfgWXYfb'X]Y A <math>O[`]WX\_Y]h$ ž'a Y\f'ØVYf'X]Y'Ji`\_UbU\_h]j ]hAhYb'i bX'XYfYb'A i ghYf ni '`YfbYbž'X]Y'ZØf'X]Y'FY[]cb'WXUfU\_hYf]gh]gWX'g]bX'''8]Y'GhAf\_Y i bX'<Ai Z][\_Y]h'X]YgYf'9fi dh]cbYb'\_Ubb'Ui Z'j YfgWX]YXYbY JYfAbXYfi b[Yb']a '9fXa UbhY`\]bk Y]gYb'i bX'gc'k Yfhj c``Y \&DCfa Uh]cbYb'ØVYf'X]Y'hY\_hcb]gWXYb'5\_h]j ]hAhYb']a '[YgUa hYb BcfXUh`Ubh]\_fUi a '`]YZYfb''

 $8 ]Y ]g`AbX]gWXY FY[]Yfi b[ ii bX X]Y YbhgdfYWXYbXYb 6Y\OfXYb g]bX [i h'j cfVYfY]hYhži a 'Ui Z'gc`WXY BUhi fYfY][ b]ggY ni fYU[]YfYb" 8 Ub_ ia cXYfbYf'HYWXbc`c[]Y ii bX ghAbX][ Yf , VYfk UWX i b[ ']gh'=g`UbX']b XYf'@U[ Yž'X]Y '9bhk ]\www.i b[ 'XYf$ 

ji`\_Ub]gWXYb'5\_h]j ]hÀhYb'[YbUi'ni'j YfZc`[Yb'i bX'gWXbY``ni\UbXY`bžia'G]WXYf\Y]h'ZØf'X]Y'6Yj Ò`\_Yfib['i bX'FY]gYbXY'ni[Yk À\f`Y]ghYb"

±g[YgUa h'V`Y]Vh'X]Y'@U[Y'bUWX'XYa '5i gVfi WX'Ui Z'=g`UbX'ni fnY]h i bhYf'?cbhfc``Yž'i bX'X]Y'9l dYfh]b'G][f]Xi f'Cg\_UfgXchh]f'[]Vh 9bhk Ufbi b["'9g'V`Y]Vh'UVni k UfhYbž'cV'Yg'k Y]hYfY'9bhk ]W\_`i b[Yb[YVYb'k]fXž'UVYf'X]Y']g`ÀbX]gWXYb'6Y\ÒfXYb'gWXY]bYb'[i h[YfØghYh'ni 'gY]bž'i a 'Ui Z'YXY'JYfÀbXYfi b['ni 'fYU[]YfYb"

#### GWX i gg[YXUb\_Yb ni f j i `\_Ub]gWXYb 5\_h]j ]hÀh

8]Y'ji`\_Ub]gWXY'5\_h]j ]hÀh'Ui Z'=g`UbX']gh'Y]b'ZUgn]b]YfYbXYg
6Y]gd]Y``ZØf'X]Y'?fÀZhY'XYf'BUhi fii bX'X]Y'Bchk YbX][\_Y]hž'ghYhg
Ui Za Yf\_gUa 'ni 'V`Y]VYb'''K À\fYbX'X]Y'U\_hi Y``Y'G]hi Uh]cb'U`g'ghUV]`
VYk YfhYh'k ]fXž']gh'Y]b'[Yk ]ggYg'A U»'Ub'K UWXgUa \_Y]h']a a Yf
bchk YbX]['''K ]ggYbgWXUZh`Yf'i bX'9I dYfhYb'UfVY]hYb'\_cbh]bi ]Yf`]WX
XUfUbž'XUg'JYfghÀbXb]g'XYf'Ji`\_UbY'ni 'Yfk Y]hYfb'i bX'XUa ]h
Y]bYb'6Y]hfU['ni f'G]WXYf\Y]h'i bX'JcfVYfY]hi b['XYf'6Yj Ò`\_Yfi b[
ni '`Y]ghYb''8Yf'5i gVfi WX'Yf]bbYfh'i bg'ghYhg'XUfUbž'k ]Y
XmbUa ]gWX'i bX'a ÀWXh]['X]Y'9fXY']gh''

# ; Yc[fUd\]gW\Y'i bX'j i `\_Ubc`c[]gW\Y <]bhYf[fØbXY</pre>

=g`UbX``]Y[h'Ui Z'XYa 'A]hhY`Uh`Ubh]gW\Yb'FØW\_Ybž'Y]bYf
[Yc`c[]gW\Yb'; fYbnY'nk]gW\Yb'XYf'bcfXUa Yf]\_Ub]gW\Yb'i bX'XYf
Yi fUg]gW\Yb'D`UhhY'''8]YgY'gdYn]Y``Yb'[Yc`c[]gW\Yb'6YX]b[i b[Yb
a UW\Yb'X]Y'≠bgY`'VYgcbXYfg'UbZÀ``]['ZØf'j i `\_Ub]gW\Y'5\_h]j]hÀh''
8Yf'I bhYf[fi bX'k]fX'\]Yf'Xi fW\'XUg'Ni gUa a YbhfYZZYb'XYf
D`UhhYb'\_cbh]bi]Yf`]W\'j YfÀbXYfhž'k Ug'fY[Y`a À»]['ni '9fXVYVYb
i bX'Ji`\_UbUi gVfØW\Yb'ZØ\fh''8]Y'Ji`\_Ub`UbXgW\UZhYb'g]bX'b]W\h
bi f'gdY\_hU\_i `Àfž'gcbXYfb'Ui W\'j cb'[fc»Yf'6YXYi hi b['ZØf'X]Y
: cfgW\i b[ž'XU'g]Y'k]W\h][Y'≠bZcfa Uh]cbYb'ØVYf'X]Y'[Yc`c[]gW\Yb
DfcnYggY'XYf'9fXY'`]YZYfb"

### 5\_hi Y``Y`ghUh]gh]gW\Y`8UhYb`ni Ji`\_UbU\_h]j]hÀhYb`i bX`9fXVYVYb

Ni gàhn`]W\ 'VYf]W\ hYhY 'XUg']g`àbX]gW\ Y 'K YhhYfUa hž'XUgg'X]Y
U\_hi Y``Y'j i `\_Ub]gW\ Y '5\_h]j ]hàh'ni 'Y]bYa '5bgh]Y[ ']b'XYf
@i Zhei U`]hàhgg\_U`U']b'XYf'FY[ ]cb'ZØ\fhž'XU
GW\ k YZY`X]cl ]Xa Yggi b[ Yb'`c\_U``ni [ Ybca a Yb'\UVYb"'8]Y
6Y\ÒfXY'Ya dZ]Y\`hž'VYgcbXYfg'X]Y'[ Ygi bX\Y]h`]W\Yb'l a ghàbXY
j cb'Ya dZ]bX`]W\Yb'; fi ddYb'ni 'ØVYfk UW\Yb"

#### I a k Y h! i b X G]W Yf Y]hg V]b X i b [ Y b

BUWW Y]bYa 'Ji`\_UbUi gVfi WW 'k]fX']a '5``[Ya Y]bYb'[fc» Yg 5i [Yba Yf\_'Ui Z'X]Y'G]WWYf\Y]h'XYf'6Yj Ò`\_Yfi b['[Y`Y[h"' $\pm$ b' $\pm$ g`UbX\Uh'X]Y'FY[]Yfi b['A U» bU\a Yb'Yf[f]ZZYbž'i a 'g]WWYfni ghY``Ybž XUgg'X]Y'5bk c\bYf']b'[YZÀ\fXYhYb'; YV]YhYb'fYWW hnY]h]['[Yk Ufbh k YfXYb"'8 Uni 'nÀ\`Yb'fY[Y`a À»][Y' $\pm$ bZcfa Uh]cbYb'ØVYf'X]Y U\_hi Y``Y'@U[Yž': `i [j YfVchY'VY]'Ji`\_UbUgWWY'i bX Yj U\_i ]Yfi b[gZÀ\][Y'BchZU``d`ÀbY'ZØf'5bk c\bYfž'X]Y']b'XYf'BÀ\Y dchYbn]Y``VYhfcZZYbYf'; YV]YhY'k c\bYb"

Ni gàhn`]W\ni 'XYb'I a k Y`h!'i bX'G]W\Yf\Y]hgUgdY\_hYb']gh'Ui W\'XYf 9]bZi gg'XYf'Ji`\_UbU\_h]j ]hàh'Ui Z'X]Y'@ ZhZU\fh'Y]b'gW\`Øgg][ Yg H\Ya U"'5gW\Yk c`\_Yb'\_ObbYb'XYb': `i [ j Yf\_Y\f'Yf\YV`]W\'ghÒfYbž k ]Y'VY]a '5i gVfi W\'XYg'9m'UZ'U``U'Ò\_i ```]a '\\J\f'&\$\%\\$ZXYf'k Y`hk Y]h ni 'a Ugg]j Yb': `i [ Ui gZà``Yb'ZØ\fhY"'8 U\Yf'g]bX'Yb[ Y ?ccdYfUh]cbYb'nk ]gW\Yb'XYb'[ Yc`c[ ]gW\Yb': cfgW\i b[ g]bgh]hi hYb i bX'XYb'@ ZhZU\fhVY\ÒfXYb'YbhgW\Y]XYbX"

8YhU]`g

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