

## DfcnYgg'bUW\ 'hÒX`]W\ Ya 'I bZU``. \* \*!À\f][ Yf'a i gg'g]W\ 'j YfUbhk cfhYb°

DfcnYggVY[]bb^[Y[Yb^Y]bY^\*\*!À\f][Y^k Y[Yb^ZU\f^Àgg][Yf HÒhi b[^bUW\XYa^I bZU\Y]bYg^%+!À\f][Yb"^8YhU]`g^i bX <]bhYf[fØbXY^\]Yf"



? fY]gghfU» Y 'nk ]gWX Yb 'K c 'ZY[[ 'i b X '?]» 'Y[ [ ž'8 Yi hgWX `Ub X '! 8 Yf'DfcnYgg'[ Y[ Yb 'Y]b Y '\* \*! 'À\f][ Y ': fUi 'k Y[ Yb 'ZU\f'Àgg][ Yf HÒhi b[ '\Uh'Ua '5a hg[ Yf]WX h'K Ub[ Yb 'VY[ cbbYb"'8 Yf' J cfZU``ž'XYf ni 'X]YgYa 'DfcnYgg'ZØ\fhYž'YfY][ bYhY'g]WX 'Ua '&"'GYdhYa VYf'&\$&& Ui Z'XYf'? fY]gghfU» Y 'nk ]gWX Yb 'K c `ZY[[ 'i b X '?]» `Y[ [ "'6Y]'Y]bYa J Yf\_Y\fgi b ZU``'j Yf`cf'Y]b '%+! À\f][ Yf'X]Y '? cbhfc``Y 'ØVYf'gY]b @Y]WX h\_fUZhfUXž'U`g'Yf'VY]'Y]bYa '~K \YY`]Y" 'ghØfnhY'i b X 'Ui Z'XYf : U\fVU\b '`]Y[ YbV`]YV" '9]b 'Ybh[ Y[ Yb\_ca a YbXYg'5i hc'\]Y`h'Ubž i a 'ni '\Y`ZYbž'V`cW\_]YfhY 'YXcWX 'X]Y 'GhfU» Y"

±b'X]YgYa 'A ca Ybh'bÀ\YfhY'g]W\'X]Y'5b[Y\_`U[hY'a]h']\fYa 'K U[Yb Ui g'XYf'; Y[Ybf]W\hi b[ž'k i fXY'Xi fW\'XUg': Yfb`]W\h'XYg ghY\YbXYb': U\fnYi [g'[YV`YbXYh'i bX'YfZUgghY'XYb'≯[YbX`]W\Yb

a ]h']\fYa '5i hc"'8Yf'%+!\*À\f][Y'ghUfV'bcW\'Ub'XYf'I bZU``ghY``Yžk À\fYbX'FYUb]a Uh]cbga U\*bU\a Yb'c\bY'9fZc`['V`]YVYb"'8YfnYbhfU`Y'Jcfk i fZ'XYf'GhUUhgUbk U`hgW\UZh``Ui hYhž'XUgg'X]Y
5b[Y\_`U[hY']\fY'; YgWk]bX][\_Y]h'b]W\h'Ub'X]Y'i bØVYfg]W\h`]W\YG]hi Uh]cb'Ub[YdUggh'\UhhY"'@Ui h']\fYf'5i ggU[Y'\UVY'g]Y'b]W\h
VYgW\`Yi b][h'cXYf'U\_h]j 'UV[YVfYa gh/]\fY'[YbUi Y; YgW\k]bX][\_Y]h'\_cbbhY'YXcW\'b]W\h'Yfa ]hhY`h'k YfXYb"

## 8]Y fYWX h`]WX Yb FU\a YbVYX]b[i b[Yb

8 Yf '6 Y[ f]ZZ XYf 'ZU\f`Àgg][ Yb 'HÒhi b[ ']gh']a 'z '&&& 'Gh; 6 'j YfUb\_Yfh i bX 'VYgWX fY]Vh XUg 'A ]ggUWX hYb 'XYf 'Gcf[ ZU 'hgd Z]WX hž X]Y gWX `]Y » `]WX 'ni a 'Hc X 'Y]b Yg 'Ub XYf Yb 'ZØ\fh" '> 'Y bUWX 'GWX k Yf Y 'XYg J cfk i fZg '\_Ubb 'X]Y 'GhfUZY 'j cb 'Y]b Yf'; Y 'XghfUZY 'V]g 'ni 'Y]b Yf : fY]\Y]hgghfUZY 'j cb 'V]g 'ni 'ZØb Z '> J\fYb 'fY]WX Yb "'+bj Yf\_Y\fgi b ZA ``Y g]b X '\Ai Z][ Y 'GnYb Uf]Yb 'ZØf 'ZU\f`Agg][ Y 'HÒhi b[ Yb ž k Y `WXY 'Ui WX : À ``Y 'j cb '[ fc VYf': U\f`Agg][ \_Y]hi a ZUggYb '\_ObbYb ž VY]gd]Y `gk Y]gY VY]': U\fhYb 'i b hYf '5 `\_c\c`Y]b Z i gg " GhUh]gh]\_Yb 'nY][ Yb ž XUgg ']b 8 Yi hgWX `Ub X ']a '> J\f`&\$ %( ') , ) ': À ``Y 'j cb 'ZU\f`Agg][ Yf 'HÒhi b[ ']a GhfU» Ybj Yf\_Y\f'fY[ ]ghf]Yfh k i fXYb ž k cVY]'+' 'i bhYf '[ fc VYf : U\f`Agq][ \_Y]h 'Z]Y `Yb ``Ui h 'GhUh]ghU"

## JYfnÒ[Yfib[Yb']b'XYf'GhfUZjYfZc`[ib[

8Yf'DfcnYgg'\Uh'ni XYa 'Y]bY'Ui »YfcfXYbh']W\'`Ub[Y JcfVYfY]hi b[gnY]h'\]bhYf'g]W\"'8]Y'GhUUhgUbk U'hgW\UZh'\_cbbhY'Yfgh a Y\f'U'g'Y]b'\J\f'bUW\'XYa 'I bZU``'5b\_`U[Y'Yf\YVYbž'XU'ni f ?`Àfi b['XYg'JcfZU``g'nk Y]'i bZU``'UbU`mh]gW\Y'; i hUW\hYb

 $\label{thm:continuous} $$ YfZcfXYf`]WX`k UfYb"`8]YgYg`NY]hZYbghYf`\Uh`Yg`XYb`NYi [YbYfgWXk Yfhž`g]WX`Ub`8YhU]`g`XYg`JcfZU``g`ni `Yf]bbYfbž`XU`X]YgYf`ZUghXfY]`\J\fY`ni f\Ow_`]Y[h"`9]bY`J]Y`nU\``j cb`5gdY_hYb`k]fX`gca ]hb]WXh`bi f`X]Y`fYWXh`]WXY`9bhgWXY]Xi b[`VYY]bZi ggYbž`gcbXYfbUi WX`X]Y`Ya ch]cbU`Y`6Y`Ughi b[`XYf`<]bhYfV`]YVYbYb`]a :: U``YY]bYg`GWXi`Xqdfi WXg"$ 

K ]Y 'g]W 'X]Y 'F YW hgdfYW i b[ ']b 'X]YgYa ': U```Ybhk ]W\_Y`b 'k ]fXž V`Y]Vh'UVni k UfhYbž'UVYf'X]Y 'HfU[ ]\_'XYg'I bZU``g'V`Y]Vh'VYghY\Yb" 8 Yf': U```k ]fZh'k ]W h][ Y : fU[ Yb 'ni f'J Yf\_Y\fgg]W Yf\Y]h'i bX'XYb XUa ]h'j YfVi bXYbYb 'fYW h`]W Yb '? cbgYei YbnYb'Ui Z'i bX'k ]fX g]W Yf`]W 'Ui W ']b 'XYb'\_ca a YbXYb'K cW Yb'k Y]hYf']bhYbg]j j YfZc`[ h"

8 YhU]`g	
J cfZU``	JYf_Y\fgi bZU``
I fgUWX Y	ZU\f`Àgg][Y'HÒhi b[
Cfh	?fY]gghfU»Y'nk]gW\Yb'Kc`ZY[['ibX'?]»`Y[[ž
	8 Yi hgWX`Ub X
J Y f`Y hnhY	%
EiY``Yb	• k k k "g\\\ k UYV]g\\\ Y"XY
	<ul><li>k k k "Vi gg[Y`X_UhU`c["cf[</li></ul>
	<ul><li>XY"ghUh]ghU"Wca</li></ul>

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