

ARTS2064

5 7 UgY Ghi XmcZ:]`a '; YbfY. 7 ca YX]Ub 7 ca YXm

GYa YghYfCbY``##`&\$%

1

7 ci fgY[·]Cj Yfj]Yk

`GHJZZ`7cbHJWhi8YHJ]`g`

7cbj Ybcfg

BUa Y	9a U]`	5j U]`UV]`]m	@cWUhjcb	D∖cbY
8f G∖Ufcb A YY	g"a YY4 i bgk "YXi "Ui		FcVYfh KYVghYf 6i]X]b[ž@YjY` &žFcca`&&*	-',))\$%%

°@Y₩hifYfg`

BUa Y	9a U]`	5j U]`UV]`]m	@cWUhjcb	D∖cbY
8f'AY`Ub]Y'FcVgcb	a "fcVgcb4 i bgk "YXi "Ui			

GWX.cc^{∵7}cbHJWhi =bZcfaUh]cb

Fcca '' &&ž`Yj Y`'' FcVYfhK YVghYf6i]`X]b[

D\cbY.`f\$&Ł`- ' ,) `(,) *

9a U]`. <u>gUa 4 i bgk "YXi "Ui</u>

K YVg)hY. <u>\htdg.##qUa "Ufhg"i bgk "YXi "Ui</u>

H\Y'GW\cc``cZh\Y'5fhg'UbX'AYX]U'k ci `X``]_Y'hc'FYgdYW2 ``m5W_bck `YX[Y'h\Y'HfUX]h]cbU``7 i ghcX]Ubgž h\Y'6YXY[U``f?Ybg]b[hcb'WJa di gŁź; UX][U``f7]hm'UbX'5fh/ '8Yg][b'7Ua di gYgŁ'UbX'h\Y'B[i bbUk U` dYcd'Y'f5i ghfU`]Ub'8YZYbW': cfW'5WJXYam]b'7UbVYffUŁ'cZh\Y``UbXg'k\YfY'YUW\'WJa di g'cZI_BGK_']g `cWJhYX"

5 HYbXUbWYFYei]fYaYbhg

5 'ghi XYbh']g'YI dYWYX'nc'UhYbX'U```WUgg'WcbhUWh\ci fg'Zcf'U'ZJWY!hc!ZJWY'fI & Łcf'V'YbXYX'Wci fgY'UbX Wca d'YhY'U``'UWf]j]h]Yg'Zcf'U'V'YbXYX'cf'Z ``mcb`]bY'Wci fgY"

5 'ghi XYbhik \c'Uff]j Ygʻa cfYʻh\Ubʻ%) 'a]bi hYgʻ`UhYʻa UmVYʻdYbU`]gYXʻZcfibcb!UhhYbXUbVW'''=Zgi VXʻUʻdYbUʻhm]gʻ]a dcgYXž'h\Yʻghi XYbha i ghVYʻ]bZcfa YXʻj YfVU``m'Uhh\YʻYbXʻcZWUggʻUbXʻUXj]gYXʻ]bik f]h]b[iik]h\]bi&(\ci fg"

ZUʻgh XYbhYl dYf]YbWrgʻ]`bYggža]gUXj Ybh fYʻcfʻch YfʻcVWrffYbWrfh Uha U_YgʻUVgYbWrZfca ʻU WUgg#UWfjj]mi bUj c]XUV`Yžcf`Yl dYWgʻhc`VYʻUVgYbhZfca ʻUʻZcfh Wća]b[ʻWUgg#UWfjj]mžh Ymg\ci `XʻgYY_ dYfa]gg]cbʻZfca ʻh\Yʻ7 ci fgYʻ5i h\cf]mžUbX`k \YfYʻUdd`]WUV`Yžh\Y]f`fYei Yghg\ci `XʻVYʻUVWća dUb]YX`VmUb cf][]bU`cf`Wrfh]ZJYX`WcdmcZUʻa YX]WU``Wrfh]ZJWUHYʻcf`ch\Yf`Zcfa `cZUddfcdf]UHYʻYj]XYbWr"

5 '7 ci fgY '5 i h\cf]hma UmYI W gY 'U'ghi XYbhiZica 'WUggYgʻcf'UWijj]hjYgʻZcf'i d'hc'cbY'a cbh\"'< ck Yj Yfž'h Ym a UmUgg][b'UXX]hjcbU``UbX#cf'U'hYfbUhjj Y'HUg_g'hc'Ybgi fY'Wca d`]UbWY"'5 '7 ci fgY'5 i h\cf]hmWcbg]XYf]b['h\Y [fUbhjb['cZUVgYbWY'a i ghVY'gUhjgZjYX'U'ghi XYbhik]``ghj``VY'UV'Y'hc'a YYhh\Y'Wci fgY'g``YUfb]b['ci HWca Yg UbX#cf'j c`i a Y'cZ`YUfb]b["'5 'ghi XYbhgYY_]b['Uddfcj U``hc'VY'UVgYbhiZcf'a cfY'h\Ub'cbY'a cbh\'a i ghiUdd`m]b'k f]hjb['hc'h\Y'8 YUb'UbX'dfcj]XY'U``cf][]bU``cf'WfhjZjYX'gi ddcfhjb['XcW a YbhUhjcb" : cfa cfY`]bZcfa Uh]cb`UVci hh\Y`UhHYbXUbWY`dfchcWc`g`]b`h\Y`: UWY`hmicZ5fhg`UbX`GcW]U` GW]YbWYg.`<u>\hhdg.#k k k "Ufhg"i bgk "YXi "Ui #W ffYbh1ghi XYbhg#UWUXYa]W]bZcfa Uh]cb#dfchcWc`g![i]XY`]bYg#</u>

5WUXYa]W=bZcfaUh]cb[·]

: cf`YggYbh]U``ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`hc.`fYei Yghg`Zcf`YI hYbg]cb/fYj]Yk `cZa Uf_g/cVWV dUh]cbU``\YU`h UbX`gUZYhm'YI Ua]bUh]cb`dfcVWXi fYg/gdYVJU``V&bg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg`cf`a]gUXj Ybhi fY/ ghi XYbhYei]hmUbX`X]gUV]`]hm'UbX`ch\Yf`YggYbh]U``UWUXYa]W]bZcfa Uh]cbž gYY`<u>hhdg.#k k k "Ufhg"i bak "YXi "Ui #W ffYbhlqhi XYbhq#UWUXYa]W]bZcfa Uh]cb#dfchcV&`g![i]XY`]bYg#</u>

7cifgY[·]8YHJ]`g

7 fYX]hDc]bhg^{·*·}

Gi a a UfmcZh\Y'7ci fgY

GiVYWhi5fYU.8[^_EfgV[We

:]`a `[YbfYg'UfY'a cfY'h\Ub'h\Y'a YW\Ub]ga `cZWUgg]]/WUh]cb'VUgYX'cb'gi VYWha UhhYf'h\Uhk Y'UggcW]UhY k]h\'h\Y'k YghYfbž'h\Y'\cffcf']`a ž'h\Y'a i g]WU`žYhW': fca 'dfcXi WYfg'hc'Wcbgi a Yfgž']7ca 'gh X]c'a c[i`g'hc X]fYWfcfgž'hc'Wf]h]Wgž']Jbg'UbX'U]W]cbUXcgž'h\Y'bch]cb'cZ[YbfY']g'i gYX'Ug'U'_YmXYhYfa]bUbhcZU']`a 'g a YUb]b['''; YbfY']`a g'k cf_'k]h\]b'UbX'\Uj Y'h\Y'cddcfhi b]mhc'fYZYWicb'gcW]Ymig'df]a Ufma mhg'cZ]XYbh]mUbX']bX]j]Xi U`]mž']7YYXca 'UbX'fYgdcbg]V]`]mž'W 'h fU``ghUV]`]miUbX'gcW]U``W\Ub[Y'''H\]g'Wci fgY'k]`` Wcbg]XYf'gca Y'cZh\Y'a cghZJgW]bUh]b['ei Ygh]cbg'fU]gYX'Vm[YbfY']`a g.`K \UhUfY'h\Y'dUfUa YhYfg'Zcf ghUbXUfX]nUh]cb'UbX']bbcj Uh]cb'k]h\]b']`a '[YbfYg3'<ck 'Xc']bX]j]Xi U``]`a a U_Yfg'fYk cf_'h\Y'Wcbj Ybh]cbg cZU'[YbfY'hc'a U]bhJ]b']hg'fY'Yj UbW'h\Y]f'h]a Y3'+b'k \UhgYbgY'Wbb']`a '[YbfYg'cdYfUhY'Ug']bgh][Uhcfg'cZ W\Ub[Y3'<ck 'Xc'[YbfY']`a g'fYZYWhh\Y'fUj U[Yg'cZ\]ghcfm3'

H\]gʻWcifgYʻk]```]bjYgh][UhYʻh\YʻWcbjYbh]cbgʻcZh\Y`[YbfYʻcZ7caYX]Ubʻ7caYXm]bʻfY`Uh]cbʻhcʻh\Ycf]YgʻcZ WcaYXmUbXʻh\YʻWca]Wʻ6mUhhYbX]b[ʻhcʻ_Ymkcf_gʻ]bʻd\]cgcd\mždgmW\cUbU`mg]gʻUbX``]hYfUhifYž]b UXX]h]cbʻhcʻZ]`aʻghiX]YgžUbXʻhcʻX]ZYfYbhWca]WZcfagžgiW\`Ugʻg`Udgh]W_ždUfcXmUbX`gUh]fYžh\YʻWcifgYʻk]`` Vcbg]XYfʻVch\`k\mkY``Ui[\`UbX`h\Y`W`hifU``ZbWf]cbʻcZVcaYXm'

5 hih Y WobWi g]cb cZih]g Woi fgY h Y ghi XYbhk]``VY UV Y hc

- %" I bXYfgHUbX`_Ym]ggi Yg`UbX`XYVUhYg`]b`Z]`a `[YbfY`ghi XmUbX`h\Ycfm
- &" →Ybh]Zmih\Y`_YmZYUhi fYgʻcZh\Y`[YbfYgʻghi X]YX`]bʻh\Y`Wci fgY
- '"FYWD``_YmXYVUHYg`H\Uhi\UjY`HU_Yb`d`UWY`UfcibX`H\Y`[YbfYg`ghiX]YX
- ("8YjY`cd`U`Wf]hjWU``Uf[iaYbh]b`fY`Uhjcb`hc`XYVUhYg`fU]gYX`]b`h\Y`WcifgY
-)" 7 cbXi WiUbX`XYd`cmfYgYUfWX`]b`Z]`a`[YbfY`gh X]Yg
- *"K cf_']b'ga U```[fci dg'UbX'hYUa g'hc'i bXYfhU_Y'ga U```fYgYUfWX'hUg_g'UbX'dfYgYbh'ZjbX]b[g
- +" 7 cbh/l h U`]gY UbX Ufj]W `UhY h Y]f ck b Wf]h]WU`dcg]h]cb]b gdc_Yb UbX k f]hh/b Zcfa
- , "FYWc[b]gY`gcaY`cZh\Y`kUmg`h\UhUYgh\YhWzhYW\bc`c[]WU`ž'gcWjU`ž'UbX`]bXighf]U``ZJWcfg`\UjY g\UdYX'h\Y`XYjY`cdaYbhcZh\Y`[YbfYg`ghiX]YX

HYUWX]b[GhfUhY[]Yg

FUh]cbU`Y'Zcf'h\Y']bWig]cb`cZWcbhYbhUbX'hYUW\]b['UddfcUW\

H\Y'fUh]cbU'Y'Zcfih.]g'Wci fgY'U'][bg'k]h 'a UbmcZh'Y'U]a g'UbX'cVYW]j Yg'cZh'Y':]'a 'Gh'X]Yg'a U'cf'' = h Vi]'Xg'cb'h Y'Zci bXUh]cbU''_bck 'YX[Yg']b':]'a 'Gh'X]Yg'h Uhghi XYbhg'[U]b']b'h Y''Yj Y''%'Wci fgYg'fb_]'g']b Z'a 'UbU'mg]g/]bhfcXi Wcfm_bck 'YX[Y'cZh'Y'\]ghcfmcZZ]`a 'UbX'W]bYa U/Ub'Uk UfYbYgg'cZh'Y']a dcfhUbW cZbUh]cbU''UbX']bhffbUh]cbU''Wcbh'I hg'Zcf Z]`a a U_]b[E'UbX'XYj Y`cdg'h YgY'_bck `YX[Yg'h fci [\'h\Y'WcgY gh'XmcZdUff]W 'Uf'[YbfYg'UbX'VmfU]g]b['UbX'YI d`cf]b['ei Ygh]cbg'UVci hdcdi `Uf'W]bYa UfgEUbX'W' h fU' j U'i Y'''H\fci [\']hg'ZcW g'cb'h Y']bh/ffY'Uh]cbg'VYh YYb']bXi ghf]U'žhYWkbc`c[]WU'žgcW]U''UbX'UYgh\Yh]W ZUWcfg'UbX'h Y]f'c'Y']b'g\Ud]b['Z]`a '[YbfYgž]hXYj Y`cdg'gh'XYbhgfli bXYfgHUbX]b[g'cZh'Y'\]ghcf]WU' XYj Y'cda YbhcZZ]`a 'Ug'Vch, U'gdYW]ZWa YX]i a 'UbX'Ug'dUfhcZU'WcbgHUbhmYj c'j]b['a YX]U''UbXgWUdY''6m XYa cbghfUh]b['gca Y'cZh\Y'fYgYUfWk 'a Yh\cXc`c[]Yg'XYd`cmYX']b'[YbfY'gh'X]Yg'UbX']b'gh'X]y g'cZZ]`a \]ghcfma cfY'[YbYfU`mž]hdfcj]XYg'gh XYbhg'k]h 'gca Y'cZh\Y'W]h]WU''g_]``g'fYei]fYX'Zcf'Yj Y`'' :]`a Ghi X]YgʻWci fgYg"'=ðʻUXX]h]cbžUbXʻ]b``]bYʻk]h\ʻh\YʻU]a gʻcZci fʻ`Yj Y``&ʻWci fgYgž:]`a ; YbfYgʻU`ck g ghi XYbhgʻhcʻdfUWJWYʻUbXʻXYj Y`cdʻa cfYʻ[YbYf]Wg_]``gʻgi W\ʻUgʻh\YcfYh]WU``UbXʻdfUWJWU``dfcʻYWid`Ubb]b[ž UWUXYa]WfYgYUfW\žWf]h]WU``h\]b_]b[ʻUbX`kf]h]b[ʻg_]``gžUbXʻg_]``gʻ]bʻWca a i b]WUh]cbʻUbX`]bʻWc``UVcfUh]j Y k cf_"

5ggYgga Ybh'& '7c``UVcfUhjj Y'hi hcf]U`'ZUWj`]hUhjcb

GHJfh'XUhY. '&&#\$' #&\$%

8YhJ]`g. 'H\]gʻUggYgga YbhiHug_']gʻV&a df]gYXʻcZgYj YfU`'V&a dcbYbhg'''K cf_]b[']bʻhYUa gʻcZik cʻcfʻh\fYYž ghi XYbhgʻk]``XYj Y`cdʻUbXʻV&bXi WiU`WUggʻei]n'VUgYXʻcbʻh\Y`k YY_`m`YWi fY`UbXʻhi hcf]U``fYUX]b[gžX]fYWh ghi XYbhgʻ]bʻga U```[fci dʻUWjj]h]YgʻXYj chYXʻhcʻgYei YbW UbUʻmg]gʻUbXʻV&bhf]Vi hYʻei Ygh]cbgʻZcfʻWUgg X]gWi gg]cb"Ghi XYbhgʻk]``VYʻUggYggYXʻVch. UgʻUʻhYUa `fVUgYXʻcbʻh\Y]fʻgi Va]gg]cbʻcZg`]XYgŁUbX]bX]j]Xi U``mVUgYXʻcbʻh\Y]fʻWUggʻfcca `V&bhf]Vi h]cb''`9UVXʻdUfhcZh\Y`UggYgga Ybhik]```UhffUWh%\$i `cZmci f cj YfU``a Uf_`Zcfʻh\Y`Wci fgY''Ghi XYbhgʻa i ghgi Va]hUʻdf]bhci hcZg`]XYgʻUbX`UʻVfYU_Xck bʻcZfYgdcbg]V]`]h]Yg Uhih\Y`YbX`cZh\Y`hi hcf]U`''Ghi XYbhgʻdfYgYbh]b[`g\ci `X`U]a `hcʻZ]b]g\`%\$`a]bi hYgʻVYZcfYʻh\Y`YbX`cZh\Y`WUgg]b`cfXYf`hc`YUj YʻhJa Y`hc`X]gW ggʻh\Yhcd]WZcfʻh\Y`k f]hhYb`dUdYf`k]h\`h\Y]fʻhi hcf"Ghi XYbhgʻfYWf]j Y`Ub]bX]j]Xi U``a Uf_]b[`fi Vf]W

5XX]h]cbU``XYHJ]`g.

5 gg)Ygppa Ydb1/VV/F)Hij0]U

FYYj UbWY cZei]n hc _Ym]ggi Yg#i Ygh]cbg#YYUHYg]b h hcf]U fYUX]b[g
I bXYfgHUbX]b[UbX#cf UXXfYgg cZ_Ym]ggi Yg]b h Y fYUX]b[g
5dhbYgg cZWk c]WY cZgYei YbWY fgE Zcf WUgg UbU mg]g
DYfh]bYbWY cZ[fci d UWf]j]h]Yg hc h Y gWcdY cZh Y hcd]W
K \YfY fYYj UbhžYj]XYbWY cZk cf_]b[hc [Yh\Yf Ug U[fci d
A UbU[Ya YbhUbX gi dYfj]g]cb cZ[fci d UWf]j]h]Yg UbX WUgg X]gW gg]cb
9ZYWf]j Y h]a Y a UbU[Ya Ybh

Hi fb]h]b gYh]b[. H\]g]g bchU Hi fb]h]b Ugg][ba Ybh

5ggYgga Ybh'. ⊕X]j]Xi U`WUggfcca Wcbhf]Vi h]cbg

Ghuffhixumt.', #\$' #&\$%

@Yb[h\. bi ``

8 YHJ]`g.

GHJfh'XUhY. ') #\$' #&\$%

@Yb[h\." gi a a Uf]YgžYUW\") \$\$"k cfXg

8YHU]`g. '%) \$\$`k cfXg"Gh XYbhg`fYW[]; Y`k f]HYb`ZYYXVUW_ž`]bWi X]b[`U`fi Vf]WUbX`[fUXY"````

5XX]h]cbU``XYHJ]`g.

⊫bghfiWh]cbg

: cf^{*}h.]g^{*}HUg_'ghi XYbhg^{*}UfY^{*}Ug_YX^{*}hc^{*}dfcj]XY^{*}U^{*}) \$\$^{*}k cfX^{*}gi a a UfmcZh\fY^{*}HYI hg^{**}H\Y^{*}ZjfghiHYI hk]^{**}VY Wea di ^{*}gefmUbX^{*}h\Yb^{*}ghi XYbhg^{*}k]^{***}\Uj Y^{*}hc^{*}WkcegY^{*}hk c^{*}ci hcZh\Y^{*}Z^{**}ck]b[^{**}h\fYY^{*}fYUX]b[g^{**}H\Y^{*}k cfX^{**}]a]h Zef^{*}h\]g^{*}YI YfW]gY^{*}]g^{*}ghf]WhUbX^{*}k cf_^{*}hUhYI WYYXg^{*}]hk]^{***}VY^{*}\YUj]^{*}mdYbU^{*}]nYX^{**}

%"'GY]Xa Ubž'GhYj Y"'ftehfcXi Wijcb"fite'7 ca YX]Ub'7 ca YXm'5 'HfUX]hjcb']b'<c``mk ccX':]`a "'I A =F YgYUfW. DfYggž%, %"'8i Y.') da ž: f]XUm'% h `A UfW."

&"'6Yf[gcbž<Ybf]"'7\UdhYf"CbYž"@Ui[\hYf.'5b'9ggUmcb'h\Y'AYUb]b['cZh\Y'7ca]\W'f\% %\L"'HfUbg`UhYX Vm7`ciXYg`Ym6fYfYrcb'UbX': fYX'Fch\kY``ž'+!*' "'7cdYb\U[Yb.'; fYYb'=bhY[Yfž%--"

5ggYgga Ybh7f]hYf]U

-7UdUWjhmihc fYUX WUfYZ ``m'UbX'i bXYfgHUbX Wca d`YI 'h\YcfYhjWU``gW\c`Ufg\]d

—=XYbhjZjWUhjcb°cZ_YmjXYUg°UbX°WcbWYdhg

-DfYgYbHJhcb'cZUgg][baYbh]b'U'Wc\YfYbhmkf]htYb'UbX'[fUaaUh]WU``mUbX'hndc[fUd\]WU``mWcffYWhZcfa

—7cbg]gh/bhUbXih\cfci[\ifYZYfYbWjb[icZgcifWfg

Gi Va]gg]cb bchYg. Mci f'k cf_'a i gh'VY gi Va]hhYX hc 'Hi fb]h]b 'Vmh\Y Xi Y 'XUhY''

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Ghi XYbhg UfY YI dYWYX hc di hh\Y]f bUa Yg UbX ghi XYbhbi a VYfg cb Yj YfmdU[Y cZh\Y]f Ugg][ba Ybhg"

Hi fb]h]b Gi Va]gg]cb

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UthYa dhjb['hc'gi Va]hmci f'Ugg][ba Ybht\fci [\'Hi fb]hjbž'd'YUgY hY'Yd\cbY'9I hYfbU''Gi ddcfhicb'-',) '' ' %cf'Ya U]`'h\Ya 'cb'<u>YI hYfbU'hY'hgi ddcfh4 i bgk "YXi "Ui</u>"'Gi ddcfh \ci fg'UfY', .\$\$Ua '-'%\$.\$\$da 'cb'k YY_XUmg'UbX'-.\$\$Ua '-') .\$\$da 'cb'k YY_YbXg'fl *) 'XUmg'U'mYUfŁ'' Zmci UfY'i bUV'Y'hc'gi Va]hmci f'Ugg][ba YbhXi Y'hc'U'ZJi `hk]h\'Hi fb]hjb'mci 'a UmUdd`m'Zcf'Ub'YI hYbg]cbžVi hmci a i ghfYhU]b'mci f'hjW_Yhbi a VYf'Zfca '9I hYfbU''Gi ddcfhfU'cb['k]h\ 'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁ'hc]bWi XY'Ug'Yj]XYbWY hc'gi ddcfhimci f'YI hYbg]cb'Udd`]WUhjcb'' Zmci 'Ya U]`'9I hYfbU''Gi ddcfhimci 'k]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW_Yhbi a VYfž'Vi h]Zmci 'hY'Yd\cbY'mci 'k]``bYYX'hc'gdYWJZWU``mUg_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUh g'cb'Hk]hYf"

; YbYfU``mž'UggYgga YbhiHUg_g'a i ghVY'gi Va]HHXXYYWYfcb]WU``mj]U'Y]H\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh''=b`]bgHUbWYg'k \YfY'H\]g']g'bchdcgg]V`Yž']hk]``VY'gHUHX'cb'mci f'Wci fgY'g'A ccX`Y'g]HY'k]H\ U`HYfbUh]j Y'gi Va]gg]cb'XYHU]`g''

@UhY 5ggYgga Ybh DYbU`h]Yg

5b'UggYggYX'HUg_']g'XYYa YX'`UHY']Z]h']g'gi Va]HHYX'UZHYF'H\Y'gdYW]ZJYX'Hja Y'UbX'XUHY'Ug'gYhici h]b'H\Y Wci fgY'@YUfb]b['A UbU[Ya YbhGmgHYa 'f@A GŁ''

H\Y``UhY`dYbU`hm`]g`h\Y``cgg`cZ)ı `cZh\Y`hchU``dcgg]V`Y`aUf_g`Zcf`h\Y`hUg_`Zcf`YUW\`XUmcf`dUfhih\YfYcZh\Y kcf_`]g``UhY"`@UhYbYgg`k]```]bWiXY`kYY_YbXg`UbX`diV`]W\c`]XUmg"`H\]g`XcYg`bch'Udd`mhc`U`hUg_`h\Uh`]g UggYggYX`Vihibc`aUf_`]g`UkUfXYX"

K cf_'gi Va]httX:Zci fhtYb`f%(EXUmg`UZhYf`h\Y`Xi Y`XUhY`k]``VY`a Uf_YX`UbX`ZYYXVUW_`dfcj]XYX`Vi hbc`a Uf_ k]``VY`fYWcfXYX''`=Zh\Y`k cf_`k ci `X`\Uj Y`fYWY]j YX`U`dUgg`a Uf_`Vi hZcf`h\Y``UhYbYgg`UbX`h\Y`k cf_`]g`U Wca di `gcfmWci fgY`Wca dcbYbhzU`gh XYbhk]``VY`XYYa YX`hc`\Uj Y`a Yhh\UhfYei]fYa Ybh'`H\]g`XcYg`bch Udd`mhc`U`hUg_`h\Uhi]g`UggYggYX`Vi hbc`a Uf_`]g`Uk UfXYX''

K cf_`gi Va]hhYX'hk YbhnicbY'f&&:XUmg'UZhYf'h\Y'Xi Y'XUhY'k]``bch'VY'UWW/dhYX'Zcf'a Uf_]b['cf'ZYYXVUW_ UbX'k]``fYWY]j Y'bc'a Uf_`cf'[fUXY"'=Zh\Y'UggYgga Ybh'hUg_`]g'U'Wca di `gcfm'Wca dcbYbhicZh\Y'Wci fgY'U ghi XYbh'k]``Ui hca Uh]WU``m'ZU]``h\Y'Wci fgY"

GdYWJU``7cbg]XYfUh]cb`5dd`]WUh]cbg

 $\label{eq:milling} \end{tabular} Mci `WUb`Udd`millingYgdYWJU`Wcbg]XYfUh]cb`k \Yb`]``bYgg`cf`ch\Yf`WJfW a ghUbWfg`]bhYfZYfY`k]h`mci f UggYgga YbhidYfZcfa UbWf"$

G]W_bYggža]gUXjYbhifY`cf`ch\Yf`W]fW a gHubWfg`VYmcbX`mcif`Wcbhfc``aUm

ł DfYj Ybhmci Zfca Wcad Yhjb[UWci fgY fYei]fYa Ybhž

ł?YYdimci Zfca UHYbX]b[UbUggYggUVYUW]j]mž

ł Ghod moi i gi Va]hh]b[iUggYggUV Y k cf_ Zcf U Wci fgYž

ł `G][b]Z]WUbhmUZYWimci f`dYfZcfa UbWi`]b`UggYggUV`Y`k cf_ž`VY`]hU`Zcfa U``YbX!cZigYa YghYf`YI Ua]bUh]cbž`U WUgg`hYghž`U``UVcfUhcfmhYghž`U`gYa]bUf`dfYgYbhUh]cb`cf`Ubmich\Yf`Zcfa `cZUggYgga Ybh'

: cf'Z fh\Yf'XYHJ]`g`]b`fY`UH]cb`rc`GdYW]U``7 cbg]XYfUH]cb`]bWi X]b[`''K \Yb`rc`5dd`mf'Z''<ck`rc`5dd`mf'UbX "Gi ddcfh]b[`8cW a YbHJh]cb"'d`YUgY`fYZYf'rc'h\Y`GdYW]U``7 cbg]XYfUH]cb`rk YVgh]Y.` \hhdg.##gh XYbH'i bgk "YXi "Ui #gdYW]U`!Wcbg]XYfUH]cb

5WUXYa]W<cbYghmUbX^D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`h\Y`k cfXg`cf`]XYUg`cZch\Yfg`UbX`dfYgYbh]b[`h\Ya `Ug`mci f`ck b"`=hWUb`hU_Y`a Ubm Zcfa gžZca `XY`]VYfUhY`W\YUh]b[`hc`UWW]XYbhU``mWcdm]b[`Zca `U`gci fWY`k]h\ci hUW_bck `YX[Ya Ybh'

I BGK '[fci dg'd`U[]Uf]ga ']bhc 'h\Y'Zc``ck]b['WUhY[cf]Yg.

7 cdm]b[..i g]b[.ih,Y`gUa Y`cf`j Yfmig]a]`Uf`k cfXg`hc`h,Y`cf][.]bU``hYI h`cf`]XYU`k]h\ci hUW_bck `YX[.]b[.ih,Y gci fWY`cf`i g]b[`ei chUh]cb`a Uf_g"`H\]g`U`gc`Udd`]Yg`hc`]a U[.Ygž`Ufh`UbX`XYg][b`dfc`YWfgž`Ug`k Y```Ug dfYgYbhUh]cbg`k \YfY`gca YcbY`dfYgYbhg`Ubch\Yf`g`]XYUg`cf`k cfXg`k]h\ci hWfYX]h"

=bUddfcdf]UhY'dUfUd\fUg]b[.'W\Ub[]b['U'ZYk 'k cfXg'UbX'd\fUgYg'k \]Y'a cghmfYhU]b]b['h\Y'cf][]bU' ghfi Whi fY'UbX']bZcfa Uh]cb'k]h\ci hUW_bck `YX[Ya Ybh''H\]g'U`gc'Udd`]Yg']b'dfYgYbHUh]cbg'k \YfY'gca YcbY dUfUd\fUgYg'Ubch\Yf'g']XYUg'cf'k cfXg'k]h\ci hWfYX]h''=hU`gc'Udd`]Yg'hc'd]YW]b['hc[Yh\Yf'ei chYg'UbX dUfUd\fUgYg']bhc'U'bYk 'k \c`Yž'k]h\ci hfYZYfYbW]b['UbX'U'gh XYbhg'ck b'UbU`mg]g'hc'Vf]b['h\Y'a UhYf]U` hc[Yh\Yf''

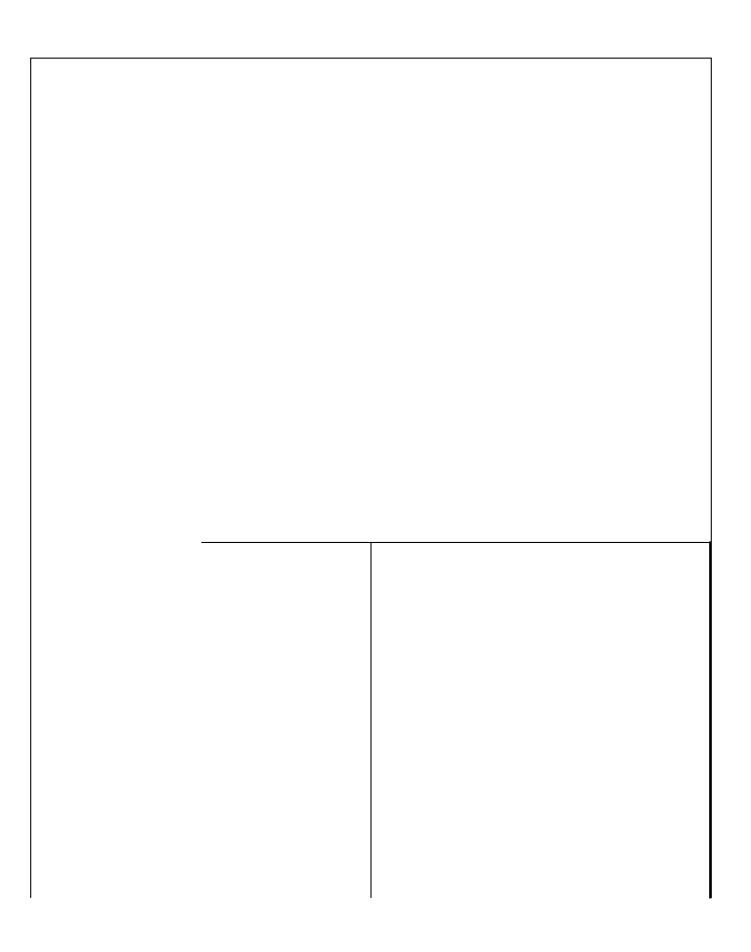
7 c``i g]cb. 'k cf_]b['k]h 'ch Yfg'Vi hdUgg]b['cZh Y'k cf_'Ug'U'dYfgcb'g']bX]j]Xi U``k cf_''7 c``i g]cb'U`gc]bWi XYg'dfcj]X]b['mci f`k cf_'hc'Ubch Yf'gh XYbhVYZcfY'h Y'Xi Y'XUhYzcf'Zcf'h Y'di fdcgY'cZh Ya d`U[]Uf]g]b['UhUbmh]a Yž'dUm]b['Ubch Yf'dYfgcb'hc'dYfZcfa 'Ub'UWUXYa]WhUg_ž'ghYU`]b['cf'UWei]f]b[Ubch Yf'dYfgcb'g'UWUXYa]Wk cf_'UbX'Wcdm]b[']hz'cZYf]b['hc'Wca d`YhY'Ubch Yf'dYfgcb'g'k cf_'cf'gYY_]b[dUma YbhZcf'Wca d`Yh]b['UWUXYa]Wk cf_''

=ÐUddfcdf]UhY`W]hUh]cb. 7]h]b[`gci fWYg`k∖]WX`\Uj Y`bchVYYb`fYUXžk]h\ci hUW_bck`YX[]b[`h\Y`″gYWcbXUfm´ gci fWY`Zfca`k∖]W\`_bck`YX[Y`cZh\Ya`\Ug`VYYb`cVhU]bYX"

8id`]\WUh]cb`fl`gY`ZId`U[]Uf]ga "Ł`gi Va]hhjb[`mcif`ckb`kcf_ž`]b`k\c`Y`cf`]b`dUfhž`k\YfY`]h\Ug`dfYj]cig`m VYYb`dfYdUfYX`cf`gi Va]hhYX`Zcf`Ubch\Yf`UggYggaYbhcf`\\circf`Ucil BGK `cf`Ubch\Yf`ib]jYfg]hm"

7 cffYWhfYZYfYbW]b[dfUWf]WYg.

• VYHYfa UbU[Y'mcifh]a Y



	F]V`Yhž8ci["``H\Y`?YnghcbY`:]`a `7 ca dUbmUbX`h\Y <]ghcf]c[fUd\mcZ9Uf`mG`Udgh]W_"``+b`7`Ugg]WU` <c``nk ca="" ccx`7="" yxmžyx]hyx`vm<ybfmi="">Yb_]bg`UbX ?f]gh]bY`6fi bcj g_U`?Ufb]W_"`@cg`5b[Y`Yg.`5a Yf]WUb :]`a `+bgh]h hY`UbX`F ci hYX[Yž%-)" F cV]bgcbž8Uj]X"``5b`5fhicZ@ bUWm`GYbbYhhUbX ?YnghcbY"`'+b`H\Y`; fYUh: i bb]Yg.`5`<]ghcfmicZ:]`a 7 ca YXm"@cbXcb.`Ghi X]c`J]ghUž%-*-" ; i bb]b[ž`Hca "``7fUnmA UVX]bYg`]b`h\Y`; UfXYb`cZ h\Y`: cf_]b[`DUH\g"`+b`7`Ugg]WU`<c``nk ca="" ccx`7="" yxmž<br="">YX]hYX`Vm<ybfm>Yb_]bg`UbX`?f]gh]bY`6fi bcj g_U ?Ufb]W_"@cg`5b[Y`Yg.`5a Yf]WUb`:]`a `+bgh]h hY`UbX F ci hYX[Yž%-)"f@]VfUfm<][\`1 gYŁ</ybfm></c``nk></c``nk>
K_YY_^(*%-*A_UfWX*!*&)	Hcd]W'. H\Y; YbhYY``hfUX]h]cb
a ufvx	@YWHifY#GWFYYb]b[.` <ufc`x`@`cmxž`guzyhm @Ugh`f%&'ŀžX]f"`:fYX`BYkaYmYf`UbX`GUa HUm`cfž`+(`a]bg"</ufc`x`@`cmxž`guzyhm
	7ca di `gcfmfYUX]b[
	:fmYžBcft∖fcd"`5bUhcamicZ7f]h]W]ga∴:cif`9ggUmgž %*'!% *"`Df]bWYhcbiIb]jYfg]hmiDfYggž%)+"
	6Y`hcbži>c∖b"`9IVWfdhiZfca `7]bYaU`Ghmì]ghgž :]`aaU_Yfgžibc"`&"`AYhiVXYb.`H\Y`GWUfYWfck DfYggži%-,'"
	FYWca a YbXYX [*] fYUX]b[
	BYUYYžGhYjYžUbX:fUb_?fihb]_žDcdi`Uf:]a UbX HYYj]g]cb7caYXmž%&%%%"@cbXcbUbXBYk McfFcihYX[Yž%-\$"f@]VfUfm!<][\1gYŁ
	HfU\U]fž`@]gU"`'8Y[fUXUŀ]cb`UbX`FYZ]bYaYbh]b %&\$g`7]bYaUŀ]WG`Udgŀ]W_"`'+b`H\Y`7caYXmcZ D\]`cgcd\m`GYbgY`UbX`BcbgYbgY`]b`9Uf`m 7]bYaUŀ]WG`Udgŀ]W_ž`%&)!%(*"`5`VUbm`GIBM DfYggž&\$\$,"`f@]VfUfm!<][\`IgYŁ
	? Yffž"KU`hYf"`7\Ud"`%%`]b`H\Y`G]`Ybh'7`ckbg"`BYk Mcf`? bcdZz"%+) "`f@]VfUfm!<][\`IgYŁ"
K_YY_`).`&*`A_UfVX`!`% 5df]`	Hcd]W(. 7ca YXmUbX BUffUhjj Y
Suij	@YWMifY#GWfYYb]b[6ighYf?YUhcbžH\Y ; YbYfU`f1%&+bžX]f"6ighYf?YUhcbUbX7`mXY 6fiW_aUbž++a]bg"
	7ca di `gcfmfYUX]b[

	<pre>8Y'Yi nYž;]`Yg"'7]bYa U'%'H\Y'A cj Ya YbH = U[Y" HfUbg'UHX'Vm<i [\'hca`]bgcb'ubx'6ufvufu<br=""><uvvyf'ua "'a]bbyudc`]g.'i="" b]j="" yfg]mcza]bbygclu<br="">DfYggž%, *"'7\UdhYf'''H\Y'5Wf]cb!= U[Y.'H\Y @Uf[Y': cfa ź'GYWf]cb'&'H\Y'@Uk g'cZCf[Ub]W 7 ca dcg]h]cbźfidd"%)%%))" 7 Uffc``ž'BcÇ'"''?YUhcb.::]a '5Wf]b['Ug'5Wf]cb"fi= A U_]b['J]g]V'Y'h\Y'=bj]g]V'Y.'5b'5bthc'c[mcZ Cf][]bU`'9ggUmg'cb':]a '5Wf]b['ZYX]hYX'Vm7Ufc'Y Ni W_Yf"'H\Y'GWUfYWfck 'DfYggž'% - \$" FYWca a YbXYX'fYUX]b[BYU'Yž'GhYj Yž'UbX': fUb_'? fi hb]_žf7 ca YXmUbX BUffUh]j Y"'7\Ud"&]b'Dcdi`Uf':]a 'UbX'HY'Yj]g]cb 7 ca YXm'@cbXcb.'F ci hYX[Yž% - \$"'f5jU]'UV'Y'Ug YVcc_k HfU\U]fž@]gU"''H\Y'A UWX]bY'cZ7 ca YXm'; i bb]b[ž 8'Y'i nY'UbX'6i gh'f'?YUhcb[b[b[hb]_žf%</uvvyf'ua></i></pre>

	7]mi@][\hg"" ⊕`H\Y`7caYXmcZD\]`cgcd\m`GYbgY UbX`BcbgYbgY`]b`9Ufm7]bYaUh]WG`Udgh]W_ž %*-!%\$"`5`VUbm`GLBMDfYggž&\$\$+"`fYVcc_Ł
K_YY_`+.`%*`5df]``!`&&	Hcd]W*. Gci bX 7ca YXmUbX h\Y A Ufl 6fch\Yfg
5df]`	@YWhifY#GWfYYb]b[.∵8iW_`Gcid`f1%-''½ïX]f"`@Yc AW7UfYmž*, `a]bg"
	7ca di `gcfmfYUX]b[
	AY``YbWUadžDUHf]WjU"``>c_Yg`UbX`H\Y]f`FY`Uhjcb`hc h\Y`AUfI`6fch\Yfg"`"=b`7]bYaU`UbX`@Ub[iU[Yž YX]hYX`Vm`GhYd\Yb` <yuh\`ubx`duhf]mju`ay``ybwuad" Ib]jYfg]hm`DiV`]WUh]cbg`cZ5aYf]WUž%,'"</yuh\`ubx`duhf]mju`ay``ybwuad"
	: fYi XžG][aibX"`7∖UdhYfJ`'H\Y`Ach]jYg`cZ>c_Yg`- >c_Yg`Ug`U`GcW]U``DfcWYgg"'`+b`>c_Yg`UbX`H\Y]f FY`Uh]cb`hc`h\Y`IbWcbgW]cigž`hfUbg`UhYX`Vm>UaYg GhfUW\Ym'` <ufacbxgkcfh\.`dyb[i]b`6cc_gž%+*"< td=""></ufacbxgkcfh\.`dyb[i]b`6cc_gž%+*"<>
	FYWca a YbXYX fYUX]b[
	7 Uj Y``žGHUb`Ym'''Bch\]b[; cYg'k]h\ci hGUm]b[. FYUX]b['h\Y'A Ufl '6fch\Yfg"''+b`7 Uj Y```cb`:]`a ž YX]hYX`VmK]``]Ua 'Fch\a Ubž'% ' !% &"'5`VUbm`GHUhY I b]j Yfg]hmcZBYk 'Mcf_`DfYggž&\$\$) "
	HfU\U]fž'@]gU"``>c_Yg`UbX`h\Y]f`FY`Uh]cb`hc`…'`+b`H\Y 7 ca YXmcZD\]`cgcd\m`GYbgY`UbX`BcbgYbgY`]b 9Uf`m`7]bYa Uh]WG`Udgh]W_ž`%\$)!%&("`5`VUbm`GLBM DfYggž'&\$\$+"`fYVcc_Ł
K_YY_`,.`&' `5df]``!`&-	Hcd]W+. H\Y 7ca YXmcZFYa Uff]U[Y
5df]`	@YWMifY#GWfYYb]b[.⁺+i <uddybyx`cby`b][\h f%'(ŁĭX]f"`:fUb_`7UdfUž%\$)`a]bg"</uddybyx`cby`b][\h
	7ca di `gcfmfYUX]b[
	7 Uj Y``žGHUb`Ym'''? bck `YX[Y`Ug`HfUbg[fYgg]cb. '♠ < UddYbYX`C bY`B][\H''`⊕`Di fgi]hg`cZ< Udd]bYgg. H\Y`< c``mk ccX`7 ca YXmcZF Ya Uff]U[Yž+%}%- " 7 Ua Vf]X[YžA 5.`< Ufb

	""K \Uh6YWca YgʻcZH\]b_]b[ʻcbʻ:]`a 3"`fGHUb`Ym 7 Uj Y```]bʻ7 cbj YfgUh]cbʻk]h\ʻ5bXfYk '? `Yj UbŁ"``≢b :]`a `UgʻD\]`cgcd\m`9ggUmgʻcbʻ7]bYa Uʻ5ZhYf K]hf[YbghY]bʻUbX`7 Uj Y``ž`YX]hYX`VmF i dYfhF YUX UbX`>Yffm; ccXYbci [\ž`%*+!&\$-"`6Ug]b[ghc_Y. DU`[fUj Y#\UWa]``Ubž`&\$\$)"
K_YY_''' \$'5df]`'! '* A Um	Hcd]W,.H\Y7ca]W5iHYif
	@YWhifY#GWfYYb]b[.∴>Yffmi@Yk]gžH\Y`@UX]Yg AUb`f1%**%Łž-)`a]bg"
	7ca di `gcfmfYUX]b[
	G\Uj]fcžGhYj Yb"`'7 ca YX]Yg`cZ5VYW¶cb.`>Yffm @Yk]g"'`±b`H\Y`7]bYa Uh]W6cXnž`%\$*!%&(" A]bbYUdc`]g.`L b]j Yfg]micZA]bbYgchU`DfYggž`% -` "
	?fi lb]_ž: fUb_"``>Yffm@Yk]g.`H\Y`8YZcfa Uh]cb`cZh\Y 7 ca]\\":]`a `E i UfhYf`m(, žbc"`%fl U```% - (Ł`&&!&*"
	FYWca a YbXYX fYUX]b[
	6i _Uha UbžGWcht"'DUfU`mg]gʻ]bʻA ch]cb.`>Yffm@Yk]gʻg @]ZYʻUgʻUʻA Ub"'`ŧbʻ7 ca YXnžʻ7]bYa UžH\YcfmžYX]hYX Vm5bXfYk `< cfhcb"ʻL b]j Yfg]hnicZ7 U`]Zcfb]UʻDfYggž %%"
	5XjUbV¥X`fYUX]b[
	K YVYfžGUaiY`"'H\Y`G\U[[m8c["'`⊕`H\Y`@Y[YbX cZ: fYiXž'%\$\$!%% "`A]bbYUdc`]g.`Ib]jYfg]micZ A]bbYgcHJ`DfYggž%, &"
	8Y`YinYž;]``Yg"`7]bYaU`&.`H\Y`H]aY!≠aU[Y" HfUbg`UhYX`Vmi <i[\`hca`]bgcb`ubx`fcvyfh; u`yhu"<br="">H\Y`5h\`cbY`DfYggž'%,,-""9IW¥fdh2fca`7\UdhYf" ž ':fca`FYWc``YWn]cbg`hc`8fYUag"'</i[\`hca`]bgcb`ubx`fcvyfh;>
K_YY_`%\$.`+`A_Um!`% A_Um	Hcd]WGUhjf]WU`7caYXm
	@YWMifY#GWFYYb]b[.`DYHYf`GY``Yfgž'8f GHfUb[Y`cjYžcf`\ck`=`YUfbYX`hc`ghcd`kcffm]b[UbX``cjY`h\Y`VcaV`f%~*(ŁžX]f"`GHJb`Ym?iVf]W_ž -%a]bg"
	7ca di `gcfmfYUX]b[
	K cfWfghYfž8Uj]X"'': fca `h\Y`5fhcZGUh]fY"''⊕`GUh]fY. A cXYfb`9ggUng`]b`7f]h]W]ga žYX]hYX`VmFcbU`X DUi`gcb"`9b[`Yk ccX`7`]Zg.`DfYbh]Wf! <u``ž%+%"< td=""></u``ž%+%"<>
	6fighY]bžFcVYfh""8fGhfUb[Y`cjY. CihcZh\]g

	k cfX"' +b F YbU]ggUbWF cZh Y ::]`a žYX]h/X`Vm>i `]i g 6Y``cbY" @cbXcb. 7 c``]Yf 6cc_gž% +\$" F YWca a YbXYX`fYUX]b[B Y`gcbžH\ca Ug`5``Yb"'? i Vf]W `+bg]XY`U`:]`a 5ff]ghg A UnY" 6`cca]b[hcb. `+bX]UbU`I b]j Yfg]hm DfYggž% , &" 5Xj UbWFX`fYUX]b[8Y`Yi nYž;]``Yg"`7]bYa U`&.`H\Y`H]a Y!+a U[Y"

@YWhifY#GWfYYb]b[.~6f]XYgaU]Xg`f&\$%%±ž`X]f" DUi``:Y][ž*&)`a]bg"
7ca di `gcfmfYUX]b[
K UfbYfž' <y`yb"`"5`byk`:ya]b]ghfyjc`ih]cb`]b <c``mkccx`7cayxm"3.`dcghzya]b]gh8]gwcifgyg`ubx h\Y`7f]h]WU``FYVWdh]cb`cZ6f]XYgaU]Xg"`+b DcghZYa]b]ga`UbX`7cbhYadcfUfm<c``mkccx 7]bYaU"`6Ug]b[ghc_Y.`DU`[fUjY#AUWa]``Ubž`&\$% "</c``mkccx </c``mkccx`7cayxm"3.`dcghzya]b]gh8]gwcifgyg`ubx </y`yb"`"5`byk`:ya]b]ghfyjc`ih]cb`]b
AUHNYkgžB]WcY""DYfZcfa]b[∵;YbXYf`]b`7 caYX]Ub 7 caYXm"'=b`7 ca]WDc`]h]Wg.∵;YbXYf`]b`< c``mkccX 7 caYXmUZhYf`H\Y`BYk`F][\h"AUbW\YghYf. AUbW\YghYf`Ib]jYfg]miDfYggž&\$\$\$"
FYWcaaYbXYX [*] fYUX]b[
FckYž?Uh\`YYb"`H\Y`Lbfi`mKcaUb.`;YbXYf`UbX h\Y`;YbfYg`cZ@Ui[\hYf"`5igh]b.`Lb]jYfg]hmcZHYLUg DfYggž%-)"

F Ygci fWg

DfYgWf]VYX F Ygci fWfg

ACC8@9

FYWca a YbXYX⁻FYgci fWYg

G99'7C|FG9'; | =89'CB'ACC8@9':CF'588+H€B5@'=B:CFA5H€B

7ci fgY'9j U`i Uh]cb'UbX'8Yj Y`cda Ybh

Gh XYbhy'k]```\Uj Y'h\Y'cddcfh b]hmhc'Yj U'i UhY'h\]g'Wci fgY'cb'A m9I dYf]YbWY" 5g'U'fYgi `hcZdfYj]ci g gh XYbhYj U'i Uh]cb'U'fdYcd`Yfg'W\c]WYfk YY_'\Ug'VYb'UXXYX'k \YfY'gh XYbhy'k]``VY'UV`Y'hc'Y`YWiU'Z]`a h\Ymk]g\'hc'Wc``YWf]j Y`mj]Yk 'UbX'X]gW gg']b'fY`Uh]cb'hc'h\Y'Wci fgY'Wf]hYf]U" 5ggYgga YbhdfcWYXi fYg'\Uj Y` VYYb'a cX]ZJYX'hc'U``ck 'a cfY'cddcfh b]hmZcf'a Y'hc'dfcj]XY'gh XYbhy'k]h\'ZYYXVUW_" 5XX]h]cbU``Wci fgY a UhYf]U`g'\Uj Y`'VYYb'dfcj]XYX'cb'A ccX'Y'Uhgh XYbhyffYei Ygh'

⊣a U[Y[·]7fYX]h

 $H \ Y \ Wc \ dmf][\ \ h \ Ug \ YI \ \ d]fYX \ \ 'I \ + \ \ 'mY \ Ufg \ \ UZh \ f'h \ \ Y \ \ XY \ Uh \ \ \ c \ Zh \ \ Y \ \ WfY \ Uhc \ f''$

7F*⊒*CG

7F=7CG'Dfcj]XYf'7cXY.*\$\$\$-,;