



Ш

ARTS3030

GYY]b['5i glfU`]U# YUX]b['5i glfU`]U

7ci fgY[·]Cj Yfj]Yk

`GHJZZ`7cbHJWh`8YHJ]`g`

'7cbj Ybcfg'

BUa Y	9a U]`	5j U]`UV]`]m	@cWUhjcb	D∖cbY
6]``5g\\#c <i>1</i> h		5`kUmg`UjU]`UV`Y`]b WcifgY`X]gWigg]cb		

9ggYbh]U``ŧbZcfa Uh]cb`

5^{°°}G5A 'ghi XYbhg'a i gha U_Y'U'j U']X'UhhYa dh'Uh'U'``UggYgga Ybhg']b'cfXYf'hc'dUgg'h\Y'Wci fgY"

: cf`YggYbhJU``ghi XYbh`]bZcfa Uh]cb`fY`Uh]b[`hc.`UhhYbXUbVW`fYei]fYa Ybhg/fYei Yghg`Zcf`YI hYbg]cb/fYj]Yk `cZ a Uf_g/cVWV dUh]cbU``\YU`h\`UbX`gUZYhm/YI Ua]bUh]cb`dfcWYXi fYg/gdYWJU``Wcbg]XYfUh]cb`]b`h\Y`Yj YbhcZ]``bYgg`cf`a]gUXj Ybhi fY/ghi XYbhYei]hm`UbX`X]gUV]`]hm/UbX`ch\Yf`YggYbh]U``a UhhYfgžgYY`h\Y`G5A `Dc`]W]Yg UbX`; i]XY`]bYg`k YVdU[Y.`<u>\hndg.##gUa "Ufhg"i bgk "YXi "Ui #ghi XYbhg#fYgci fWYg#dc`]W}Yg![i]XY`]bYg#</u>

7ci fgY[·]8YHJ]`g

7 fYX]hDc]bhg **

Gi a a UfmcZh\Y'7 ci fgY

GiVYWhi5fYU.'7`Y/[eZ

fGYY]b[`5ighfU`]Ufi]g`Ub`cb`]bY`WcifgY`H\UhYIUa]bYg`H\Y`kUm5ighfU`]U`\Ug`VYYb`fgYYbficjYf`H\Y``UghIkc WYbhif]Ygž]b'j]giU``UfhUbX``]HYfUhifY"`6Y[]bb]b[`k]H\`UbU`mg]b[`H\Y`WcbWYdhcZfgYY]b[fi]hgY`Zz`kY`k]``]bjYgh][UHY`\ck`5ighfU`]U`\Ug`WcaY`hc`YI]gh]b`H\Y`a]bX`cZ]hg`ckb`dYcd`Y`UbX`H\cgY`Zfca`cH\Yf`Wcibhf]Yg" =b`H\]g`dfcWYgg`mci`k]``X]gWcjYf`gcaY`cZH\Y`ZbXUaYbHU``W``hifU``amH\g`H\Uh\UjY`[cbY`hc`g\UdY

7 fYX]hDc]bhg***

Gi a a UfmcZhXY7ci fgY

GiVYWhi5fYU.7`Y/[eZ

f&YY]b['5i ghfU`]Ufi]g'Ub'cb`]bY'Wci fgY'I\UhYI Ua]bYg'I\Y'k Um5i ghfU`]U'\Ug'VYYb'fgYYbficj Yf'I\Y'`Ughik c WYbh f]Ygž]b'j]gi U``UfhUbX``]HYfUh fY"'6Y[]bb]b['k]l\`UbU`mg]b['I\Y'WcbWYdhcZfgYY]b[fi]hgY`Zz'k Y'k]``]bj Ygh][UHY'\ck '5i ghfU`]U'\Ug'Wca Y'hc'YI]gh]b'I\Y'a]bX'cZ]hg'ck b'dYcd`Y'UbX'I\cgY'Zca 'ch\Yf'Wci bhf]Yg" =b'I\]g'dfcWYgg'mci 'k]``X]gWcj Yf'gca Y'cZI\Y'Z bXUa YbHU`'W `hi fU``a mt\g'I\Uh'\Uj Y'[cbY'hc'g\UdY 5i ghfU`]Ub'gcW]YmiVmYbWci bHYf]b['X]ZYfYbhik Umg'cZfgYY]b[fIVYg]XYg'I\Y'di fY`mj]gi U`"5hI\Y'WcbWi g]cb cZI\Y'Wci fgY'mci 'k]``VY'UV'Y'hc']XYbh]Zmil\Y'fUb[Y'cZfYdfYgYbHJh]cbg'Vmik \]W\'f5i ghfU`]Ufi\Ug'Wca Y]bhc'VY]b["

5 hih\Y`WcbWig]cb`cZih\]g`WcifgY`h\Y`ghiXYbhik]```VY`UV`Y`hc

%" =XYbhJZmigca Y`cZh\Y`a U^cf`k Umg`]b`k \]VX`5i ghfU`]U`\Ug`VYYb`XYd]VVYX`]b`UfhUbX``]hYfUh fY &" 5bU`mgY`UbX`X]gW gg`h\Y`W`h fU``VUgYg`cZfYdfYgYbhUh]cb`]b`5i ghfU`]Ub`UfhUbX``]hYfUh fY ' " F YUX`UbX`VVf]hJVU``mUggYgg`UVUXYa]VVk f]h]b[`cb`5i ghfU`]Ub`hYI hg (" 9I d`U]b`h\Y`k Umg`]b`k \]VX`Zcfa g`cZfYdfYgYbhUh]cb`cdYfUhY`]b`5i ghfU`]Ub`hYI hg

HYUW]b[GHfUHY[]Yg

FUhjcbU`Y.

H\Y'cb`]bY'Zcfa Uhi]g'XYg][bYX'hc'a Ul]a]gY'ghi XYbhgfi Yb[U[Ya Ybhk]h\'h\Y'Wci fgY'UbX'h\Y]f UW\]Yj Ya YbhcZ`YUfb]b['ci hWca Yg"'=h]g'dUfh]W'`Uf`mi gYZ ``VYWUi gY']ha Ul]a]gYg'h\Y'cddcfhi b]hmhc Yb[U[Y'k]h\'h\Y'a UhYf]U``UbX'hc'Yb[U[Y']b'X]gW gg]cb"

H\]gʻa cXYʻ]gʻUddfcdf]UhYʻZcfʻUʻ`Yj Y`` Wci fgYʻVYWUi gYʻ]hgi]hgʻgh XYbhgʻk \c'UfYʻi bUV`YʻhcʻVYʻcbʻWUa di g" H\Yʻcb`]bYʻa cXYʻU``ck gʻa UI]a i a ʻZYI]V]`]hmiZcfʻgh XYbhdUfh]W]dUh]cb"

5 http://bxiczhty:WdifgYzghiXYbhgik]```\UjY`\UXitty'cddcfhib]hmihc:Udd`mUifUb[YicZWf]hJWU``UddfcUWXYgihc `]hYfUfmihYI hgzihci]a dfcjYittyYeiU`]hmicZhty]fifYgYUfWX:UbXikf]hJb[ig_]``g'UbXihciXYjY`cdigY`ZX]fYWhYX `YUfb]b[idfcWYggYg"

HYUW]b['GhfUh []Yg.

H\Y'WcifgY'k]``WcjYf'k c'acXi'Yg'dYf'kYY_"'9UWX'acXi'Y'k]``VY']bHfcXiWYX'cb'h\Y'@YUfb]b[AUbU[YaYbhGmghYa'h\fci[\`cb`]bY'`YWifYžX]fYWjcbg'Zcf'fYUX]b['UbX'fYgcifWYg'WcjYf]b['h\Y'hcd]W CbY'dYfgcb'Zfca'YUWX'cb`]bY'[fcid'faUI]aia'cZ%\$E'k]``VY'U``cWUhYX'hc'dcghU'g\cfhYggUmfYgdcbX]b[hc'U'eiYgh]cb'cb'h\Y'hcd]Wz'dcghU'biaVYf'cZeiYgh]cbg'[YbYfUhYX'Vmh\Y'hcd]WUbX'hc'acXYfUhY X]gW gg]cb'UfcibX'h\cgY'eiYgh]cbg''H\Y'`YWifYf'k]```YY']bjc'jYX']bYYUWX [fcidfayZ]gW gg]cb"

H\Y`fUh]cbU`Y`Zcf`h\Y`]bhYbg]j Y`X]gW gg]cb`Wca dcbYbh]g`hc`]a dfcj Y``]hYfUWhžYbgi fY`h\UhU```gh XYbhg`\Uj Y h\Y`cddcfh b]mihc`Yb[U[Y`]b`X]gW gg]cb`UbX`hc`[]j Y`h]a Y`Zcf`a cfY`fYZYW]j Y`fYgdcbgYg`hc`X]gW gg]cb''

5ggYgga Ybh

5ggYgga YbhHUg_g

5ggYgga Ybh'tUg_	K Y][\h	8iY`8UHY	GhiXYbhi@YUfb]b[CihWcaYgʻ5ggYggYX
A U∕cf [°] 9ggUm	(\$1	' %#\$%#&\$%_`%&.) - `DA	&ž ž(
Cb`]bY`X]gWigg]cb`dcgh]b[g`			

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['tc'gi Va]hmci f'Ugg][ba Ybht\fci [\'Hi fb]hjbž'd'YUgY hY'Yd\cbY'9I hYfbU''Gi ddcfhcb'-',) '' ' '%cf'Ya U]`'h\Ya 'cb'<u>Yl 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`mZcf'Ub'Yl hYbg]cbž'Vi 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'Yl hYbg]cb'Udd`]WUh]cb'''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 'gfUhi g'cb'Hk]hYf"

; YbYfU``mi]b`G5A`H\YfY`k]```bc``cb[Yf`VY`Ubm\UfX!Wcdmigi Va]gg]cb/UggYgga Ybhg`a i ghVY`gi Va]hHX Y`YWfcb]WU``mj]U`Y]h\Yf`Hi fb]h]b`cf`U`A ccX`Y`Ugg][ba Ybh'`=b`]bgHUbWfg`k\YfY`h\]g`]g`bchdcgg]V`Y`]hk]```VY gHUHYX`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 YbhDYbU`h]Yg

5b'UggYggYX'HJg_']g'XYYa YX``UHY']Z]h']g'gi Va]HYX'UZhYf'H\Y'gdYW]ZJYX'Hja Y'UbX'XUHY'Ug'gYhici h']b'H\Y Wci fgY'@YUfb]b['A UbU[Ya Ybh'GmgHYa 'fl@A GŁ"

H\Y``UHY`dYbU`hm`]g`H\Y`cgg`cZ)ı `cZH\Y`hcHJ``dcgg]V`Y`a Uf_g`Zcf`H\Y`HUg_`Zcf`YUWX`XUmcf`dUfhiH\YfYcZH\Y k cf_`]g``UHY"`@UHYbYgg`k]```]bWi XY`k YY_YbXg`UbX`di V`]W\c`]XUmg"`H\]g`XcYg`bchUdd`mhc`U`HUg_`H\Uh`]g UggYggYX`Vi hibc`a Uf_`]g`Uk UfXYX"

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 Ybhimci i Zfca i Wca d`Yhjb[i U Wci fgY i fYei]fYa Ybhž

ł?YYdimci Zfca UHYbX]b[Ub'UggYggUVYYUW]j]mž

ł Ghod moi i gi Va]hh]b[iUggYggUV Y k cf_iZcfiU 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'

: cfi2 fh\YfiXYHU]`gi]bifY`UH]cbirciGdYW]U``7 cbg]XYfUH]cbi]bWi X]b[iirK \Ybirci5dd`mfžir<ckirci5dd`mf`UbX "Gilddcfh]b[i8cWla YbHUH]cbird`YUgYifYZYfircih\YiGdYW]U``7 cbg]XYfUH]cbirk YVgH]Y. \Hndg.##ghi XYbH'i bgk "YXi "Ui #gdYW]U`!Wcbg]XYfUH]cb

Gi Va]gg]cb cZ5ggYgga YbhHUg_g

Ghi XYbhgʻUfYʻYI dYWhYXʻhcʻdi hih\Y]fʻbUa YgʻUbXʻghi XYbhibi a VYfgʻcbʻYj YfmdU[YʻcZh\Y]fʻUgg][ba Ybhgʻ

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

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UthYa dhjb['tc'gi Va]hmci f'Ugg][ba Ybht\fci [\'Hi fb]hjbž'd'YUgY hY'Yd\cbY'9I hYfbU''Gi ddcfhcb'-',) '' ' %cf'Ya U]`'h\Ya 'cb'<u>Yl 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'Yl hYbg]cbž'Vi 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'Yl 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'gdYWJZJWU'`mUg_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUh g'cb'Hk]hYf"

; YbYfU``mi]b`G5A`H\YfY`k]```bc``cb[Yf`VY`Ubm\UfX!Wcdmigi Va]gg]cb/UggYgga Ybhg`a i ghVY`gi Va]hHX Y`YWfcb]WU``mj]U`Y]h\Yf`Hi fb]h]b`cf`U`A ccX`Y`Ugg][ba Ybh'`=b`]bgHUbWfg`k\YfY`h\]g`]g`bchdcgg]V`Y`]hk]```VY gHUHYX`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 YbhDYbU`h]Yg

5b'UggYggYX'HJg_']g'XYYa YX``UHY']Z]h']g'gi Va]HYX'UZhYf'H\Y'gdYW]ZJYX'Hja Y'UbX'XUHY'Ug'gYhici h']b'H\Y Wci fgY'@YUfb]b['A UbU[Ya Ybh'GmgHYa 'fl@A GŁ"

H\Y``UHY`dYbU`hm`]g`H\Y`cgg`cZ)ı `cZH\Y`hcHJ``dcgg]V`Y`a Uf_g`Zcf`H\Y`HUg_`Zcf`YUWX`XUmcf`dUfhiH\YfYcZH\Y k cf_`]g``UHY"`@UHYbYgg`k]```]bWi XY`k YY_YbXg`UbX`di V`]W\c`]XUmg"`H\]g`XcYg`bchUdd`mhc`U`HUg_`H\Uh`]g UggYggYX`Vi hibc`a Uf_`]g`Uk UfXYX"

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]ht/X'lk YbhticbY'f&&:XUmg'UZhYf'h\Y'Xi Y'XUhY'k]``bch'VY'UWW/dh'X'Zcf'a Uf_]b['cf'ZYYXVUW_ UbX'k]``fYWY]j Y'bc'a Uf_'cf'[fUXY"'=Zh\Y'UggYgga YbhHUg_']g'U'Wca di `gcfm'Wca dcbYbhcZh\Y'Wci fgY'U ghi XYbhk]``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 Ybhimci i Zfca i Wca d`Yhjb[i U Wci fgY i fYei]fYa Ybhž

ł?YYdimci Zfca UHYbX]b[Ub'UggYggUVYYUW]j]mž

ł Ghod moi i gi Va]hh]b[iUggYggUV Y k cf_iZcfiU 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'

: cfiZ fh\YfiXYHU]`gi]bifY`UH]cbihciGdYW]U``7 cbg]XYfUH]cbi]bWi X]b[ii"K \Ybihci5dd`m"ži"<ckihci5dd`m"UbX "Giddcfh]b[i8cW a YbHUH]cbi"d`YUgYifYZYfihcih\YiGdYW]U``7 cbg]XYfUH]cbik YVgH]Y. \Hndg.##ghi 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'

IBGK '[fcidg'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 hcf`]XYU`k]h\ci hUW_bck`YX[]b[`h\Y gci fWY`cf`i g]b[`ei chUh]cb`a Uf_g"`H\]g`U`gc`Udd`]Yg`hc`]a U[YgžUfhUbX`XYg][b`dfc`YWfgžUg`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[YaYbh'H\]g`U`gc`Udd`]Yg`]b`dfYgYbhUh]cbg`k \YfY`gcaYcbY dUfUd\fUgYg`Ubch\Yf`g`]XYUg`cf`k cfXg`k]h\ci hWfYX]h''=h`U`gc`Udd`]Yg`hc`d]YW]b[`hc[Yh\Yf`ei chYg`UbX dUfUd\fUgYg`]bhc`U`bYk`k \c`Yžk]h\ci hfYZYfYbW]b[`UbX`U`ghi 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['g']b\$

‰

‰ ‰

‰

‰



FYgci fWg

DfYgWf]VYX F Ygci fWfg

J]giU`g`UbX`g\cfhih/Ihg`id`cUXYX`hc`AccX`Y"`H\YgY`hYIhg`k]```VY`U`gc`VY`Wc``UhYX`]b`U`FYUXYf UbX`id`cUXYX"

8Uj]XAU`ciZžDW_W_TWd[`Y4STk^a`

?]a `A U\ccXž`5cSXfXadS6ck >S]W

B[U`[USf: S`Y[`YDaU]

DSTT[fBdaaX8WUW

FYWca a YbXYX⁻FYgci fWYg

6UW_[fcibX*hYIhg*]b*7cifgY*FYUXYf"

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

: YYXVUW_'k]``VY`[Uh\YfYX`h\fci[\`A m'9I dYf]YbWY`UbX`gi[[Ygh]cbg`UbX`fYZ]bYa Ybhg`k]``VY`Udd`]YX`hc h\Y`Wci fgY"

⊨a U[Y[·]7fYX]h

Di V`]W8ca U]b

7F*=*7CG

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