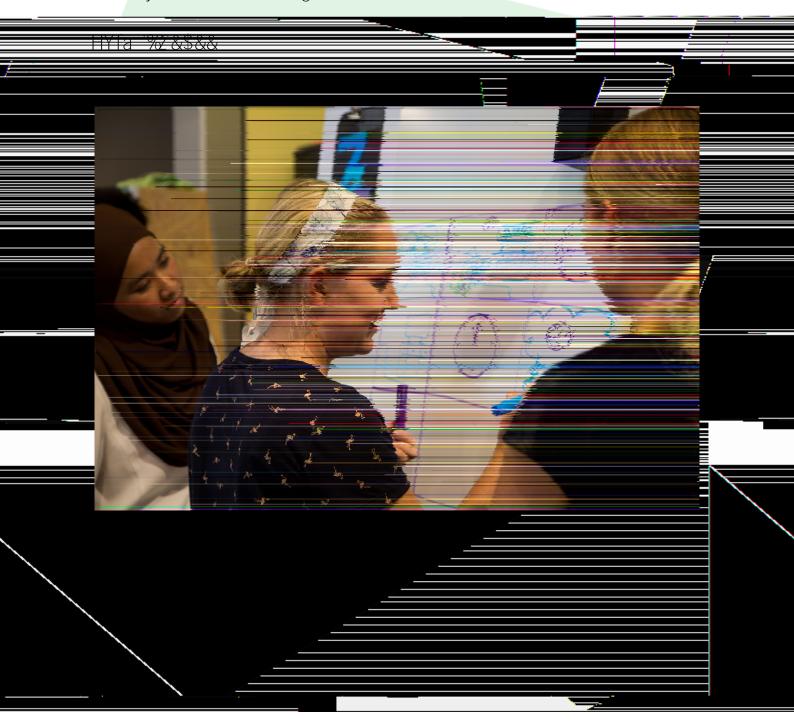


GENE1500

7 fYUhjj Y 9bhfYdfYbYi fg\]d



7ci fgY^{*}Cj Yfj]Yk

GHJZZ:7cbHJWh:8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D\cbY
@ WUg'< U_Yk]``	` <u>"\U_Yk]``4_i bgk "YXi "Ui</u>	6mUddc]bha Ybh	K cf_]b[fYa chY`m	

@YWhi fYfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D\cbY
:]'K cc``]g\fcZh	Z'k cc``]gWfcZr4 i bgk "YXi "Ui	6mUddc]bha Ybh	K cf_]b[fYa chY`m	

Hi hcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D\cbY
@InYthY'@YY	a WW4 i bgk "YXi "Ui	6mUddc]bha Ybh	K cf_]b[fYa chY`m	

GWXcc``7cbHJWhʻ±bZcfa Uh]cb

: UW`hmcZ9b[]bYYf]b[

9a U]`. Yb["hgU4 i bgk "YXi "Ui

7ci fgY'8YW]`g

 $I b hg c Z 7 f Y X h^*$

Gi a a UfmcZh\Y 7ci fgY

±b 'h\]g 'Wci fgYžmci 'k]``]XYbh]Zmž'UbU`mgY 'UbX'dfcdcgY 'U'gc`i h]cb 'hc 'U'a YUb]b[Z `i bgc`j YX'dfcV`Ya ']b 'h\Y k cf`X"

Mci fî'ZcW'g'cb'U'gdYWJZJWa Uf_YhgY[a YbhžXYj Y`cd'mci f'ck b'dfchchmdYgž'UbX'XY`]j Yf'U'd]hW\'hc'Ub'Yl dYfh dUbY`"

- 7 f]hJWU``miXYj Y`cd'gc`i hJcb'WcbWYdhg
- 5bU'mgY Wca dYhhcfg
- Gc`j Y`dfcV`Ya g
- 6i]`X'mci f'bYhk cf_'UbX'k cf_']b'U'hYUa
- 8 Yg][b dfc hc hmd Yg 'Ub X 'Yl d Yf]a Ybhg 'hc 'j U`]XUhY 'Wc b WYdhg
- 7 ca a i b]\WuhY 'mci f']\XYUg'k]h\]bZi Yb\W

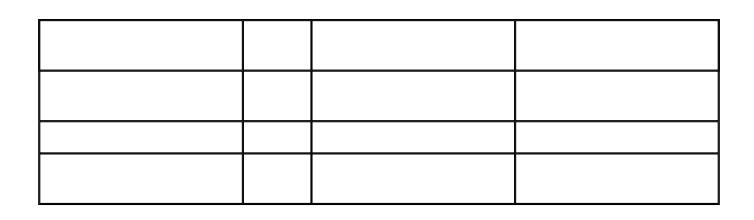
5 ZYYf'h\]g'Wci fgYž'mci 'k]``\Uj Y'hU_Yb'ghYdg'hck UfXg'WfYUh]b['mci f'ck b']fghghUfhi dž'k]h\`a Ybhcfgž'gi ddcfh

- 6Y'XY`]j YfYX'h\fci [\'Ub']bbcj Uhjj Y'cb`]bY#ZUWY!hc!ZUWY'W ff]W'i a 'h\Uh'Wca V]bYg'h\Ycfmž YI dYf]Ybh]U``dfUW]WYZ`UbX`gY`ZIfYZYW]cb`hc`Yb\UbWY`h\Y`gh XYbh`YUfb]b[
- : cW g cb XY j Y cd b [[YbYfUh] j Y WUdUW]mm]b gh XYbhg gc h Uhih Ym WUb Vch h h b_ UbX UWrcb bYk]XYUgʻhcʻgc`j Yʻj Uʻi UV`YʻdfcV`Ya g

Υm

• I gY'Ub'YIdUbg]j Y'a]l 'cZhYW\bc`c[m\Yb\UbWYX'`YUfb]b['UWhjj]h]+

Uslt fthem Iratnew



ghfi Whi fYX ZYYXVUW_cb"

H\]g^]g^bch'U^Hi fb]h]b^Ugg][ba Ybh

5XX]h]cbU`XYhU]`g

Mci f'Wcbj Ybcf'k]``dfcj]XY'XYhJ]`g'h\fci [\'A ccX`Y"

5ggYgga Ybh' .; fci d Dfc YWh DfYgYbhUbX Gi Va]h; fci d Dfc YWh

Gi Va]gg]cb bch/g. 'Mci fì df/g/bhh\]g Xi f]b['mci f'h hcf]U''' 8i Y XUhY. '%#\$(#&\$&& \$\$.DA

DfYgYbhUbX Gi Va]h; fci d Dfc YWh

Ghi XYbhgʻ]bʻhYua gʻk]```VYʻfYei]fYXʻhcʻXYg][bʻUʻVi g]bYggʻa cXY``UbXʻd]hW\`XYW_'ZcfʻUʻWfYUhJj Y
YbhYdfYbYi f]U``j Ybhi fYʻh\UhHUf[YhgʻUʻdfcV`Ya ʻgdUWYʻ[YbYfUhYXʻVmh\YʻWc\cfhif\bX]j]Xi U``DfcʻYWi5\!"H\]g
YI YfWJgYʻ]gʻa YUbhhcʻhJYʻhc[Yh\Yfʻh\YʻWci fgYʻa UhYf]UʻgʻZca 'YUW\`cZh\Yʻk YY_gʻ]bʻUbʻ]bbcj UhJj YʻUbX
]a U[]bUhJj Yʻk Umʻ'H\YʻhYUa 'VUgYX'Uddʻ]YX'`YUfb]b['YI YfWJgYʻg]a i 'UhYgʻh\YʻUWJj]hJYgʻh\UhfYU`
YbhYdfYbYi fgʻXcʻk \YbʻXYg][b]b['Uʻj Ybhi fY"

F Yei]fYa Ybhg.") "a]bi hY "d]hW\ "dfYgYbhUh]cb "d`i g "\% "a]bi hYg E / 5"

Gh XYbhg k]``fYWY]j Y Vch 'U'[fci d'Wa dabYbhf) \$1 'cZUggYgga Ybhj U'i YŁ'UbX'Ub']bX]j]Xi U``Wa dabYbh f) \$1 'cZUggYgga Ybhj U'i YŁ']b h Y]f'a Uf_"

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

5XX]h]cbU`XYhU]`g

5ggYgga YbhWf]hYf]U'k]``VY'Uj U]`UV`Y'cb'A ccX`Y"

5 http://bxubwww.Fyei]fyaYbhg

 $\hbox{Ghi XYbhg'UfY'ghfcb[`m`YbWc'i fU[YX'hc'UhhYbX'U```WUggYg'UbX'fYj]Yk'``YWhfY'fY'WcfX]b[g''' } \\$

7ci fgY GWX YXi `Y

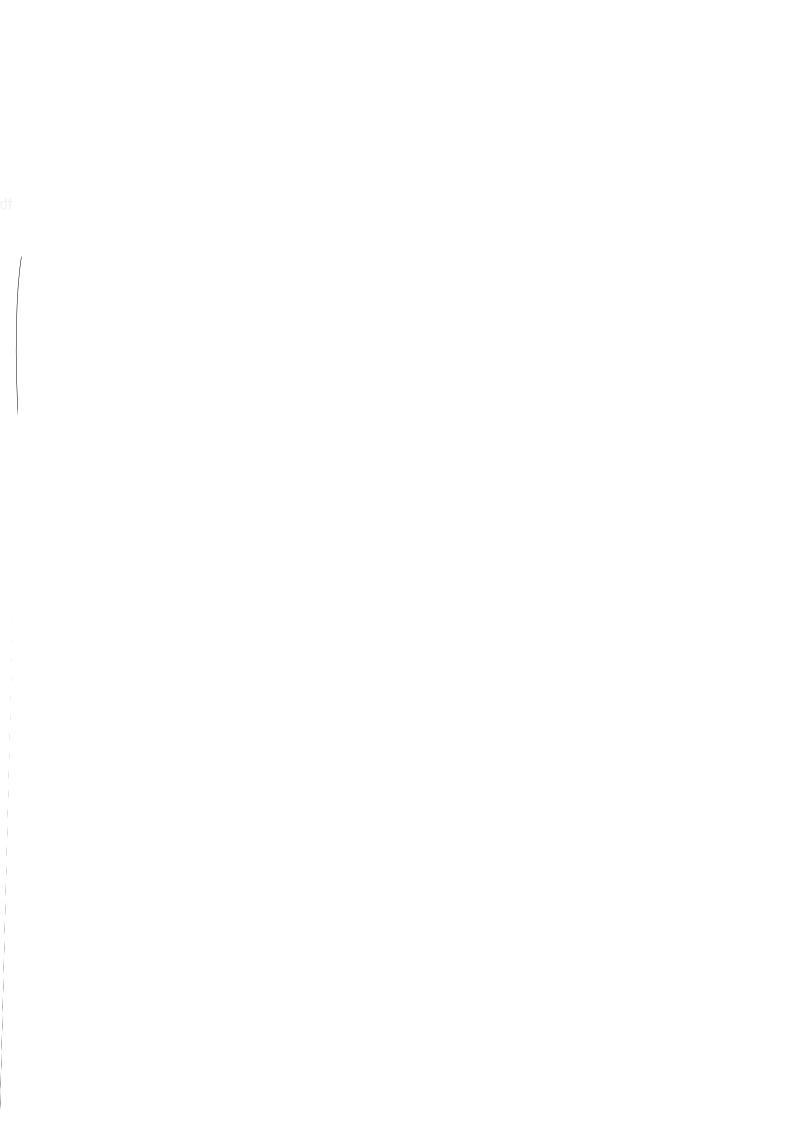
Ghi~XYbhg`k~c`Xc`k~Y```]b`;~9B9%~\$\$`[~YbYfU``m`

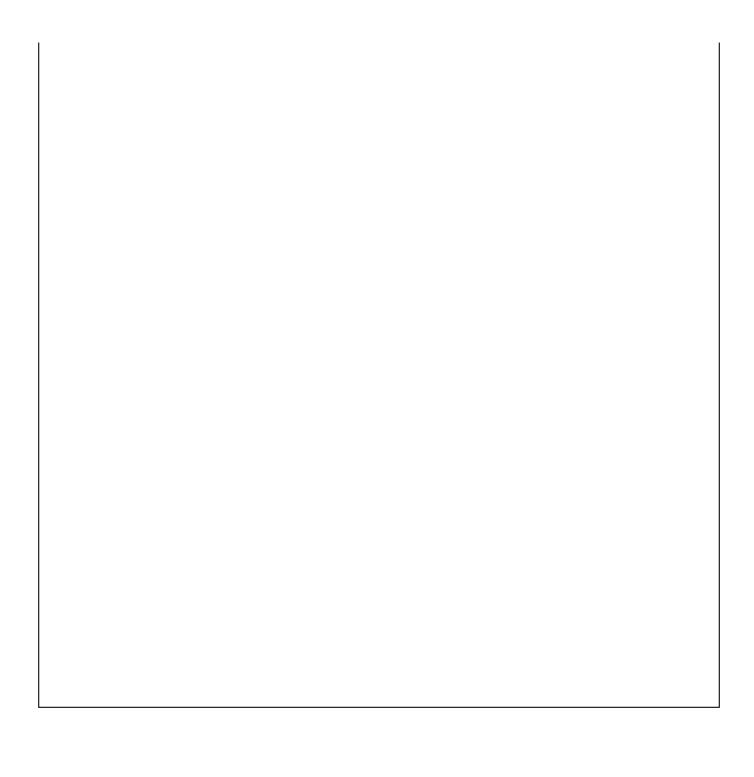
- G\ck i d'Zcf'h\Y]f"YWi fYg"UbX"WebWU[S^k h\Y'h hcf]U`g
- ; $YhZYYXVUW_cb^*XfUZhg^*cZh^Y]f^*k^*cf_z^*UbX^*a^*U_Y^*i^*gY^*cZcZZ]WY^*ci^*fg^*cf^*WcUWX]b[^*gYgg]cbg$

J]Yk 'WUgg'h]a YhUV'Y

H]a YtUV`Y

8 UhY	Hmd Y	7 cbhYbh
K YY_'%'%(': YVfi Ufm! % ': YVfi Ufm	@YWhi fY	





Gi Va]gg]cb cZ5ggYgga YbhHUg_g

 $\label{thm:condition} K\ cf_'gi\ Va\]hh\ Ci\ hUb`Uddfcj\ YX`YI\ hYbg]cb`Vmh\Y`Wci\ fgY`WccfX]bUhcf`cf`XY`Y[\ UhYX`Ui\ h\cf]hm]g gi\ VYWhc`U``UhY`dYbU`hmcZZji\ Y`dYfW\bhf) ı\ \ \ \ L`cZh\Y`a\ Ul\]a\ i\ a\ `a\ Uf_'dcgg]V`Y`Zcf`h\UhUggYgga\ Ybh']hYa\ \ z\ dYf`WU`YbXUf`XUm'$

 $\label{thm:condition} $$HY^*UHY'dYbU'mn]g'Udd`]YX'dYf'WUYbXUf'XUmf]bWi X]b['k YY_YbXg'UbX'di V`]W\c`]XUmgŁ'h\Uhh'Y UggYgga Ybh']g'cj YfXi Y"'H\YfY']g'bc'dfc!fUHU'cZh\Y'`UhY'dYbU'mmZcf'gi Va]gg]cbg'a UXY'dUfhk Umh\fci [\'UXUm''H\]g']g'Zcf'U```UggYgga Ybhg'k \YfY'U'dYbU'mnUdd`]Yg''$

K cf_'gi Va]hhYX'UZhYf'Zjj Y'XUmg'fl\&\\$'\ci fg\E'k]```bch'VY'UWW\dhYX'UbX'U'a Uf_'cZnYfc'k]```VY'Uk UfXYX'Zcf h\Uh'UggYgga Ybh']hYa "

: cf`gca Y`UggYgga Ybh`]hYa gžU``UhY`dYbU`hma UmbchVY`Uddfcdf]UhY"`H\YgY`k]``VY`WYUf`m`]bX]\WUhYX`]b`h\Y Wci fgY`ci h`]bYž'UbX`gi W\`UggYgga Ybhg`k]```fYWY]j Y`U`a Uf_`cZnYfc`]Zbch\Wca d`YhYX`Vmh\Y`gdY\\]ZJYX`XUhY" 9I Ua d`Yg`]bWi XY.

• K YY_`mcb`]bY`hYghg`cf``UVcfUhcfmk cf_`k cfh\`U`ga U```dfcdcfh]cb`cZh\Y`gi VYWha Uf_žcf

•

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

 $\label{thm:continuous} IBGK ``Ug`Ub`cb[c]b[`Wcaa]haYbhhc`ZcghYf]b[``U`W``hifY`cZ`YUfb]b[`]bZcfaYX`VmUWUXYa]W]bhY[f]hm'`5``IBGK ``ghiXYbhg``UjY`U`fYgdcbg]V]`]hmhc`UX\YfY`hc`h\]g`df]bW]d`Y`cZUWUXYa]W]bhY[f]hm'`D`U[]Uf]gaibXYfa]bYg`UWUXYa]W]bhY[f]hmUbX`]g`bchhc`YfUhYX`UhIBGK "`B'SY[Sde_SfG@EI[eVW{\WSeaXafZWbS$

Mccury brocurve] who was in university ``] who was the control of the was incomed and the control of the was incomed and the control of the was incomed and the control of the control of

="GdYW]U`Wcbg]XYfUh]cb'UbX'gi dd`Ya YbhUfmUggYgga Ybh

⊋mci `\UjY`YI dYf]YbWYX`Ub`]``bYgg`cf`a]gUXjYbhifY`VYmcbX`mcif`Wcblfc``h\Uhik]```]bhYfZYfY`k]h\`mcif