

I fgdfi b['XYf'A]_fc_fYX]hY. A i \ Ua a UX Mi bi g'_Y\fh'U`g', VYf[Ub[gZØ\fYf'ni fØW_

: f]YXYbgbcVY`dfY]ghfÀ[Yf`Ai\Ua a UX`M bi g`]gh`]b 6Ub[`UXYgW\`Y]b[YhfcZZYbži a `Y]bY`, VYf[Ub[gfY[]Yfi b[`ni `Y]hYb"

±0.6Ub[`UXYgWX`gWX`À[hY]b`bYi Yf`K]bX. `Ai\Ua a UX`M bi gž`XYf VY_UbbhYghY: f]YXYbgbcVY`dfY]ghfÀ[Yf`XYg`@UbXYgž`]gh`bUWX `Àb[YfYf`5Vk YgYb\Y]h`Ui g`XYa `5i g`UbX`]b`gY]bYf`<Y]a Uh Ub[Y_ca a Yb"`8]YgY`FØW__Y\f`YfZc`[h`ni `Y]bYa `YbhgWXY]XYbXYb NY]hdi b_hž`Ub`XYa `6Ub[`UXYgWX`Ui Z'Y]bY`, VYf[Ub[gfY[]Yfi b[\]bUfVY]hYhž`bUWXXYa `X]Y`Ui hcf]hÀfY`<YffgWXUZh`j cb A]b]ghYfdfÀg]XYbh]b`G\Y]_\`<Ug]bU`ni `9bXY`[Y[Ub[Yb`]gh"

Mi bi g 'F c``Y']b 'XYf'dc`]h]gWXYb HfUbgZcfa Uh]cb

8]Y'JYfY]X][ib['jcb'M big'U`g'@Y]hYf'XYf', VYf[Ub[gfY[]Yfib[']gh ZØf'\YihY'5VYbX'fCfhgnY]hL'[Yd`Ubh"'8]Yg'_ObbhY'Y]bYb

K YbXYdib_h'ZØf'X]Y'dc`]h]gW\Y'@UbXgW\UZh'XYg'@UbXYg'XUfghY``Yb"

GY]bY'5b_ibZh']b'8\U_Už'XUg'jcb'`c_U`Yb': YfbgY\gYbXYfb

ia ZUggYbX'Xc_ia Ybh]Yfh'kifXYž'gma Vc`]g]Yfh'b]W\h'bif'gY]bYb

9]bZiggž'gcbXYfb'UiW\X]Y'<cZZbib['UiZ'Y]bY'Zf]YX`]W\Y

Ia [YghU'hib['XYf'dc`]h]gW\Yb'JYf\À`hb]ggY']b'6Ub['UXYgW\"

8]Y'6YXYi hi b['j cb'A]_fc_fYX]hYb'i bX gcn]U`Y'=bbcj Uh]cb

 $\label{eq:main_substitution} M\ bi\ g`]gh`k\ Y`hk\ Y]h`VY_Ubbh`U`g`9fZ]bXYf`XYg`?cbnYdhg`XYf\\ A\]_fc_fYX]hYž`Y]bYf`Z]bUbn]Y``Yb`I\ bhYfghØhni\ b[\ 'ZØf`I\ bhYfbY\a\ Yb$

]b '9bhk]W_`i b[g`ÀbXYfbž'X]Y 'hfUX]h]cbY```j cb '6Ub_Yb Ui g[YgW\`cggYb`k YfXYb"\8]YgY\\\XY\\Uh\A]``]cbYb`j cb 'A YbgW\Yb [Y\c`ZYbž']\fY`k]fhgW\UZh`]W\Y`G]hi Uh]cb 'ni 'j YfVYggYfbž'i bX j YfUbgW\Ui\`]W\hX]Y\6YXYi hi b[\'gcn]U`Yf`I bhYfbY\\a Yfhi a "\8i fW\\gY]bY\F\Ø\W_Y\\f']b\X]Y\U_h]j Y\Dc\`]h]_\'_\ObbhY\M\ bi g'gY]bY \J cfghY``i b[Yb'j cb 'gcn]U`Yf'; YfYW\h][_Y]h'i bX`k]fhgW\UZh`]W\Yf I bhYfgh\Øhni b[\'k\Y]hYf'gh\Af_Yb"

8 Yf'K UbXY`']b'XYf'VUb[`UXYgWX]gWXYb; YgY``gWX UZh

8 Yf'FØW_hf]hh'j cb'< Ug]bU'i bX'X]Y'XUa]h'j YfVi bXYbY'dc`]h]gWXY I bg]WXYf\Y]h'\UVYb'j]Y`Y'6Øf[Yf'ni h]YZgh'VYhfcZZYb"'M bi g 'bYi Yg 9b[U[Ya Ybh'[]Vh'j]Y`Yb'6Ub[`UXYgWXYfb'< cZZbi b['Ui Z'Y]bY VYggYfY'i bX'[YfYWXhYfY'Ni _i bZh"'A]h'gY]bYb'9fZU\fi b[Yb'i bX gY]bYa ']bhYfbUh]cbU`Yb'FYbca a YY'_ÒbbhY'Yf'X]Y'Xf]b[YbX VYbÒh][hY'GhUV]`]hÀh'i bX'+bhY[f]hÀh']b'X]YgYf'hi fVi `YbhYb'NY]h Vf]b[Yb"

Ni gUa a YbZUggi b[

8]Y'FØW__Y\f'jcb'Ai\UaaUX'M big'bUW\'6Ub[`UXYgW\'aUf_]Yfhb]W\h'bif'Y]bY'FØW__Y\f'XYg'VY_UbbhYb'gcn]U`Yb'\bcj UhcfgžgcbXYfb'UiW\'XYb'6Y[]bb'Y]bYf'\cZZYbh`]W\'Zf]YX`]W\Yb\\VYf[Ub[gd\UgY'ZØf'XUg'@UbX"'8]Y'_caa YbXYb'HU[Y'k YfXYbYbhgW\Y]XYbX'gY]b'ZØf'X]Y'dc`]h]gW\Y'9bhk]W_`ib['ibX'XUg_\DbY'\XYf'6Yj\O`_Yfib["'8Ug']bhYfbUh]cbU`Y\\bhYfYggY'Ub'X]YgYb'9bhk]W_`ib[Yb'k]fX'kUW\\gYb\ZXU'X]Y'K Y`h[YqdUbbh'nig]Y\h\z'k]Y'g]W\'X]Y'G]hiUh]cb'YbhZU`hYh"

8 Y hU]`q

6 Ygi WX Yb 'G]Y 'i bg 'Ui Z. 'X]Y!bUWX f]WX hYb "bYh