

8 Yi hg W Y 'Dc`]h]_Yf]b 'VY[fØ» h'I G! A Ufg W Z`i [_Òfd Yf!GhUh]cb]Yfi b['ni f 5 Vg W f Y W_i b[

8]Y:8D!Dc`]h]_Yf]b A Uf]Y!5[bYg GhfUW_!N]a a Yfa Ubb
VYZØfk cfhYhX]Y [Yd`UbhY GhUh]cb]Yfi b[jcb | G!
A UfgWXZi [_OfdYfb]b 8 Yi hgWX`UbX U`g 5 VgWX fYW_i b[
[Y[YbØVYf Fi gg`UbX" +b Y]bYa +bhYfj]Yk Ui Z'd\cYb]| "XY
Yf_`Afh g]Y Z XUgg X]Y G]WXYf\Y]hgghfUhY[]Y Y]bY gc`WXY
GhUh]cb]Yfi b['VYfY]hg Ub[YXUWX h`\UVY" 8 Ug 5 V_ca a Yb gY]
j cb `\c\Yf FY`Yj Ubn Z i a 'K `UX]a]f Di h]b ni 'nY][Yb Z XUgg
8 Yi hgWX`UbX 'VYfY]h]gh Z g]WX ni 'j YfhY]X][Yb " @YgYb G]Y XUg
j c``gh AbX][Y +bhYfj]Yk 'Ui Z'd\cYb]| "XY"



A Uf]Y!5[bYg'GhfUW_!N]a a Yfa Ubb'fl 8DŁ gi ddcfhg'h\Y'XYd`cma Ybh'cZ'`cb[!fUb[Yk YUdcbg

 ± 0.07 fY W bh'] bhY fj]Y k 'k]h\'d\cYb]I ž': 8 D'dc`]h] W]Ub'A Uf]Y! 5 [bYg GhfUW_!N]a a Yfa Ubb'Y I dfYggYX'\Yf'gi ddcfh'Zcf'h\Y'd`UbbYX

XYd`cma YbhcZil GʻWfi]gYʻa]gg]`Ygʻ]bʻ; Yfa UbmʻʻK \]`Yʻg\Yžʻ`]_Yʻ\Yf ; fYYbʻWcU`]h]cbʻdUfhbYfgžk UgʻbchʻUk UfYʻcZʻh\YʻU[fYYa Ybh'k]h\h\Yʻl Gʻdf]cfʻhcʻGW\c`n gʻUbbci bWʻa YbhʻUhʻh\YʻB 5 HCʻgi a a]hž GhfUW_!N]a a Yfa Ubbʻ]gʻbchʻgi fdf]gYX''`G\YʻghUhYXžʻ \\
\[\frac{1}{2}\] gʻbchʻgi fdf]gYX''`G\YʻghUhYXžʻ \\
\[\frac{1}{2}\] h\Ubbyz YfUh]cbʻXi Yʻhcʻh\YʻUfa gʻVi]`Xi dʻUbXʻDi h]b g U[[fYgg]j YʻUWh]cbg'' \\
\[\frac{1}{2}\] H\Yʻd`UbbYXʻXYd`cma Ybhʻ]gʻU`gcʻU``i XYXʻhc]bʻh\YʻgYWʻf]hmʻghfUhY[mž'U`VY]hʻgca Yk \UhʻUa V][i ci gʻm''GhfUW_! N]a a Yfa UbbʻVY`]Yj Ygʻh\Uhʻh\YʻU[fYYa YbhʻWci `XʻVY`VYhhYf Yl dʻU]bYXʻVi hʻYa d\Ug]nYgʻ]hgʻ\][\`fY`Yj UbWY''`G\Y`UZZ]fa gž J`UX]a]fʻDi h]bʻa i ghʻ_bck h\Uhʻk YʻUfYʻdfYdUfYXʻhcʻXYZYbX ci fgY`j Yg'' \\
\[\frac{1}{2}\] gʻk \Uhʻ]gʻ_bck bʻUgʻXYhYffYbWYžʻUbXʻ]hʻ]g]a dcfhUbhʻZcfʻi gʻhcʻhU_Yʻh\YʻbYWYggUfm`dfYWUi h]cbg'' \]

HYZ ``] bhYfj]Yk 'WUb'VY'Zci bX'cb'd\cYb]I "XY"

A Uf]Y!5[bYg'GhfUW_!N]a a Yfa Ubb g'gi ddcfh'Zcf'h\Y'XYd`cma Ybh cZ`cb[!fUb[Y'k YUdcbg'Ya d\Ug]nYg'h\Y']a dcfhUbW'cZ a U]bhU]b]b['U'ghfcb['XYZYbgY']b'h\Y'ZUW'cZ'f]g]b['hYbg]cbg']b 9i fcdY"'H\Y'XYW]g]cb'hc'ghUh]cb'l G'Wfi]gY'a]gg]`Yg']b'; Yfa Ubm \Ug'VYYb'a Yh'k]h\'Wf]h]W]ga 'UbX'WcbWYfbg'Zfca 'j Uf]ci g'dc`]h]WU`dUfh]Yg'UbX'W]h]nYbg"'<ck Yj Yfž'GhfUW_!N]a a Yfa Ubb'Uf[i Yg'h\Uh h\]g'a cj Y']g'bYWYggUfm'hc'XYhYf'dchYbh]U`U[[fYgg]cb'Zfca 'Fi gg]U UbX'dfchYWh'; Yfa Ubmg'gYW'f]hm']bhYfYghg"

H\Y'U[fYYa Ybh'VYhk YYb'h\Y'I G'UbX'; Yfa Ubm'fY[UfX]b['h\Y XYd`cma Ybh'cZ'`cb[!fUb[Y'k YUdcbg'\Ug'fU]gYX'ei Ygh]cbg'UVci h hfUbgdUfYbWm'UbX'Wca a i b]WUh]cb'k]h\]b'h\Y'[cj Yfba Ybh''H\Y ZUWh'h\Uh'Yj Yb'WcU`]h]cb'dUfhbYfg'k YfY'i bUk UfY'cZ'h\]g U[fYYa Ybh'df]cf'hc']hg'di V`]WUbbci bWYa Ybh'Uh'h\Y'B5HC gi a a]h'\][\`][\hg'h\Y'bYYX'Zcf']a dfcj YX']bZcfa Uh]cb'g\Uf]b[UbX'XYW]q]cb!a U_]b['dfcWYqqYq''

#i]g']a dcfhUbh'hc'bchY'h\Uh'h\Y'XYd`cma Ybh'cZ'`cb[!fUb[YkYUdcbg']b'; Yfa Ubm']g'bch'k]h\ci h'Wcbhfcj Yfgm'cf'dchYbh]U`f]g_g"'H\Y'dfYgYbWY'cZ'gi W\'k YUdcbg'WUb'YgWU`UhY'hYbg]cbg'UbX]bWfYUgY'h\Y'`]_Y`]\ccX'cZ'U'a]`]hUfm'WcbZ]Wh"'DfcdcbYbhg'Uf[iYh\Uh'h\Ym'gYfj Y'Ug'U'XYhYffYbh'UbX'ghfYb[h\Yb'h\Y'XYZYbgYWUdUV]`]h]Yg'cZ'h\Y'Wci bhfmž'k\]`Y'Wf]h]Wg'WU]a 'h\Uh'h\Ym

Wcbhf]Vi hY hc Ub Ufa g'fUWY Ub X i b XY fa]b Y X]d ca Uh]WY ZZcfhg"

H\Y'd`UbbYX'XYd`cma Ybh'cZ'I G'Wfi]gY'a]gg]`Yg']b'; Yfa Ubm'U`gc fU]gYg'VfcUXYf'ei Ygh]cbg'UVci h'B 5 HC g'XYZYbgY'ghfUhY[m'UbX'h\Y fc`Y'cZ'9i fcdYUb'Wci bhf]Yg']b'Ybgi f]b['fY[]cbU`'gYW' f]hm''5g hYbg]cbg'k]h\'Fi gg]U'Wcbh]bi Y'hc'g]a a Yfž']h']g'Wfi W]U`'Zcf'B 5 HC a Ya VYfg'hc'UggYgg'UbX'UXUdh'h\Y]f'XYZYbgY'dc`]W]Yg'hc'UXXfYgg Ya Yf[]b['h\fYUhg'UbX'a U]bhU]b'U'WfYX]V`Y'XYhYffYbh''

K \]`Y`cd]b]cbg`a Umij Ufm`cb`h\Y`XYd`cma Ybh`cZ``cb[!fUb[YkYUdcbgž'k\Uh`fYa U]bg`WYUf`]g`h\Y`bYYX`Zcf`U`Wca dfY\Ybg]j YUbX`]bZcfa YX`di V`]WXYVUhY`cb`h\Y`hcd]W`H\Y`WcbWfbg`UbXfYgYfj Uh]cbg`Yl dfYggYX`Vm`dc`]h]W]Ubg``]_Y`A Uf]Y!5[bYg`GhfUW_!N]a a Yfa Ubb`\][\`][\h`h\Y`]a dcfhUbW`cZ'kY][\]b[`h\Y`dchYbh]U`VYbYZ]hg`U[U]bgh`h\Y`f]g_g`UbX`Wcbg]XYf]b[`U`hYfbUh]j Y`cdh]cbg`hcYb\UbW`gYW`f]hm"

I`h]a UhY`mž'h\Y'XYW]g]cb'hc'ghUh]cb'l G'Wfi]gY'a]gg]`Yg']b'; Yfa Ubm]g'U'Wca d`Yl']ggi Y'h\Uh'fYei]fYg'WUfYZi `'Wcbg]XYfUh]cb'UbX XY`]VYfUh]cb"'5g'X]gW gg]cbg'Wcbh]bi Yž']h']g'YggYbh]U`'Zcf dc`]Wma U_Yfg'hc'Yb[U[Y']b'Ub'cdYb'UbX'hfUbgdUfYbh'X]U`c[i Yž hU_]b[']bhc'UVWci bh'h\Y'WcbWYfbg'UbX'dYfgdYWh]j Yg'cZ'U`` ghU_Y\c`XYfg']bj c`j YX"

6mgi ddcfh]b['h\ Y 'XYd`cma Ybh'cZ'`cb[!fUb[Y'k YUdcbgž'A Uf]Y! 5[bYg'GhfUW_!N]a a Yfa Ubb'i bXYf`]bYg'h\ Y 'bYYX'hc'a U]bhU]b'U ghfcb['XYZYbgY'UbX'gYbX'U'WYUf'a YggU[Y'hc'dchYbh]U`UXj YfgUf]Yg"'H\ Y']a d`]WUh]cbg'cZ'h\]g'XYW]g]cb'fYUW\ 'ZUf'VYmcbX; Yfa Ubm'UbX'g][bU`'h\ Y'Yj c`j]b['XmbUa]Wg'cZ'9i fcdYUb gYW f]hm"

8 Y hU]`g