

EDST5321

A chj Uh]cb ']b '9Xi WWh]cbU`GYH]b[g

HYfa &Z&\$&&



7 ci fgY`Cj Yfj]Yk`

GhJZZ'7 cbhJWw'8YhU]`g`

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cWWhcb	D\cbY
9`Yb`@YY	\YYa]b"YY4 i bgk "YXi "Ui		A cfj Yb 6fck b	

GW\cc`7 cbhJWw`bZcfa Uh]cb

GW\cc`cZ9Xi WWhcb

5ftgž8Yg][b`UbX'5fW\]hYWhi fY

; fci bX: `ccfžA cfj Yb'6fck b'6i]X]b[`fi &\$Ł

H. `Ž *%f&Ł-' ,) `%- ++

9. YXi WWhcb4 i bgk "YXi "Ui

K . \hhdg.## k k "Uftg"i bgk "YXi "Ui #YXi WWhcb

5W_bck`YX[Ya YbhcZ7ci blfm

I B G K `5fngž8Yg][b`UbX`5fWk]fYWhi fY? Ybg]b[hcb`UbX`DUXX]b[hcb`Wla di gYg`UfY`Vi]hcb`5Vcf][]bU`
@UbXg"K Y`dUmci f`fYgdYWhg`hc`hY`6]X}[U`UbX` ; UX][U`dYcd`Yg`k`c`UfY`hY`7i`gfcX]Ubg`cZ`hY`gY`UbXg"
K Y`UW_bck`YX[Y`hY`5Vcf][]bU`UbX`Hc`fYg`G`fU]h`g`UbXYf`dYcd`Ygž`hY` :]fgh5i`gfcU`]Ubgžk`c`gY`UbXgž
k]bXg`UbX`k`U`fYg`k`Y`U`bck`g`UfYž`UbX`dUm`fYgdYWhi`hc`hY`f`i`b]ei`Y`j`U`i`Ygž`UbX`hY`f`W`b`h`bi`]b[`UbX
YbXi`f]b[`W`h`fYg`k`\\]W`XYYdYb`UbX`Yb`f]W`hY`Z`cZci`f`b`U`h`cb`UbX`W`a`a`i`b`h`Yg`"

U[Y`W`ci`f`h`g`m`c`Z`h`Y`C`Z`W`c`Z`h`Y`D`f`c`J`]W`!`7`\\UbW`c`f`b`X][Ybci`g`[L`B`G`K`f`g`b`X\]\[Ybci`g`g`f`U`h`\[`m](#)

5ggYgga Ybh

5ggYgga YbhUg_	K Y][\h	8i Y'8UH	7ci fgY '@YUfb]b[Ci hWta Yg'5ggYggYX
%'5bbchUH'X'V]V`c[fUd\m) \$i	DUfh% '&#*\$* #&\$&&') .\$\$DA / DUfh&.'%- #+\$&\$&&') .\$\$DA`	%ž&
&"A chj Uh]cb`fYdcfh) \$i	%&#\$, #&\$&&\$) .\$\$`DA	%ž'&ž'

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@Yb[h. &) \$\$`k cfXg

E i U]huhj Y`UbX`ei Ubh]huhj Y`ZYXVUW`dfcj]YX'cb`]bY`h'fci [\ `Wci fgY`k YVg]h'k]h]b`%\$`XUm`cZ
gi Va]gg]cb"

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DfYgYbhUb`UbbchUH'X'V]V`c[fUd\m'cZgci fW'g'dfcj]YX'cb]bW X]b[`gca Y`cZmci f'W'ccg]b["H\Y`di fdcgY`cZ
h'Y`UbbchUH'X'V]V`c[fUd\m]g`tc`UWci U]bhmc`i`k]h`h'Y`Y`Ya YbhUfmiUgdYW'g`cZa chj Uh]cb`UbX`h'Y`"]h'fUhi`fY
UggcW]UH'X'k]h`a`chj Uh]cb`]b`YXi W]h]cbU`gYH]b`g"

H\Y`UbbchUH'X'V]V`c[fUd\m]g`Wca`d`YH'X`]b`tk`c`gYdUfUH`dUfhgžgc`h`UhZYXVUW`Zca`h'Y`Z]fghdUfhW]b
\Y`d`mci`Wca`d`YH`h'Y`gYWcbX`dUfh`

GYY`A`ccX`Y`Z`f`Z`fh`Y`f`XYH]`g`cb`\ck`tc`Wca`d`YH`h'Y`UbbchUH'X'V]V`c[fUd\m`

5ggYgga Ybh&`A`chj`Uh]cb`fYdcfh

8i Y'XUH. '%&#\$, #&\$&&\$) .\$\$`DA

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@Yb[h. &) \$\$`k cfXg

E i U]huhj Y`UbX`ei Ubh]huhj Y`ZYXVUW`dfcj]YX'cb`]bY`h'fci [\ `Wci fgY`k YVg]h'k]h]b`%\$`XUm`cZ
gi Va]gg]cb"

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F`Ydcfh`tc`U`gW'cc`ž`gYW'cf`X]gh]Wž`[`cj`Yfba`YbhXYdUfha`Ybhž`cf`ch`Yf`cf`[`Ub]gUh]cb`VUgYX`cb`mci`f`UbU`mg]g
cZ]hg`dc`]W]gž`gh`UH`[`]Ygž`dfUW]W]gž`cf`W`ff]W`i`a`"Mci`f`gci`fW`]bZca`Uh]cb`Wci`X`VY`VUgYX`cb`U`gW'cc`g
X]gW]d`]bY`dc`]Wž`]bhYfj`]Yk`g`k`]h`U`gYb]cf`g]UZZa`Ya`VYf`UhU`gW'cc`cf`U`W`ff]W`i`a`cZ]W]fž`gW'cc`

WŁa a i b]WUjcbgžcf`chYf'gWŁcc`cZ]WU`cf'dc`JWnXcW a YbHg"H\Y'fYdcfHg\ci `X'VY'k f]Hb'Ug'hŁci [\`mci
UfY'U'WŁbgi `hUbhZcf'hY'gWŁcc`"

GUa d`Y'gWbUf]cg'UbX'XUHU'k]`VY'dfcj]XYX']b'hY'WUgY'hUhmci f'k cf_d`UW'cf'dfYj]ci g'k cf_d`UW'g'UfY
bchgi]hUV`Y"

GYA'ccX'Y'Zcf'Z f'hYf'XYhU]g'cb`\ck `h'WŁa d`Y'h'hY'gWŁcc`a chj Uhcb'fYdcfH'

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GdYWZjW7 f]hYf]U	f]k ————— 2fZk				
DfYgYbHh]cb`cZfYgdcbgY`UWwcfX]b[`hc`Uddfcdf]UH`UWUXYa]WUbX`]b[i]gh]Wwcbj Ybh]cbg <ul style="list-style-type: none"> • 5ddfcdf]UH`fY[]ghf`Zcf`UWUXYa]WwcfZ]gg]cbU`9b[`]g\ • FYZfYbWg`WjYX`Uddfcdf]UH`m 					
; YbYfU`Wca a Ybh]fYWca a YbXUH]cbg`Zcf`bYI h]ja Y.`					

F YWca a YbXYX. #&\$`f] @`DG`7F`8B`<8k K Y][\h]b[.) \$i

B 6. H\Y`h]W_g`]b`h\Y`j Uf]ci g`Vcl Yg`UFY`XYg][bYX`hc`dfcj]XY`ZYXVUW`hc`gh`XYbhg/h\YmUFY`bch[]j Yb
 Yei U`k Y][\h]b`XYh]fa]b]b[`h\Y`fYWca a YbXYX`[fUXY`"8YdYbX]b[`cb`h\Y`bUh`fY`cZ`h\Y`UggYgga Ybh]Ug_ž
 `YW`fYfg`a UmU`gc`Wcbh]I h`U`]gY`UbX`#`f`Ua`YbX`h\YgY`gdYWZjWw]hYf]U`H\Y`fYWca a YbXYX`[fUXY`]g
 h]b]h]j`Y`cb`mž`gi`V`YW`hc`gh]UbXUfX]gUh]cb`dfcW]ggYg`UbX`Uddfcj`U`Vm`h\Y`GV]cc`cZ9Xi`WUh]cb`@YUfb]b[
 UbX`HYUW]b[`7`ca`a`]h]Y`"

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

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

Ʒmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b['hc'gi Va]hmc i f'Ugg][ba YbhiH'fci [\ 'Hi fb]h]bž'd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'-' ,) " ' ' ' %cf'Ya U] 'H'Ya 'cb'YI HYfbU'HY'f'gi ddcfh4 i bgk "YXi "Ui "'Gi ddcfh
\ci fg'UfY' , .\$Ua '—%\$.\$\$da 'cb'k YY_XUmg'UbX'-. .\$Ua '—) . \$\$da 'cb'k YY_YbXg'fI *) 'XUmg'U'm'YUfI" Ʒmci
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmUdd'm'Zc'f'Ub'YI HYbg]cbž'Vi hmc i
a i ghfYHU]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]H'UbmcH'Yf'fY'Yj UbhXcW a YbHgE'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd']W]h]cb" Ʒmci 'Ya U] '9I HYfbU'Gi ddcfhmc i 'k]
Ui 'ca UH]W]m'fYW]j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'HY'Yd\cbY'mci 'k]'b'YX'hc'gdYW]W]m'Ug_ 'Zc'f'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUH'g'cb'H'Y]f'gmgh'Ya 'ghU'g'cb'Hk]HYf"

; YbYfU'mž'UggYgga YbhiUg_g'a i ghVY'gi Va]HYX'Y'YW'fcb]W]m'j]U'Y]H'Yf'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba YbH' Ʒ]bgHUbW'g'k \YfY'H'g]g'bc'hd'cgg]V'Yž'hk]'VY'gh'UH'X'cb'mci f'Wci fgY'g'A ccX'Y'g]H'k]H
U'HYfbUH] Y'gi Va]gg]cb'XYHU]g"

: cf]bZ'fa UH]cb'cb'\ck 'hc'gi Va]hUgg][ba YbHg'cb]bY'j]U'A ccX'Y. \h'hdg.#gh XYbH'i bgk "YXi "Ui #ck!
gi Va]hUgg][ba YbH'a ccX'Y

5 WUXYa]W< cbYgmiUbX'D`U[]Uf]ga

D`U[]Uf]ga]g`i g]b[`hY`k cfXg`cf]XYUg`cZcH.Yfg`UbX`dFYgYbh]b[`hYa `Ug`mci f`ck b" #WUb`hU_Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUH`WXYUH]b[`hc`UW]XYbhU`mWcdm]b[`Zca `U`gci fW`k]h`ci hUW_bck `YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga]bhc`hY`Zc`ck]b[`W]hY[cf]Yg.

7cdm]b[.`I`g]b[`hY`gUa Y`cf]j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck `YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g`"H\]g]bW`i XYg`Wcdm]b[`a U]Yf]U`gZ]XYUg`cf`WcbW`d]g`Zca `U`Vcc_ž`Uf]WYž
fYdcfhcf`chYf`k f]hYb`XcW`a Ybž`dFYgYbhU]cbž`Wca`d]g]h]cbž`Uf]k cf_ž`XYg][bž`XfUk]b[ž`W]fW]f]mž`Wca`di`hYf
dfc[fUa `cf`gcZk UfYž`k YVg]hYž]b]hYfbYhž`chYf`Y`YVfcb]WfYgci fW`ž`cf`UbchYf`dYfgcb]g]Ugg][ba Ybhk]h`ci h
Uddfcd]U]hY`UW_bck `YX[Ya Ybh`

#Uddfcd]U]hY`dUfUd`fUg]b[.`7`Ub[]b[`U`Zk`k cfXg`UbX`d`fUgYg`k`Y`a`cghmifYh]b]b[`hY`cf][]bU`
]bZcfa U]cbž`gh`i W`i fY`UbX`#cf`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`k]h`ci hUW_bck `YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dFYgYbhU]cbg`k`YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g]XYUg`cf`k cfXg`k]h`ci hW]YX]hU`bX`hc
d]YW]b[`hc[YhYf`ei`chYg`UbX`dUfUd`fUgYg]bhc`U`bYk`k`c`Yž`k]h`ci hUddfcd]U]hY`fYZYfbW]b["

7c`i`g]cb.`K`cf_]b[`k]h`chYfg`Vi`hdUgg]b[`cZ`hY`k`cf_`Ug`U`dYfgcb`g`]bX]j]Xi`U`k`cf_`7c`i`g]cb`U`gc
]bW`i XYg`dfcj]X]b[`mci`f`k`cf_`hc`UbchYf`gh`XYbhZc`f`hY`di`fdcgY`cZ`hYa`d`U[]Uf]g]b[ž`dUm]b[`UbchYf`
dYfgcb`hc`dYfZcfa`Ub`UWUXYa`]W]Ug_ž`gh`U`]b[`cf`UW`i`]f]b[`UbchYf`dYfgcb`g`UWUXYa`]Wk`cf_`UbX`Wcdm]b[

5 WUXYa]W=Zcfa Uh]cb

8i Y`tc`Yj`c`j`]b[`UXj`]W`VmB`GK` `<YU`h`z`gh`XYbh`a`i`gh`WXYW`Zcf`i`dXU`h`X`]bZcfa`Uh]cb`fY[`UfX]b[`cb`]bY`YUfb]b[`Zcf`U`5f`g`z`8`Yg][`b`UbX`5f`W`]h`W`i`fY`W`i`fgYg`h`]g`h`fa`fj`]U`A`ccX`Y`cf`W`i`fgY`]bZcfa`Uh]cb`dfcj`]XYX`L

: cf`YggYbh]U`gh`XYbh]bZcfa`Uh]cb`fY`Uh]b[`tc.

- fYei`Ygth`Zcf`YI`h`bg]cb/
- `UH`gi`Va`]gg]cbg`[`i`]XY`]bYg/
- fYj`]Yk`cZa`Uf_g/
- I`B`G`K` `<YU`h`UbX`GUZ`h`mdc`]W`Yg/
- YI`Ua`]bUh]cb`dfc`W`Xi`fYg/
-