



ARTS3482

DfcZYgg]cbU`': fYbWk '5

HYfa `C.bY`'#`&\$%-

7 ci fgY'8YHJ]`g

7 fYX]hDc]bhr`*`

Gi a a UfmicZhY'7 ci fgY

H\Y': fYbW!gdYU_]b[`k cfX'fYdfYgYbhr'cbY'cZhY'V][[Ygh`]b[i]gh]WncbYg]b'h\Y'k cfX'k]h`Ub`Ygh]a UH\X &+('a]`]cb': fYbW!gdYU_Yfg'cb'U`Z] Y'Wcb]bYbhr`" -b'di fgi]b['mci f'gh XmcZhY'`Ub[i U[Yz'mci `UFY`c]b]b[`U'f]Wz]]VfUbhUbX`X]j YfgY'Wca a i b]mrcZWcgY'hc'(- 'a]`]cb`"YUfbYfg'k cfXk]XY`"H\]g'Wci fgY'k]` VY'dYfZYWZcf'mci `]Zmci `U'fYUXm\Uj Y'U'gca Yk \UhdFcZ]WYbhi_bck`YX[Y'cZ: fYbW'fYei]j U'Ybhr'c]g] gYa YghYfg'cZgh Xnr]b[`Uhi b]j Yfg]m`Yj Y'U'UbX'UFY`cc_]b[`Zcf'Ub`]b!XYdH`YI H'bg]cb'cZU`g_]`g.`mci `k]`]a dfcj Y'mci f`]ghYb]b[`g_]`g`VmhfU]b]b[`k]h`fUX]c`YI W'fdhrz'mci `k]`fYUX'gca Y'Z]W]cb'Ug'k Y`Ug`"YUfb'hc gmbh\Yh]nY`hY] hg`Zca `j Uf]ci g'a YX]U'UbX`X]gW`gg`W`fYbYj Ybhr'UbX'W'cgg!W`h`fU`]ggi Yg'fY'Yj Ubhr'c'h\Y : fYbW!gdYU_]b[`Wca a i b]h]Yg"

7 ci fgY'@YUfb]b[`Ci hWca Yg

%` I` bXYfghUbX'h\Y'a U]b`]XYUg'cZWca d`YI`hY] hg`fk]hYb'cf'gdc_YbE'cb`Vch`WcbWYhY`UbX'UVghfUW`hcd]Wg`"
&" A`UbU[Y`]bYfUW]cbg`fY"["]bYffi dh]b[z`VXUb[]b[`hcd]Mz`fYgi`a]b[`cf`Wcb]bi]b[z`WUf]Zm]b[a`YUb]b[E'cb`U'k]XY`fUb[Y'cZgi`V`Y`Wg`"
'` " DfcXi`W`WYUfz`XYH]YX'k]hYb'cf'gdc_Yb`X]gW`gg]cbg'cb`U'k]XY`fUb[Y'cZgi`V`Y`Wg`UbX`YI`d`U]b`U` j`]Yk`dc]bhYZZ`W]j`Y`m`
(" GY`Za`cb]rcf`YUfb]b[`dfc[fYgg`UbX`]XYbh]ZnUFYUg`]b`bYX`cZ]a`dfcj`Ya`YbhUbX`#cf`fYj`Yk`"

HYUWX]b[`GhfUHY[]Yg`

H\Y`Wci fgY`]g`VUgYX'cb`h\Y`df]bW]d`Y`h`Uh`Ub[i U[Y`UbX`W`h`fY`UFY`]bhf]bg]WU`m`]b_YX`UbX`Zcfa`U`gcW]U` gmghYa`z`h\YfY`ZcfY`Ub[i U[Yg`UbX`W`h`fYg`UFY`YUfbha`cfY`YZZ`W]j`Y`mk`\Yb`gh`XYbhr'\Uj`Y`h\Y`cddcfh`b]m`hc`i`gY`h\Y`Ub[i U[Y`]b`Wcb]hY`h`H\]g`]g`UWX]Yj`YX`]b`WUgg`h`fci`[\`Wc`"UVcfU]j`Y`d`YfY`]bYfUW]cb`UbX`]bW]g]j`Y`h\UWX]b[`ghfUHY[]YgZ`U`gi`ddcfh`X`VmU`j`Uf]YhmcZUi`h\Yb]h]WXcW`a`Ybhrz`hc[Y`h\Yf'k`]h`cb!`]bY`a`UHf]Ug`UbX`UW]j`]h]Yg`" -b`UXX]h]cbz`h\Y`h`UWX`Yf'k`]`YbXYU`j`ci`f`hc`Xfuk`cb`mci`f`dYfgcbU`YI`dYf]YbW]g`]b`U`W]a`UH`cZa`i`h`U`fYgdYW]VYh`k`YYb`U`"dUfh]W]dUbrgZ`k`]h`h\Y`U]a`cZa`U_]b[`h\Y`YUfb]b[`YI`dYf]YbW]a`cfY`fY`Yj`Ubrz`UbX`Yb[U[]b["

H\Y`Ub[i U[Y'cZ]bg]hfi`W]cbz`UggYgga`YbhUbX`[YbYfU`Wca`a`i`b]W]h]cb`]g': fYbW`"

H\Y`YW]h`fYg`UFY`hUi`[\h]b': fYbW`]b`cfXYf`hc`Z`fh\Yf`XYj`Y`cd`mci`f`]ghYb]b[`Wca`dfY\Ybg]cb`g_]`g`"H\Y`ZcW`g`]g`cb`Ub[i U[Y`UbX`[fUa`a`Uf`Vi`hW`h`fU`hcd]Wg`UFY`Ugc`]bW]`YX`"; fUa`a`Uf`]g`YI`d`U]bYX`k`]h`]b`h\Y`Wcb]hY]hcZ`h\Y`h\Ya`Uh]Wcb]bYbhr`Wc]j`YfYX`Vm`h\Y`dfc[fUa`"Hc`Yb\UbW]mci`f`YUfb]b[`YI`dYf]YbW]z`U`"YW]h`fYg`k`]`VY`dYfYfW`fX`YX`cb!`]bY`UbX`UW]gg]V`Y`Uh`YUgh`&`XUmg`]b`UXj`UbW`/h\Y`mk`]`VY`Ufh]W`UH`YX`Ufci`bX`h\Y`d`]cgc`d`mrcZ`h`Y`Z]ddYX`WUggf`c`ca` . FZWX]bbW`U`Seeda`_`VW]eUd]TW]e`S`dVh`W]eS`^a`X`f`dSV[f]fa`S`^fMSUZ[`Y`i`Z`W]WefgVW`fe`YS[`X`def`W]j`baegd`Wfa` `W`_`SfM[S`^agfe]VW]aXU`Seel`gegS`^k`h[S`dMSV[`Y`ad`WUfgd`Wh]VW]aef`S`V`fZW`U`See`f`_`W]e`geW`fa`Va`fZWZ`Sd`W]di`ad`aXSee`_`[Sf[`Y`fZ`Sf`]`ai`^WY`WfZ`d`gY`Z`ef`d`fW]W]e`egUZ`Se`b`d`T`W]_`ea`h[`Y`I`V]eUgee]a`ad`VW]SfW]eZ`f]UbX`YfV]hI`b]j`Yfg]mz`7`Ybhr`Y`Zcf`HYUWX]b[E`"

H\Y`h`hc]f]Ug`k`]`[]j`Y`mci`h\Y`cddcfh`b]m]hc`XYj`Y`cd`mci`f`]bYfUW]j`Y`g_]`g`UbX`hc`i`gY`h\Y': fYbW`Ub[i U[Y`]b`Wcb]hY]h`h`fci`[\`ga`U`" [fci`d`k`cf`"HYUWX]b[]g`WcbXi`WYX`]b`Ub[i U[Y`Wca`di`hY`"UVcfU]hcf]Yg`h`Uh`U`ck`Zcf`]ghYb]b[z`fY`WcfX]b[z]j`Yk`]b[`j`]XYc`a`UHf]Ug`UbX`i`g]b[`bYfbYh`fYgci`fW]g`"5`j`Uf]YhmcZ`

Ubi U[Y' hUg_g]b' U''g_]`g' UfY' ja d'Ya YbHYX' Vmia YUbg'cZ h.]g' h'WXbc'c[m'

H\YfY'jg'U'gc'U'dfc[fUa' cZWca d'Ya YbHfmk YY_mihUg_g'hc' VY'XcbY'ci hg]XY'WUggYg'hUhk]''VY'dUfhcZ
mci f''YUfb]b['dcfhzc`c'' #ik]''bWfYUgY' mci f'fY[i 'Uf'WcbhUWhk]h' h'Y''Ub[i U[Y'UbX'Z f'h'Yf'XYj Y'cd'mci f
g_]`g'' #ik]''U'gc'\Y'd'mci 'fYZYWh'cb'mci f''YUfb]b['YI dYf]YbW' UbX'\Y'd'mci 'XYHfa]bY' h'Y' VY'h'f
gfUHY[]Yg'hc' ja dfcj Y'mci f'g_]`g''

Mci 'UfY' YI dYW'X'hc.

c'k UHWX' h'Y' [fUa a Uf''YWh' fYg'cb!']bY'UbX'Xc' h'Y' fY'UHfX' UWhj]h]Yg'VYZcfY'Wca]b['hc' WUgg

c''UHfYbX'h'Y']b' WUgg''YWh' fYg'hUhk]''VY'i gYX'Zcf'k f]h'Yb'dfUW]W' UbX'YI YfW]gYg/

c'dfYdUfY']b'k' f]h]b['Zcf'h'Y' h' hc'f]U'g'fd'fYdUfUhc'bg'a Um]bW' XY. '']gh'Yb]b['UbX'fYUX]b['a UHf]U'g'Zca' h'Y
h'I h'cc_'cf'cb`]bY'zk' f]h]b['fYgYUfW' fYdcfhg'zk' UHW]b['j]XYc'XcW a Yb'g'Z/

c'fYj]gY' h'Y' Wcb'h'Yb'g'cZdfYj]ci g''YWh' fYg'UbX'h' hc'f]U'g'UbX'k cf_'cb'mci f''YUfb]b['dcfhzc`c' fY[i 'Uf'm]b
cfXYf'hc']XYbh]ZnUfYUg']b'bYYX'cZ]a dfcj Ya YbhUbX'#f'fYj]Yk "

c''''gdYU_': fYbW' UhU''h]a Yg°

5ggYgga Ybh

5bmifUj Y`UffUb[Ya Ybhg'a UXY`df]cf'cf'UZf'f'Y`di V`]WU]cb'cZ\]g`Wci fgY'cj Yfj]Yk`UfY`bchWcbg]XYfYX`U
j`U]X`fYUgcb`hc`fYgWXYXi`Y`UggYgga Ybh`

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y`8UH`	Gh XYbh@YUfb]b[Ci hWca Yg`5ggYggYX
@YUfb]b[`dcfZc`]c`	` \$i	K YY_`mgi Va]gg]cb`Vm A cbXUm%&`da`cZ\Y Zc``ck]b[`k YY_`"	%Z ž{

	Hcd]W	K]`hY [Ud`vYh YYb`f]W / `dccc]bWYUgY3 .
K YY_*. (&) `A UfW ! " % A UfW	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh.) `hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da " : 998657? `CB`DCFH: C@€`7CA D@9H€B fK 99?G`(!`*Ł
	Hcd]W	7ccdYfU]cb. `bYk `Zcfa g`cZgcWU`]bHfUW]cb`VUgYX cb]j`c`i`bHfmiK cf_žVUfHfZ`YfW K \Uhk ci `X`k`Y`WccgY`Zc`f`ci`fgY`j`Yg3<ck`WUb`k`Y Z`Z`ci`f`j`Yg`UbX`WcbHf]Vi`H`hc`hY`Wta`a`i`b]mB
K YY_+. %5df]`!`+`5df]`	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh. * `hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da "
	Hcd]W	H\Y`WU`Yb[Yg`cZci`f`k`cfX. XYHfa]b]b[`k`h`hY WUgg`hY`a`cghdfYgg]b[`WU`Yb[Yg`f`hY Ybj`]f`cba`Yb]z`]b`Yei`U`]mž]bhc`YfUbwWž`YU`h`/ bi`f]h]cbž`YfWŁ3
K YY_., ; , `5df]`!`%(`5df]`	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh. , `hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da " DF 9D5F 98`8965H9`B`7`@5GG`fI`@A 98`B HI`HC`F`5@Ł`#DF 9D5F 98`F`9G95F`7<`HC`<5B8 B"
	Hcd]W	9I`d`cfU]cb`cZWU`Yb[Yg`WcgYb`Vm`hY`WUgg"
K YY_-. (% `5df]`!`&% 5df]`	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh. , `hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da "
	Hcd]W	9I`d`cfU]cb`cZWU`Yb[Yg`WcgYb`Vm`hY`WUgg"
K YY_%. &&`5df]`!`&, 5df]`	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh. - `hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da "
	F YUX]b[H\YfY`k`j`vY`bc`YW`fY`h`]g`k`YY`Xi`Y`hc`di`V`]W \c`]XUm`]h`k`j`vY`fYgWYXi`Y`hc`K`YY`_%`ž`Hi`YgXUm (`!`*`da`]b`A`U`h`Y`k`g`%`\$`"Hi`hc`f]U`g`Y`b`X`]b`K`YY`_`-`
K YY_%%`&-`5df]`!`% A Um	5ggYgga Ybh	@YUfb]b[`DcfhZ`c`Wta dcbYbh. %\$`hc`gi Va]h]b A ccX`Y`VmA cbXUm%&`da " :]bU`ZYXVUW`cb Wta`d`Y`h]cb`cZdcfhZ`c`k`j`vY`[`]j`Yb`cb`]bY`]b

F Ygci fWg

DfYgW]VYX F Ygci fWg

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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

Ẓmci `YbWci bhYf`U`dfcV`Ya `k \Yb`U`H`Ya dh]b[`hc`gi Va]hmc i f`Ugg][ba YbhHfci [\`Hi fb]h]bžd`YUgY
H`Yd\cbY`9I H`fbU`Gi ddcfhcb`-` ,) `` `` %cf`Ya U]`H`Ya `cb`YI H`fbU`H`hgi 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`Y`UfL` Ẓmci
UfY`i bUV`Y`hc`gi Va]hmc i f`Ugg][ba YbhXi Y`hc`U`ZU`i`hik]H`Hi fb]h]b`mci `a UmiUdd`miZc`f`Ub`YI H`bg]cbžVi hmc i
a i ghfY`H]b`mci f`h]W`Yhbi a VYf`Zca `9I H`fbU`Gi ddcfhfU`cb[`k]H`U`bmc`H`Yf`fY`Yj UbhXcW a Yb`hgL`hc
]bWi XY`Ug`Yj]XYbW`hc`gi ddcfhmci f`YI H`bg]cb`Udd`]W]h]cb" Ẓmci `Ya U]`9I H`fbU`Gi ddcfhmci `k]`

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]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[`WUHY[cf]Yg.

7 cdm]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`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][b`dfc`YWgZ`Ug`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g]XYUg`cf`k cfXg`k]h`ci hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`Z`UbX`]bZcfa U]cb`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 hWYX]hU`bX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`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_]7 c`i g]cb`U`gc
]bWi XYg`dfcj]X]b[`mci f`k cf_]hc`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHYz`cf`Zc`f`hY`di fdcgY`cZ`hY`a

- i bXYfghUbx'mci f'f][\hg'UbX'fYgdcbg]V]h]Yg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5Ww'dhUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wm
- VY'Uk UfY'cZh'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dYW'X'cZYj Yfmcby'j]b'h'Y'I BGK 'Wc a i b]m
- `cWJh'gYfj]Wg'UbX'j]bZcfa Uh]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh'YgY'UfYUg'k]`VY'ZJa]]Uf'hc'mci ž'ch'Yfg'k]`VY'byk "; U]b]b['U'gc`X'i bXYfghUbx]b['cZU`h'Y fY'UH'X'UgdYW'g'cZ9@G9'k]`Y'd'mci 'a U_Y'h'Y'a cghcZmci f'gh X]Yg'Uhl BGK ""

[\hhd.##ji V'YWf'i \]XYg" \]VfUfm'i bgk "YXi "Ui #' \]gY#JVci h' \]gY](#)

5 WXYa]WbZcfa Uhcb`

: cfYggYbhU`ghi XYbh]bZcfa Uhcb`fY`Uh]b[`rc.