



ARTS3052

9b[`]g\ `bHYfbg\]d

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



GWcc`cZH Y`5ftg`UbX`A`YXJU`..##`I`BGK`..5ftg`UbX`GcWJU`..GWYbWg

7 ci fgY'Cj Yfj JYk

'GHUZZ'7 cbhUW'i8YHU]'g'

'7cbj Ybcfg'

B Ua Y	9a U]'	5j U]'UV]'m	@cWU]hcb	D\cbY
9a a U'>UbY	Ya a U"UbY4 i bgk "YXi "Ui	6mUddc]bha Ybh	%%) ž'@Yj Y''%ž F cVYfh K YVghYf	

GWXcc`'7cbhUW'i`bZcfa Uh]cb

Fcca " %&ž'Yj Y"" 'F cVYfhK YVghYf'6i]X]b[

D\cbY.'f\$&Ł-' ,) '(,) *

9a U]': [gUa 4 i bgk "YXi "Ui](#)

K YVg]hY: [\hfdg.#gUa "Ufmg"i bgk "YXi "Ui](#)

H\Y'GWXcc`'cZhY'5fmg'UbX'A YX]U'k ci 'X`'_Y'hc'F YgdYWw'`m5W_bck 'YX[Y'hY'HfUX]hcbU`'7 i ghcX]Ubgž
hY'6YXY[U'fP Ybg]b[hcb'WJa di gŁž; UX][U'f7]mUbX'5fhi' '8Yg][b'7 Ua di gYgŁ'UbX'hY'B [i bbUk U`
dYcd'Y'fBi gfu'U]ub'8YZ'bvW': cfW'5WUXYa m]b'7 UbVYffUŁ'cZhY''UbXg'k \YfY YUW'WJa di g'cZI 'BGK 'jg
'cWU]hYX"

7 ci fgY'8YHJ`g

7 fYX]hDc]bqg '*`

Gi a a UfmicZ\hY'7 ci fgY

Gi VYWh5fYU.'7` Y'feZ

H\]g'Wci fgY'dfcj]XYg'mci `k]h`Ub'cddcfh b]mhc'i bXYftU_Y`k cf_]bH[fUHx`YUfb]b[`UbX'[U]b`]bXi gHfm
YI dYf]YbW`k]h`U`cgchcf[Ub]gUhc]b`WcgY`mfY`UHx`hc`mci f`A U`cf`]b`9b[`]g\`Mci `a UmU`gc`Udd`mhc`k cf_
cb`UHUW`a Ybhc]b`Ub`UWXYa]WfYgYUfW`dfc`YW`ic`f`k cf_]b`Ub`YX]hc]f]U`fc`Y`Zc`f`Ub`UWXYa]W`ci fbU`
`XYU`n`z`mci `k]`i bXYftU_Y`Ub`]bHf]bg\]d`UzHf`mci `Uj`Y`W`a d`Y`H`X`%)`mYUfg`cZ`Z`!`h`a`Y`gh`Xmfcf
Yei]j`U`Y`b`h`Ub`X`W`a d`Y`H`X`U`a]b]a`i`a`c`Z`%`I`C`7`]b`h`Y`A`U`cf`5`h`h`Y`Y`b`X`c`Z`h`Y`]b`H`f`b`g`\]d`mci `k]`
dfcj]XY`U`gi`a`a`U`h`j`Y`f`Y`dc`f`h`c`Z`mci`f`YI`d`Yf]YbW`g`Ub`X`k`cf`_`YI`Ua`d`Y`g`W`a`d`Y`H`X`Xi`f]b[`h`Y`]b`H`f`b`g`\]d`

H\Y`]b`H`f`b`g`\]d`f`Yei]fYg`U`hc`U`W`a`a`]h`a`Y`b`h`c`Z`%`\$`!`%`\$`\`ci`fg`c`Z`k`cf`_`k`]h`U`cg`h`c`f[`Ub]gUhc]b`Ub`X`a`Um
bcfa`U`m`V`Y`h`U`_`Y`b`]b`Z`f`g`h`z`g`Y`W`c`b`X`c`f`g`i`a`a`Y`f`g`Y`a`Y`g`h`Y`f``b`H`f`b`g`\]d`cddcfh`b]h]Yg`UfY`UXj`Yf]gYX`j`]U`h`Y
G`W`cc`c`Z`h`Y`5`f`g`Ub`X`A`Y`X]U`b`H`f`b`g`\]d`B`Y`k`g`Y`H`Y`f`5`h`Y`fb`U`h`j`Y`m`mci`a`Um`U`dd`f`c`U`W`U`f`Y`Y`j`Ub`h
cf[`Ub]gUhc]b`hc`U`dd`m`Z`c`f`Ub`]b`H`f`b`g`\]d`D`f`c`f`hc`g`Y`Y`_]b[`Ub`]b`H`f`b`g`\]d`z`mci`g`l`ci`X`U`H`Y`b`X`Ub`]b`H`f`b`g`\]d
]b`Z`c`f`a`U`h`c`b`g`Y`g`g`]c`b`f`i`b`V`m`h`Y`G`W`cc`c`Z`h`Y`5`f`g`Ub`X`A`Y`X]U`

Hc`V`Y`Y`][`]V`Y`Z`c`f`h`g`W`ci`fg`Y`z`mci`a`i`gh`U`j`Y`U`a`]b]a`i`a`K`5`A`c`Z`+`\$`"

7 ci fgY`@YUfb]b[`Ci hW`a Yg

%` \Uj`Y`[`U]bYX`YI`dYf]YbW`cZ]bXi`ghfmdfcW`ggYg`UbX`dfUW]W`g
&`Udd`m`h`Y`c`f`Y`h]W`W`c`b`W`d`f`g`Ub`X`dfUW]W`g`_]`g`[`U]bYX`]b`h`Y`d`f`c`[`f`Ua`hc`f`Y`U`!`k`c`f`X`W`c`b`h`Y`h`g
'`" `Uj`Y`Y`b`\`Ub`W`X`h`Y`f`W`d`U`W]m`Z`c`f`]b`X`Y`d`Y`b`X`Y`b`h`Y`b`[`U[`Y`a`Y`b`h`k`]h`]b`Xi`ghfmdfcj`]XYfg`

HYUW\]b[`G`h`f`U`H`[]Yg`

H\]g'Wci fgY`\Ug`bc`Zcfa U`h`Y`U`W\]b[`W`a`d`c`b`Y`b`h`"

5ggYgga Ybh

5ggYgga YbhHUg_g'

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH'	Gh XYbh@YUfb]b[Ci hWta Yg'5ggYggYX
7 f]h]WU`F YZYW]cb`) \$i		

- 7ca d`Yhcb`cZU'a]b]a i a `cZ%\$\$`\ci fg`cZd`UW'a Ybh
- Gi Va jgg]bgb]UggYgg Yb]hUg_g`%zbg`XYa cbghf\$[`U'gYf]ci g`UfYa d`fci`U'gkYf]h`Y`hUg_ i]fYa Yb
fYei]fYa Ybhg

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`mYUfL` 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 ghfYH]b`mci f`h]W`Yhbi a VYf`Zca `9I H`fbU`Gi ddcfhfU`cb[`k]H`Ubmch`Yf`fY`Yj UbhXcW a YbHgE`hc
]bWi XY`Ug`Yj]XYbW`hc`gi ddcfhmc`i f`YI H`bg]cb`Udd`]W]h]cb" Ẓmci `Ya U]`9I H`fbU`Gi ddcfhmc`i `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 gž`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[Ygž`UfhUbX`XYg][b`dfc`YWgž`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`fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`ž`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`Yž`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`XUHYž`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'5W'W'dhUV'Y'I gY'cZ I BGK '⇒H'F'Ygci f'W'g'Dc`]W'h
- VY'Uk UfY'cZ'Y'ghUbxUfXg'cZVY\Uj]ci f'YI dY'W'X'cZYj Yf'ncbY`]b'h'Y'I BGK 'W'a a i b]m
- 'cW'W'h'gYfj]W'g'UbX'j]bZ'fa U]cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZ'Y'gY'UfY'Ug'k]''VY'ZJa]]Uf'hc'mci ž'c'h'Y'f'g'k]''VY'bYk "'; U]b]b['U'gc`]X'i bXYfghUbx]b['cZU''h'Y fY'U'Y'X'UgdY'W'g'cZ9@-G9'k]''\Y'd'mci 'a U_Y'h'Y'a cgh'cZ'mci f'gh X]Yg'Uhl BGK ""

[\h'hd.##gi V'Y'W'f'i \]X'Y'g""\]VfUfm'i bgk "Y'X'i "U'i #' \]gY#\]V'ci h' \]gY](#)

