



ARTS2384

Dc`j]WU`D`]cgcd\m

HYfa`Cby`#`&\$%

7ci fgY'8YHJ]`g

7fYX]hDc]bHg`*`

Gi a a UfmicZh\Y'7ci fgY

Gi VYWh5fYU. BZ[æabZk

H\Y`Wti fgY`dfcj]XYg`mci`k]h`U`gc`]X`Zci bXU]cb`]b`dc`]h]W]`d\`]cgcd\mVma YUbg`cZWcgY`fYUX]b[g`cZ
W`bhfU`hY]hg`Vmi]h]b_Yfg`gi W`Ug`H\ca Ug`<cVYgž>c\`b`@cW_Y`UbX`<UbbU\`5fYbXh`Dc`]h]W]`d\`]cgcd\m

5ggYgga Ybh

5ggYgga YbhFi Vf]W9ggUmGHUbxUfXg

	< 8	8B	7F	DG
9I dcg]h]cb'cZ]ggi Yg	7 cbj Ymg']b'U Wc\YfYbha UbbYf'U WYUF'UbX'dfcZci bX Wca dfY\Ybg]cb'cZ h\Y']ggi Yg"	7 cbj Ymg']b'U Wc\YfYbha UbbYf'U WYUF Wca dfY\Ybg]cb'cZ h\Y']ggi Yg"	7 cbj Ymg']b'U Wc\YfYbha UbbYf'U Wca dfY\Ybg]cb'cZ h\Y']ggi Yg"	7 cbj Ymg' U Wca dfY\Ybg]cb'cZ h\Y']ggi Yg"
5bU'mg]g	9I \]V]hg'g_]`g UggcW]UHYX'k]h h\Y'd\]cgcd\]WU' UbU'mg]g'cZHYI hgž cZYf]b[']bbcj Uhj Y UbX']bg][\hž`]bhYfdFYhU]cbg"	9I \]V]hg'g_]`g UggcW]UHYX'k]h h\Y'd\]cgcd\]WU' UbU'mg]g'cZHYI hgž g\ck]b[]bXYdYbXYbW'cZ h\ci [\h'	9I \]V]hg'gca Y g_]`g'UggcW]UHYX' k]h' h\Y d\]cgcd\]WU' UbU'mg]g'cZHYI hg"	9I \]V]hg'gca Y fYZYW]cb'cb'h\Y]ggi Yg'Wcj YfYX"
8]gW]d']bUfm Wcbj Ybh]cbg	8Ya cbgfhUHYg XYHJ]YX'UHhYbh]cb hc'UbX'gi WYggZ` YI YW]h]cb'cZU k]X'fUb[Y'cZ Wcbj Ybh]cbg dUfh]W'UF'hc'h\Y UWXYa]WYggUm]b d\]cgcd\mž]bWi X]b[cf[Ub]gU]h]cbž WcbhYbž dfYgYbhU]h]cbž fYZfYbW]b[ž Zcfa UH]b['UbX gm]gh]WXXc]WYg"	8Ya cbgfhUHYg Wcbg]ghYbhi gY'cZ]a dcf]Ubh Wcbj Ybh]cbg dUfh]W'UF'hc'h\Y UWXYa]WYggUm]b d\]cgcd\mž]bWi X]b[cf[Ub]gU]h]cbž WcbhYbž dfYgYbhU]h]cbž fYZfYbW]b[ž Zcfa UH]b['UbX gm]gh]WXXc]WYg"	t c`ck g YI dYWU]h]cbg Uddfcdf]UHY'hc d\]cgcd\mUbX'h\Y UWXYa]WYggUm Zcf'VUg]W cf[Ub]gU]h]cbž WcbhYbžUbX dfYgYbhU]h]cb"	5hYa dhg'hc'i gY'U Wcbg]ghYbhgm]hYa Zcf'VUg]W cf[Ub]gU]h]cb'UbX dfYgYbhU]h]cb"
7]hU]h]cbg'UbX ei c]h]cbg	8Ya cbgfhUHYg W]h]WU`mfYZYW]j Y i gY'cZfY'Yj Ubh gci fWYg'hc UXj UbWY Uf[i a Ybh'	8Ya cbgfhUHYg fYZYW]j Y'i gY'cZ fY'Yj Ubh]gci fWYg hc'gi ddcfh dcg]h]cb"		

K f]h]b['Ub'UWUXYa]WYggUma YUbg'_YYd]b[']b'a]bX'gYj YfU'fUg_g.
 UE'UWVW fUHY'mVcbj Ym]b['h'Y'a YUb]b['cZh'Y'df]a UfmiHYI hfK \Uh]g'h'Y'h'YI h' U'Yj]XYbW'Zcf'mei f
]bHYfdFYH]cb3E/
 VE'fYZYW]b['cb'h'Y'dcgg]V'Y'k YU_bYggYg'UbX'ja d']W]h]cbg'cZh'Y'Ui h'cf'g'dcg]h]cbg'fk \Uh]gf]_Yg'mei 'Ug
 WcbHYb]h]ci g']b'h'Y'fYUX]b['UbX'cf'k \Uh'Zc'ck g'Zca ']h]E/
 W'g]h' U]h]b['mei f']bHYfdFYH]cb']b'fY'U]h]cb'h'c'YI]g]h]b['Wca a YbhUf]Yg'fKcYg'mei f'fU_Y'cb'h'Y'h'YI hX]ZYf'Zca
 k \Uh'ch'Yfg'\Uj Y'a UXY'cZ]h'UbX'Wb'mei 'dfc]]XY'fYUgcbg'Zcf'mei f'ck b'k UmcZfYUX]b['h'Y'h'YI h]E"
 K]h'ci h'fU'— Ub'UWVW fUHY'YI dcg]h]cb'cZh'Y'df]a UfmiHYI h—mei 'a U_Y']h'\UfXYf'Zcf'mei f'fYUXYf'h'c'gYY'Zcf
]bg]h'UbW'Z'h'Uh'mei f'W]h]W'f'Ya Uf_g'gh]_Y'\ca Y'fUbX'Xc'b'ch'gh'UbX'U' "]'Y'f'V'ck " 'cb'U'Z[a Ybh'cZ'mei f
]a U[]b'U]h]cb'E"
 K]h'ci h'fU'— h'Y'YI dfYgg]cb'cZ'mei f'ck b'fYZYW]h]cbg'cb'h'Y'df]a UfmiHYI h—mei 'a U_Y']h'\UfXYf'Zcf'mei f
 fYUXYf'h'c'gYY'h'Uh'gca Y'h]b[']g'VY]b['gU]X'h'Uh'Ug'b'ch'VY'Yb'gU]X'VY'Zcf'Y"
 K]h'ci h'fU'— Yb[U[Ya Ybhk]h'g'Y'WcbX'Ufm']h'Y'fU'h' fY'—mei 'a U_Y']h'\UfXYf'Zcf'mei f'fYUXYf'h'c'gYY'\ck'mei f
]bHYfdFYH]cb'Wcb'h]Vi h'Yg'h'c'Wcb'h'Ya dcfUfm'UWUXYa]Wi bXYfg]h'UbX]b['cZh'Y']ggi Yg'Uh]ghU_Y'Z'bY]h'Yf
 fYd']W]h]b['k \Uh'ch'Yfg'\Uj Y'U'fYUXmgU]X'b'cf'Z']b['Zci 'cZh'Y'f'Uf[i a Ybh'g"
 B6" ? YYd]b['fU'Z'fV'U'UbX'fV']b'a]bX']g'YI h'Ya Y'mX]Z]W'h'UbX'b'Yj Yf'VY'Wca Yg'gh]fU] [\h'Z'fk UfX' "Hc'f'm'Z
 \ck Yj Yf'Z']g'h'c'g'Yh'ci h]b'h'Y'f[\hX]fYW]cb"

5g'U'fi 'Y'cZ'h'i a V'Z'fYZ'ff]b['h'c'Wca a Ybh'U'c'fg'k \Yb'h'Y'm'W]h]W]g'Y'cf'Y'UV'cf'U'h'cb'h'Y'df]a UfmiHYI h]g
 VY'h'Y'f'h'Ub'fY'Z'ff]b['h'c'h'Ya 'k \Yb'h'Y'm]g]a d'm'd'U'f'U'd'\f'U'g'Y']h'c'f'f'Y'd'Y'U'h'k]X'Y'm'_b'ck b'Z]W]g'Wcb'W'fb]b[']h'g
 Wca d'cg]h]cb'c'f']b'Zi Yb'W' "]h]g'Yj Yb'VY'h'Y'f'k \Yb'mei 'W]b'di h'Z'fk UfX'Ub'Uf[i a Ybh'cZ'mei f'ck b']b
 fYg'd'cb'g'Y'c'U'Wca a Ybh'U'c'f'g'W]h]W]g'a 'cf'Y'UV'cf'U'h]cb'cZ'h'Y'df]a UfmiHYI h'

5ggYgga YbhHUg_g`

5ggYgga YbhHUg_	K Y][\h	8i Y'8UH	Gh XYbh@YUfb]b[Ci hWca Yg'5ggYggYX
F YgYUfW X'YggUm%) \$\$'k cfXg'	')	&&# '\$' #&#%- '\$(. \$\$' DA	%Z ž(ž)
F YgYUfW X'9ggUm&\$\$\$'k cfXg') \$	' \$' #) #&#%- '\$(. \$\$' DA	%ž&Z ž(ž)
A ccXY'Dcghg')	' \$' #) #&#%- '\$(. \$\$' DA	%ž&Z ž(ž)

5ggYgga Ybh8YHJ]`g

5ggYgga Ybh% 'F YgYUfW X'YggUm%) \$\$'k cfXg

GhUfhXUH. 'Bch5dd']WV'Y

@Yb[h. %) \$\$'k cfXg

8YHJ]`g. 'Gh XYbh'k f]h'U'fYgYUfW X'YggUm! %) \$\$'k cfXg': YYXVUW_k]`fU_Y'h'Y'Z'ca 'cZU'fi V]f]WUbX
]bX]j]Xi U'Wca a Ybh'g"

5XX]h]cbU'XYHJ]`g.

9ggUm'cd]W]g'k]`VY'dcgh'X'cb'A ccXY'Uh'h'Y'gh]f'hcZ'h'Yfa "

Hi fb]h]b'gYH]b[. 'H\]g'Ugg][ba Ybh]g'gi Va]h'Y'h'f'ci [\ 'Hi fb]h]b'UbX'gh'XYbh'g'W]b'g'Y'Y'Hi fb]h]b'g]a]'Uf]m
 fYd'c'f'g"

5ggYgga Ybh&. 'F YgYUfWx '9ggUm&\$\$\$'k cfXg

GhUfhXUHy. 'Bch5dd']WV`Y

@Yb[h. '&\$\$\$'k cfXg

8YhU]`g.

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

H\YfY`UfY`h\FY`fYei`]fYX`hY`hg`Zcf`h`g`Wci`fgY`"5`"UfY`Uj`U]UV`Y`Zcf`di`fW`UgY`Zca`'hY`I`BGK`'6cc_g\cd"

%`H\ca`Ug`<cVVYgž>Wh[SfZS`žYX`"7`"6`"A`UWd\Yfgcb`f@cbXcb.`DYb[i]bž%` ,) Ł`
&"`>c\b`@cW_YžFZWE`WJa` V`F`d`Sf[eWaX9`ahWd`_`W`f`S` V`3`>WfWd5a`UWd`[`Y`Fa`WdSf[a`'fA`]bYc`Už`
B`M`8`cj`Yfž`&\$\$&Ł`
'`" `<UbbU\`5fYbXžA` D`W`ha`g`f[a`'`f@cbXcb.`DYb[i]bž&\$\$*Ł"

F YWca a YbXYX`F Ygci fWg

5`"ghcZfYWca`a`YbXYX`gYWcbXUfmfYUX]b[g`k`]"`VY`Uj`U]UV`Y`cb`A`ccX`Y`UbX`j`]U`@Y[`Ubhc"

7ci fgY`9j`U`i`Uh]cb`UbX`8Yj`Y`cda`Ybh

Gh`XYbthg`\Uj`Y`hY`cddcfh`b]mhc`dfcj`]XY`ZYXVUW`cb`hY`Wci`fgY`Vch`Zcfa`U`m!`j`]U`hY`YbX!cZhf`fa`
A`m9I`dYf]YbW`gi`fj`Ym!`UbX`]bZcfa`U`m!`j`]U`Y!a`U]`cf`ZJW!hc!ZJW"

H\]g`mYUf`=\Uj`Y`fYXi`WYX`hY`bi`a`VYf`cZYggUmrg`Zca`'h\FY`hc`'k`c`"H\Y`gYWcbX`YggUm]g`bck`'U`
Wca`dUfU]j`Y`YggUmcb`@cW_Y`UbX`5fYbXh`"g`h`]g`dfYZfUV`Y`hc`k`f]h]b[`'U`gYdUfU]h`YggUmcb`YUW`cZhYgY`
h`]b_Yfg3`

=\Uj`Y`U`gc`WU`b[`YX`hY`k`Um`=k`]"`fYgdc`bX`hc`A`ccX`Y`dcghg`"bghY`UX`cZfYd`m]b[`'hc`YUW`cbYž`=k`]"`k`f]hY`U`
'`cb[`Yf`fYgdc`bgY`hc`hY`dcghg`cZhY`k`YY`ž`fYZff]b[`'hc`]bX]j`]Xi`U`Wcbhf]Vi`h]cbg`hYfY]b`"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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

≠mci`YbWci bHYf`U`dfcV`Ya`k`Yb`U`HYa`dh]b[`hc`gi`Va`]hmc`i`f`Ugg][`ba`Ybh`h`fci`[`\`Hi`fb]h]b`z`d`YUgY`
HY`Yd`cbY`9I`HYfbU`Gi`ddcfhcb`-`,`)`''`'`%cf`Ya`U]`h`Ya`cb`YI`HYfbU`HY`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`mY`UfL`≠mci`
UfY`i`bUV`Y`hc`gi`Va`]hmc`i`f`Ugg][`ba`YbhXi`Y`hc`U`ZU`hik`]h`Hi`fb]h]b`mci`a`Um`Udd`mi`Zc`f`Ub`YI`HYbg]cb`z`Vi`hmc`i`
a`i`ghfY`hU]b`mci`f`h]W`Yhbi`a`VYf`Zca`9I`HYfbU`Gi`ddcfhfU`cb[`k`]h`Ubmc`h`Yf`fY`Yj`UbhXcW`a`Yb`hg`L`hc`
]bWi`XY`Ug`Yj`]XYbW`hc`gi`ddcfhmc`i`f`YI`HYbg]cb`Udd`]W]h]cb"≠mci`Ya`U]`9I`HYfbU`Gi`ddcfhmc`i`k`]"`

5 WUXYa]W<c bYghmiUbX`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`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmiFYhU]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`XUHY`Zc`f`Zc`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`]b'h'Y'I BGK 'Wc a i b]m
- `cWJh'gYfj]Wg'UbX']bZcfa Uhcb'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.