



ARTS3091

5Xj UbWX'A YXJU'ggi Yg

HYfa 'C.bY'##'&\$&\$

7 ci fgY'Cj Yfj JYk

'GHUZZ'7 cbhUW'i8YHUJ`g`

'7 cbj Ybcfg`

B Ua Y	9a Uj`	5j Uj'UVj]m	@WUjcb	D\cbY
5bXfYk `A i fd\jY	U"a i fd\jY4 i bgk "YXi "Ui	Uddc]bha Ybhj]U Ya Uj`	F cVYfh K YVghYf 6i]X]b[ž' %%<	-',)))) (,

GWXcc`7 cbhUW'i bZcfa Uhjcb

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

D\cbY. f\$&Ł-' ,) '(,) *

9a Uj]: [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'f5i gfu]Ub'8YZ'bwW': cfW'5WUXYa m]b'7 UbVYffUŁ'cZHY`UbXg'k \YfY YUW'WJa di g'cZI BGK `]g
'cWUHYX"

7ci fgY'8YHJ>`g

7fYX]hDc]bng`*`

Gi a a UfmicZħY'7ci fgY

BYk`a YX]U`hVWbc`c[]Yg`WU`Yb[Y`a UbmicZħY`[] Ybg`cZW`h` fU`UbX`gcW]U`dfUW]Wg" 5hħY`gUa Y`ħa Yž
bYk`W`h` fU`UbX`gcW]U`i`gYg`cZa YX]U`WU`Yb[Y`a i`W`fUUX]h]cbU`h]b_]b[`UVci`ha YX]U`Mci`k`j`YI`d`cfY
ħY`bUh`fY`cZ]bWYUg]b[`mXnbUa]Wa YX]U`hVWbc`c[]Ygž`UbX`ħY`bYk`W`h` fU`UbX`gcW]U`dfUW]Wg
U`cb[g]XY`k` \]W`a YX]U`hVWbc`c[]Yg`Yj`c`j`Y`Mci`k`j`V`cbg]XYf`_YmW`cbħY`a`dcfUfm]XYUg`UVci`ha YX]Už
W`h` fU`UbX`gcW]U`WU`b[Y`Gh`XYbng`k`j`i`bXYfU`_Y`[i`]YX`UbX`gY`Z`X]fYW`X`fYgYUfW`"Hcd]Wg`YI`Ua`]bYX
V`ci`X`]bW`i`XY`X]]U`UbX`bYk`cf`_YX`a`YX]U`cZU`_`]bXg/]a`a`Yfg] Yž]bħfUW]j`Y`cf`Ui`[a`YbħY`a`YX]U
""fYU]h]Yg""/XUHU`g`Uf]b[/ħY`]a`dUWħcZa YX]U`hVWbc`c[mħU`_Y`i`d`]b`_YmW`h` fU`UbX`gcW]U`dfUW]Wgž`Zcf
YI`Ua`d`Y`YU`h`ž`YXi`WU]hcbž`UfħU`bX`XYg][bž[c] Yfba`Ybħž`bYk`Z`cfa`g`cZV`a`a`i`b]mž`cf`gW]YbWV`g`gi`W`Ug
W]a`Uħ`c[mž`bYi`fcgW]YbWV`cf[YbYh]Wg"

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

%`h]b_]WYUfmiUVci`hħY`fc`Y`cZa YX]U`hVWbc`c[]Yg`]b`W`h` fU`UbX`gcW]U`WU`b[Y
&`h]b_]WYUfmiUVci`hħY`]a`dUWħcZa`h` fU`dfUW]Wg`UbX`gcW]U`bYXg`i`dcb`cb[c]b[`a`YX]U
]bj`Yb]h]cb`UbX`Yj`c`i`h]cb
" ` [] Y`WYUf`YI`dfYgg]cb`ħc`mci`f`ck`b`W]h]WU`Yb[U[Ya`Ybħk`]ħ`ħ`YgY`WU`b[Yg"
(" \Uj`Y`Z`fħYf`XY`Y`cdYX`ħY`g_]`g`Z`ca`d`fYj`]ci`g`W`ci`fgYg`]b`gW`c`Uf`m]bei`]mž`gdYW]Z]WU`m`W]h]WU`
ħ]b_]b[ž`UbU`m]h]WU`fYUX]b[`UbX`k`f]h]b[ž]bXYdYbXYbh`YUfb]b[`UbX`]bħY`YW`h`U`Ui`ħc`bca`m`
) " i`bXYfU`_Y`]bXYdYbXYbh`YUfb]b[`UbX`gY`Z`X]fYW`X`fYgYUfW`UW]j`]m]UbX`fY`dc`f]b["
* " \Uj`Y`XYj`Y`cdYX`mci`f`UV]`]m]ħc`Z`ck`mci`f`ck`b]bħfYg]g]ħ`fci`[\`]b`U`f][c`fci`g`a`UbbYfž`ħc`W`ccgY
WUgY`gh`X]Yg`UbX`YI`Ua`d`Yg`Z`f`mci`fgY`Z`ħ`U`h`UfY`fY`Yj`Ubħħc`ħY`W`cbħYI`ħcZ`mci`f`ck`b`YUfb]b[ž
Yj`YfmXUm]UbX`k`cf_]b[``]ZY
+ " \Uj`Y`XYj`Y`cdYX`mci`f`UV]`]h]Yg`ħc`Yb[U[Y`]b`W`c`UV`cfU]h] Y`fYgYUfW`UbX`X]gW`gg]cb`ħc`U`[\Yf
Yj`Y`"

HYUW]b[`GħfUħY[]Yg`

A YX]U`WU`b[Y`Ug`U`k`Umğ`UX`U`j`YfmW`cgY`!`UbX`W`a`d`YI`!`fY`U`h]cbg`d`k`]ħ`W`h` fU`UbX`gcW]U`WU`b[Yž
U`ħ`ci`[\`gca`Y`k`ci`X`Uf[i`Y`bYj`Yf`Ug`a`i`W`Ug`b`ck`" `ə`UXX]h]cbž`a`YX]U`WU`b[Y`]g`W`fYbħm]U`h]f]b[`ħY
YXi`WU]h]cbU`Ybj`]f`c`ba`YbħfħY`k`Umk`Y`YUfb]E`H`ħ`fci`[\`d`fUW]WU`YI`YfW]gYgž`U`i`gY`cZ`W`cbħY`a`dcfUfma`YX]U
hVWbc`c[]Yg`]b`YUfb]b[ž`UbX`Yb[U[Ya`Ybħk`]ħ`_Ym]ħ]b_]b[`]b`ħY`UfYUž`gh`XYbng`k`j`YI`d`cfY`ħY
YI`d`Ub`XYX`h]f`fU]b`cZ`V`cbħY`a`dcfUfm]W`cbħY`a`dcfUfma`YX]U`H`]g`W`ci`fgY`]g`XYg][bYX`ħc`U`ck`gh`XYbħc`Vi`]X
cb`ħY]f`Z`ci`bXU]h]cbU`W`cbW]d]h]g`]b[`UħY`k`Um]W`ci`fgYg`UbX`cb`ħY]f`d`fYj`]ci`g`XYj`Y`cda`YbħcZg_]`g`]b
W`c`UV`cfU]h]cb`UbX`fYgYUfW`U`h`Yj`Y`&`Gh`XYbng`k`j`XYj`Y`cd`V`ch`ħY]f`W`c`UV`cfU]h] Y`UbX`ħY]f`gY`Z`X]fYW`X
UbX`]bXYdYbXYbh`YUfb]b[`ħc`[\`Yf`Yj`Y`gž`U`cb[`k`]ħ`U`h`Y`c`f`Yh]WU`UbX`d`fUW]WU`i`bXYfgh]UbX]b[`cZa`YX]Už
W`h` fU`UbX`gcW]U`WU`b[Y`"

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

GYY`7ci fgY`A ccX`Y`G]H`Zcf`fYgci fWg" `H`YfY`]g`bc`7ci fgY`F`YUXYf`Zcf`h`]g`Wci fgY" `5`" `fYUX]b[`g`UbX`
c`h`Yf`a`U`h`f]U`g`z`c`f`" `]b`_`g`h`c`h`Y`g`Y`z`W`b`V`Y`Z`i`b`X`c`b`h`Y`W`ci`fgY`A`ccX`Y`g]h`"

F YWca a YbXYX`F Ygci fWg

GYY`Wci fgY`A ccX`Y`g]h`"

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

7ci fgY`ZYXVUW`_`]g`[`U`h`Y`f`Y`X`j`]U`X]g`W`gg]cb`UbX`c`V`g`Y`f]`U`h]cb`Xi`f]b[`W`U`gg`Y`g`z`j`]U`U`gg][`ba`Y`bh`k`cf`_`z`UbX`
j`]U`h`Y`A`m`9l`d`Y`f]Y`b`W`gi`fj`Y`mg" `H`\\]g`m`Y`U`f`h`Y`W`ci`fgY`\\U`g`V`Y`Y`b`g]a`d`]Z`Y`X`UbX`h`Y`f`Y`U`X]b[`g`W`h`V`U`W`_`]b`
f`Y`g`d`c`b`g`Y`h`c`Z`Y`X`V`U`W`_`"

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 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`Ub[]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`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'Wcdmf][\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 'Wca 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 ""

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

5 WUXYa]W]bZcfa Uh]cb`

: cf`YggYbh]U`ghi XYbh]bZcfa Uh]cb`fY`Uh]b[`hc.

- fYei Yghg`ZcfYI hYbg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
- fYj]Yk `cZa Uf_g/
- I B GK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Wc]bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]hmUbX`X]gUV`]`hm/
- UbX`chYf`YggYbh]U`UWUXYa]W]bZcfa Uh]cbz`gYY

[\hhdg.##k k k "Ufng"i bgk "YXi "Ui #W ffYbh\]ghi XYbh\]bZcfa Uh\]cb`dfc\]Wc`g`\[i \]XY`\]bYg#](#)

⇒ U[Y`7 fYX]h

⇒ U[Y`VmF Yh]bUz b_`Gca Y`f][\hg`fYgYfj YX—\hhdg.##WYUh] YWca a cbg`cf[#]WbgYg#/mgU#&"\$#—\hhd.##k k "Z]W_f"Wca #d\chcg#fYh]bUz b_#&, \$) (&) \$\$#Qa U[Y`\Ug`VYYb`WfddYXQ

7F ⇒ CG

7F ⇒ CG `Dfcj]XYf`7] % `7] % % % % % % %