



ARTS3064

ggi Yg`]b` :]`a` `GmYg`UbX`5Ygh\Yh]Vg

HYfa`H\`fYY`##`&\$%-



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

7 ci fgY`Cj Yfj]Yk

`GHUZZ7 cbhUWhi8YHU]`g`

`7 cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]]m	@cWU]cb	D\cbY
; Ycf[Y`? ci j Ufcg	["_ci j Ufcg4 i bgk "YXi "Ui	6mUddc]bha Ybh	K YVghYf`F a &\$*	- ' ,) `(, * %

GWcc`7 cbhUWhi`bZcfa Uh]cb

F cca " %&Z`Yj Y`" `F cVYfhiK YVghYf`6i]X]b[

D\cbY. f\$&L`- ' ,) `(,) *

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

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

H\Y`GWcc`cZhY`5fng`UbX`A YX]U`k ci `X`_Y`hc`F YgdYWZ`m5W_bck`YX[Y`hY`HfUX]h]cbU`7 i g]cX]Ubgz`
 hY`6YXY[U`fP`Ybg]b[hcb`WUa di gLz; UX][U`f7]mUbX`5fhi`8Yg][b`7 Ua di gYgE`UbX`hY`B [i bbUk U`
 dYcd`Y`fBi glf

%o %o%o%o%o%o%o%o%o%o %o%o %o £\$ %o

7 ci fgY'8YHJ`g

7 fYX]hDc]bhr *`

Gi a a UfmicZ`hY'7 ci fgY

Gi V`YWh5fYU.'8[E fgV[M

H\]g`Wci fgY`Wb`U`gc`VY`gh`X]YX`]b`hY`Zc`ck`]b[`gdY`W]U`]gU]cb.`?`W[S]5`g`fgdWS`V`F`WUZ`a`aYk

9I`Ua`]bYg`Y`Ya`Ybhr`cZ`Z`a`'ghmY`Z`Z`cfa`z`UbX`UYgh`Yh]Wg`h`fci`[`\`hY`'gh`XmicZ`dUfh]W`Uf`Z`a`'dfUW]Wg`
9I`d`cfYg`hY`fY`U]h]cbg\]dg`VYhk`YYb`Z`a`'\`]g]hcfmi`UbX`Z`a`'ghmYg`UbX`UXXfYggYg`hY`fY`U]h]cbg`VYhk`YYb`
W`h`fU`UbX`UYgh`Yh]W\]g]hcf]Yg`UbX`Z`a`'dfUW]Wg`"8Yj`Y`cdg`UXj`UbW`X`g_]`g`]b`Z`a`'UbU`mg]g`UbX`dfcj`]XYg`
Ub`i`bXYfg]UbX]b[`cZgca`Y`cZ`hY`W]h]W`Z`Ua`Yk`cf`g`UbX`a`Y`h`c`X`c`c`[`]Yg`i`gYX`Z`c`f`YI`Ua`]b]b[`ei`Yg]h]cbg`cZ`
Z`a`'ghmY`"

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

%`5`bU`mgY`\`ck`'ghmY`UbX`UYgh`Yh]Wg`Wc`b]f]Vi`h`f`c`j`]Yk`]b[`YI`dYf]YbW`UbX`X]fYWh]b]h]fdYh]j`Y`
dfUW]Wg`"
&`9I`d`U]b`hY`]a`dUW]cZ`W`h`fU`UbX`]b]g]h]h]h]cbU`\`]g]hcfmicb`Z`a`'ghmY`UbX`UYgh`Yh]Wg`"
'`" `I`bXYfh]_Y`XYh]`YX`UbU`mg]g`UbX`]b]h]fdYh]h]cb`cZgdYW]Z]WZ`a`g`i`g]b[`a`Y`h`c`X`g`Uddfcdf]U]h`f`c`Z`a`
gh`X]Yg`"
(`5`dd`mid`\]cgc]d\]W]`UbX`W]h]W]`a`Y`h`c`X`g`h`c`h`Y`gh`XmicZ]bX]j`]Xi`U`Z`a`g`UbX`Z`a`'dfUW]Wg`"

HYUW\]b[`GhfU]h[`]Yg`

H\Y`hYUW\]b[`ghfU]h[`mYa`d`cnYX`]b`h]g`Wci`fgY`fYd`UW]g`hY`fU]h]h]cbU`YWh`fY!gW]Y]b]b[`!`h`f]U`a`cXY`
k`]h`U`gYa`]bUf`ghf]`Wh`fY`]b`k`\]W`gh`XYbh]bdi`hd`Umg`U`Z]f`a`cfY`W]b]fU`fc`Y`"H\]g`]g`]b`]bY`k`]h`h`Y`
[`YbYfU`U]a`cZ`Y`Y`" `Z`a`'gh`X]Yg`gi`V`Y`W]g`h`c`dfca`ch`U`\][`Y`f`XY[`fY`c`Z`gh`XYbh`YX`fYgYUfW\`UbX`
XYVU]h`cb`X]gW]d`]bY!gdYW]Z]W]Wc`bW]d]g`" `a`a`YX]U]h`m]U`Z]f`hY`gW]Y]b]b[`z`hY`WUgg`k`]`fY`Wc]b]j`YbY`]b`U`
gYa`]bUf`9`Y`W]h]W]`XYj`]W]g`gi`W\`Ug`Ud]h`c`dg]z`]DUXg`UbX`a`cV]Y`d`l`cbYg`a`i`ghVY`gk`]hW]YX`cZ`Xi`f]b[`
gW]Y]b]b[`g`"

5ggYgga Ybh

H\YfY'UFY'fY'fY'UggYgga YbhUg_g'hc'Wca d'YHY'Zc'f'h'g'Wci fgY''Mci 'a i ghWca d'YHY'UbX'gi Va]hU''fY'fY' hUg_g']b'cfXY'f'hc'dUgg'h'g'Wci fgY''H\]g'a YUbg'hUhmci 'k]''ZU]'Zmci 'Xc'bc'h\UbX']b'cbY'hUg_zYj Yb']Zmci \Uj Y'U'hc'U' [fUXY'cZcj Yf') \$i 'Zca 'hY'c'hY'f'k c'Ugg][ba Ybhg"

Mci 'a i ghUHYbX'U'a]b]a i a 'cZ, \$i 'cZ'h'hc'f]U'g'hc'VY'fY [UfYX'Ug'\Uj]b['Z'Z'YX'hY'UHYbXUbWY fYei]fYa Ybhg'cZ'hY'Wci fgY''5'fc''k]''VY'fU_Yb']b'hY'h'hc'f]U''

5ggYgga YbhUg_g'

5ggYgga YbhUg_g'	K Y][\ h	8i Y'8UH'	Gh XYbh@YUfb]b[Ci hWca Yg'5ggYggYX
h!7'Ugg':]a '5bU'mg]g'HYgh	')	%&#/\$#&\$%- '\$- .\$\$'5A	%z&z(
F YgYUfW'9ggUm) \$	&- #/6/#&\$%- '%%\$\$'DA	%z&z z(
F YgYUfW'D'Ub'	%)	&&#/#&\$#&\$%- '%%\$\$'DA	&z z(

5ggYgga Ybh8YHJ]g

5ggYgga Ybh% 'h!7'Ugg':]a '5bU'mg]g'HYgh

GHUfhXUH'. %&#/\$#&\$%- '\$- .\$\$'5A

8YHJ]g. (' \$'a]bi h'g'd'i g%'\$'a]bi h'g'fYUX]b[#]Yk]b['h]a Y''Gh XYbhg'UFY'g\ck b'U'g\cfh]Z'a 'gYei YbW' UbX'i bXYfU_Y'U'WcgY'UbU'mg]g'UbX']bh'fd'fYU]cb'cZ'hY'gYei YbW'XfUk]b['cb'_YmWcbW'dhg]b]f'cXi W'X]b'hY'Wci fgY'fYUX]b[g'UbX''YW' fYg'Gh XYbhg'fYW'] Y'k f]hY'b'ZYXVUW_z'fi Vf]WUbX'bi a Yf]WU' [fUXY''

Hi fb]h]b'gYH]b[. H\]g]g'bchU'Hi fb]h]b'Ugg][ba Ybh

5ggYgga Ybh&. F YgYUfW'9ggUm

GHUfhXUH'. Bch5dd']WV'Y

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

8YHJ]g. '&\$\$\$'k cfXg''Gh XYbhg'fYW'] Y'k f]hY'b'ZYXVUW'_UbX'bi a Yf]WU' [fUXY''Gh XYbhg'fYW'] Y'k f]hY'b'ZYXVUW_z'fi Vf]WUbX'bi a Yf]WU' [fUXY''H\]g:]g'hY'Z]bU'UggYgga YbhUg_g''

Hi fb]h]b'gYH]b[. H\]g]Ugg][ba Ybh]g'gi Va]hY'X'h'fci [\ 'Hi fb]h]b'UbX'gh XYbhg'Xc'bc'hgY'Hi fb]h]b'g]a]Uf]m'fYdc'f'g''

5ggYgga Ybh' . F YgYUfW'D'Ub

GHUfhXUH'. Bch5dd']WV'Y

8YHJ]g. 'Gh XYbhg'k]''Vf]b['hc'U'Wca di 'gc'fmiWcbgi 'hU]cb'k]h'hY]f'hc'f'U'XYHJ]YX'k f]hY'b'd'Ub'Zc'f'hY'

F YgYUfW 9ggUm]bX]W]h]b['h\Y'YI hYbhcZfYgYUfW 'i bXYfU_Yb'UbX'ghfi Wfi fY'cZhY'Uf[i a YbhdcdcgYX"
Gh XYbtg'fYW]j Y'U'bi a Yf]W]'[fUXY'UbX'j YfVU'ZYXVUW_"

Hi fb]h]b'gYh]b[. H\]g]g'bchiU'Hi fb]h]b'Ugg][ba Ybh

K YY_- . %Bcj Ya VYf! %) 'Bcj Ya VYf	GWYYb]b[l WdU]_ WefWd: Sd_ a` [Mef 6Å`U`Huffž&\$\$\$ž%() a]log"
	@YWh fy	8YUX`H]a Y
	Hi hcf]U`	F YUX]b[g. `5bXf½g`6½]bh? cj ½gž`7 \UdhYf` (. `H\Y Huff`GhmY`]b`9j c`i`hcb`UbX`7 \UdhYf` . `B UffU]hcb`]b h\Y`Huff:]a gž`]b`FZW5[`W_ S aX4 `S F Sddf@cbXcb UbX`BYk `Mcf_ `K U`Zck Yf`DfYggž&\$% Ł
K YY_ %\$. % 'Bcj Ya VYf! &&'Bcj Ya VYf	=bHYbg]j Y	9ggUmGi f[Yf]Yg

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

5`fYei]fYX`fYUX]b[g`Zcf`h]g`Wci fgY`UfY`Uj U]UV`Y`j]U`h`Y`@Y[Ubhc`b_]b`A ccX`Y"

F YWca a YbXYX`F Ygci fWg

5XX]h]cbU`fYUX]b[g

8i X`Ym5bXfYk ``3`Vd 4SI [fBYk`Mcf_`C I ZcfX`I b]j Yfg]mDfYggž%`+ , Ł

8i X`Ym5bXfYk ``8[^ [fZW3gdS aX3dfDf]bWfhcbžB>`Df]bWfhcb`I b]j Yfg]mDfYggž%` , (Ł

8i X`Ym5bXfYk ``fYXŁA bW [Y 4SI [, Baefi Sd8[^ FZWack S`V ;fe 3XWd]XWfC I ZcfX. `C I ZcfX`I b]j Yfg]mDfYggž`&\$%Ł

5bXfÅ`6Un]b``4SI [SfI`ad] , ? S`ad7eeSke S`V DWh]W e 8da_ fZW8ad]W S`V 8[X]WēžhfUbg`UHfX`5`U]bD]YHf`UbX`6Yfh7UfXi ``c`fBYk`Mcf_`UbX`@cbXcb. `F ci hYX[Yž%`- +Ł

5bXfÅ`6Un]b``H\Y`A mħ`cZA cbg]Yi f`J YfXci I ``]b`I ZSf[e 5 [W_ S1J c```="

F c`UbX`6UfhYg"5S_ WdS >gU[VS``fBYk`Mcf_`<]``UbX`K Ub[ž%` , \$Ł

ŁŁ`7\UfbYmUbX`J UbYggU`F ``GWk Ufmž`b]fcXj

H\Y`Wti fgY`i gYg`A m9I dYfJYbW`gh XYbhZYXVUW`Ug`dUfhcZU`Wtbi U`ja dfcj Ya YbhdFcW`gg"

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`hgL`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`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 bXYfghUjX'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'UjX'5W'W'dhUV'Y'I gY'cZ
I BGK '⇒H'F'Ygci f'W'g'Dc']W'h
- VY'Uk UfY'cZ'Y'ghUjX'UfX'g'cZVY\Uj]ci f'YI dY'W'X'cZYj Yfmc'bY']b' h'Y'I BGK 'W'a a i b]m
- 'cW'U'Y'gY'fj]W'g'UbX']b'Z'c'f'a U'h'c'b'U'V'c'i h'i BGK 'UbX'I BGK '@]V'f'U'f'm

Gca Y'cZ'Y'gY'UfY'Ug'k]''VY'Z'Ja]]Uf'hc'mci ž'c'h'Y'f'g'k]''VY'b'Yk "'; U]b]b['U'gc']X'i bXYfghUjX]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]Y'g'U'hl BGK ""

[\h'c'.#\]j V'Y'W'f'i \]X'Y'g'' \]V'f'U'f'm'i b'g'k "Y'X'i "U'i #' \]g'Y'#\]V'c'i h'Y' \]g'Y](#)

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 BGK`<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Vc]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

[\hfdg.#k k k "Ufmg"i bgk "YXi "Ui #W ffYbh\]ghi XYbh\]bZcfa Uh\]cb`dfc\]Vc`g!\[i \]XY`\]bYg#](#)