



ARTS2150

H\Y'A U_]b['cZHfi a dfg'5a Yf]WU

HYfa 'H\fYY''##'&\$&\$

7ci fgY`Cj Yfj]Yk

GhJZ`7cbhJW`8YhJ`g

7cbj Ybcfg

B Ua Y	9a U`	5j U]UV]`]m	@cWjhcb	D\cbY
8Ub]Y`:`Ya]b[X"ZYa]b[4 i bgk "YXi "Ui	9a U]`rc`UffUb[Y`Ub Uddc]bha Ybh		

GWxcc``7cbhJW`bZcfa Uh]cb

GWxcc``cZ<i a Ub]h]Yg`UbX`@Jb[i U[Yg

7ci fgY'8YHJ`g

7fYX]hDc]bng`*`

Gi a a UfmicZ`h`Y`7ci fgY

H\Y`Y`YW]cb`cZ8cbU`X`Hfi a d`tc`h`Y`I`b]h`X`G`H`U`g`d`f`Y`g]X`Y`b`W`h`\][`\\`[`\\`hg`[`Ud]b[`f]Z`g`]b`h`Y`g`c`W`Y`h`m`i`U`b`X`d`c`]h]V`g`c`Z`h`Y`V`c`b`h`Y`a`d`c`f`U`f`m`i`b]h`X`G`H`U`g`"8`Y`W`X`Y`g`c`Z]b`W`Y`U`g]b[`]b`Y`e`i`U`]m`z`[`c`V`U`]g`U`h]c`b`U`b`X`W`h`f`U`V`c`b`Z]h`V`Y`h`k`Y`Y`b`f`Y`][`]c`i`g`V`c`b`g`Y`f`j`U`h]j`Y`g`z`]V`Y`f`U`f]U`b`g`U`b`X`k`\\`U`h`5`a`Y`f]W`U`b`g`W`U`f]V`Y`f`U`g`f`U`j`Y`Y`Z`h`5`a`Y`f]W`U`b`d`c`]h]V`g`U`b`X`g`c`W`Y`h`m`i`a`c`f`Y`X`j`]X`Y`X`h`U`b`]h`U`g`V`Y`Y`b`Z`c`f`\\`U`Z`U`W`b`h`f`m`i`5`h`h`Y`g`U`a`Y`h`a`Y`z`h`Y`I`b]h`X`G`H`U`g`f`Y`a`U]b`g`h`Y`k`c`f`X`f`g`[`f`Y`U`h`g`h`d`c`k`Y`f`z`Y`I`Y`f`V]g]b[`U`b`Y`b`c`f`a`c`i`g`g`U`m]b[`c`V`U`[`c`j`Y`f`b`U`b`W`z`Z`c`a`Y`V`c`b`c`a`]V`g`h`c`h`Y`Y`b`j`]f`c`b`a`Y`b`h`H`\\]g`V`c`i`f`g`Y`I`d`c`f`Y`g`_`Y`m`Y`Y`a`Y`b`h`g`]b`h`Y`a`U_]b[`c`Z`H`f`i`a`d`f`g`5`a`Y`f]W`U`":`c`W`g]b[`d`U`f`h]W`U`f`m`i`c`b`h`Y`d`Y`W`U`f`&\$`h`!`W`b`h`f`m`i`G`\\]g`h`c`f]Y`g`c`Z`W`U`g`g`z`f`U`W`z`f`Y`][`]c`b`U`b`X`[`c`V`U`Y`b[`U[`Y`a`Y`b`h`z`m`c`i`k`]Y`U`f`b`\\`c`k`h`Y`k`c`f`X`f`g`c`X`Y`g`h`]V`Y`f`U`X`Y`a`c`W`U`W`h`\\`U`g`V`Y`V`c`a`Y`g`i`V`X`U`j`]h`U`U`b`X`Z`U`i`[`h`i`Z`c`f`W`]b`h`Y`V`c`b`h`Y`a`d`c`f`U`f`m`k`c`f`X`"

7ci fgY`@YUfb]b[`C`i`h`V`c`a`Y`g

%`5`b`U`m`g`Y`_`Y`m]X`Y`U`g`z`Y`j`Y`b`h`g`z`d`Y`c`d`Y`z`U`b`X`X`Y`j`Y`c`d`a`Y`b`h`g`]b`f`Y`U`h]c`b`h`c`a`c`X`Y`f`b`5`a`Y`f]W`U`b`\\]g`h`c`f`m`i`&`"9`j`U`i`U`h`f`Y`Y`j`U`b`h`\\]g`h`c`f]c[`f`U`d`\\`m`U`b`X`f`Y`U`h`X`g`W`X`c`U`f`m`]h`Y`f`U`h`f`Y`" ` "9`I`d`U]b`\\]g`h`c`f]W`U`"e`i`Y`g`h]c`b`g`i`g]b[`Y`j`]X`Y`b`W`!`V`U`g`Y`X`U`f[`i`a`Y`b`h`g`V`U`g`Y`X`c`b`]b`X`Y`d`Y`b`X`Y`b`h`i`m`c`W`U`h`Y`X`d`f]a`U`f`m`U`b`X`g`Y`V`c`b`X`U`f`m`g`c`i`f`W`g`" ("7`c`a`a`i`b]W`U`h`Y`]X`Y`U`g`h`f`c`i`[`\\`k`f]h]b[`U`b`X`c`f`U`d`f`Y`g`Y`b`h`U`h]c`b`"

HYUWX]b[`G`h`f`U`h`[`]Y`g`

H\Y`h`Y`U`W`X]b[`Z`c`f`a`U`h`c`Z`h`]g`V`c`i`f`g`Y`]b`W`i`X`Y`g`Y`W`h`f`Y`g`U`b`X`h`i`h`c`f]U`g`"H`\\]g`V`c`i`f`g`Y`Y`a`d`c`m`g`U`h`Y`U`W`X]b[`g`h`f`U`h`[`m`i`h`U`h`i`g`Y`g`W`f`f`Y`b`h`U`Z`U]f`g`U`g`U`V`c`b`g`h`U`b`h`i`c`i`W`X`g`h`c`b`Y`h`c`\\`Y`d`g`h`i`X`Y`b`h`g`h`c`i`g`Y`\\]g`h`c`f`m`i`h`c`i`b`X`Y`f`g`h`U`b`X`h`Y`d`f`Y`g`Y`b`h`H`\\]g`U`d`d`f`c`U`W`X`U`g`c`h`Y`U`W`X`Y`g`m`c`i`h`c`i`g`Y`\\]g`h`c`f]W`U`]b`Z`c`f`a`U`h]c`b`h`c`Y`b[`U[`Y`W`f]h]W`U`m`i`k`]h`[`c`j`Y`f`b`a`Y`b`h`g`d]b`z`a`Y`X]U`V]U`g`z`U`b`X`d`c`d`i`U`f`g`h`Y`f`Y`c`h`m`d]b[`"H`\\Y`U`W`h]j`]h]Y`g`]b`h`Y`V`c`i`f`g`Y`U`f`Y`V`i`]h`U`f`c`i`b`X`U`W`h]Y`d`U`f`h]W`d`U`h]c`b`U`b`X`Y`b[`U[`Y`a`Y`b`h`h`f`c`i`[`\\`U`f`U`b[`Y`c`Z]b`X`j`]X`i`U`U`b`X`[`f`c`i`d`!`V`U`g`Y`X`U`W`h]j`]h]Y`g`"

ghUbxUfXg'cZUggYgga YbhVUgYX'cb. i bXYfghUbx]b['cZhY'hd]W'i gY'cZ\]gfcf]c[fUd\m'ghfYb[h'cZ
fYgYUfWk/ghfYb[h'cZUf[i a Ybh'k f]hYb'YI dfYgg]cb/fYZfYbW]b[/UbX'dfYgYbhU]cb"

Hi fb]hb'gYh]b[. H\]g'Ugg][ba Ybh]g'gi Va]hYX'h'fci [\ 'Hi fb]hb'UbX'ghi XYbhg'WU]b'gYY'Hi fb]hb'g]a]Uf]hm
fYdcf]g"

5ggYgga Ybh' . 5H\ca Y'Z]bU'YI Ua]bU]cb

GHUfXUH' . : cfa U'9I Ua 'DYf]cX

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

8YhU]g.

%'\$\$\$'k cfXg" Gh XYbhg'k]'Ubgk Yf'cbY'h'ghei Ygh]cb'hU]k]'VY'VUgYX'cb'hY'cbY'cZhY'a U]b'hYa Yg'cZ
hY'W'i fgY'hU]h\Ug'VYYb'UbU'mgYX']b'fYUX]b[gzh'hc]U'g'UbX'YW'i fYg"

Gh XYbhg'k]'fYW]j Y'U'a Uf_'UbX'ZYXVUW_'VUgYX'cb'hY'fi Vf]WZ'ca 'Hi fb]hb'"H\Y'fi Vf]Wk]'ci h]bY'hY
ghUbxUfXg'cZUggYgga YbhVUgYX'cb. i bXYfghUbx]b['cZhY'hd]W'i gY'cZ\]gfcf]c[fUd\m'i gY'cZY]XYbW /
ghfYb[h'cZUf[i a Ybh'k f]hYb'YI dfYgg]cb/fYZfYbW]b[/UbX'dfYgYbhU]cb"

Hi fb]hb'gYh]b[. H\]g'Ugg][ba Ybh]g'gi Va]hYX'h'fci [\ 'Hi fb]hb'UbX'ghi XYbhg'WU]b'gYY'Hi fb]hb'g]a]Uf]hm
fYdcf]g"

F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

H\]g:k]`VY`a UXY`Uj U]`UV`Y`cb`A ccX`Y`UbX`@Y[Ubtc"

F YWca a YbXYX`F Ygci fWg

H\]g:k]`VY`a UXY`Uj U]`UV`Y`cb`A ccX`Y`UbX`@Y[Ubtc"

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

=k Y`Wca Y`mci f`ZYXVUW`_j]U`A m9I dYf]YbW"

Gi Va]gg]cb 'cZ5ggYgga YbhiHUg_g

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

Ʒmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UH'Ya dh]b['hc'gi Va]hmc i f'Ugg][ba YbhiH'fci [\ 'Hi fb]h]bž'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'fl *) 'XUmg'U'mYUfl" Ʒmci
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhiXi Y'hc'U'Zi 'hk]H'Hi fb]h]b'mci 'a UmUdd'm'Zcf'Ub'YI HYbg]cbž'Vi hmc i
a i ghfYHU]b'mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]H'UbmcH'Yf'fY'Yj UbhXcW a YbHg'k'hc
]bWi XY'Ug'Yj]XYbVW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd'jW]h]cb" Ʒmci 'Ya U] '9I HYfbU'Gi ddcfhmc i 'k]
Ui 'ca UH]W]m'fYW]j Y'U'h]W_Yhbi a VYfž'Vi h]Zmci 'HY'Yd\cbY'mci 'k]'bYYX'hc'gdYW]Z]W]m'Ug_ 'Zcf'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUH'g'cb'H'Y]f'gmgh'Ya 'ghU'hi g'cb'Hk]HYf"

; YbYfU'mž'UggYgga YbhiHUg_g'a i ghVY'gi Va]HYX'Y'YW'fcb]W]m'j]U'Y]H'Yf'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba YbH' 'b]bg]UbVW'g'k \YfY'H'g]g'bc]hdccg]V'Yž]hk]'VY'ghUH'X'cb'mci f'Wci fgY'g'A ccX'Y'g]H'k]H
U'HYfbUH] Y'gi Va]gg]cb'XYHU]g"

: cf]bZ'fa UH]cb'cb'\ck 'hc'gi Va]hUgg][ba YbHg'cb]bY'j]U'A ccX'Y. \Hdg.#gh XYbH'i bgk "YXi "Ui #ck!
gi Va]hUgg][ba YbH'a ccX'Y

5 WUXYa]W< cbYgmiUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i`g]b[`h`Y`k`c`f`X`g`c`f`]X`Y`U`g`c`Z`c`h`Y`f`g`i`U`b`X`d`f`Y`g`Y`b`h]b[`h`Y`a` `U`g`m`c`i`f`c`k`b`" `#`W`U`b`h`U`_`Y`a` `U`b`m`
Z`c`f`a`g`Z`Z`c`a` `X`Y`]V`Y`f`U`h`Y` `W`X`Y`U`h]b[`h`c` `U`W`W`Y`X`Y`b`h`U` `m`i`W`c`d`m]b[`Z`c`a` `U`g`c`i`f`W` `k`]h`c`i`h`U`W`_`b`c`k` `Y`X[`Y`a` `Y`b`h`

I`B`G`K` `[`f`c`i`d`g`d`U[]Uf]ga `]b`h`c` `h`Y` `Z`c` `c`k`]b[`W`U`h`Y`[`c`f`]Y`g.

- 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 Yfmcby'jb'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'fg'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 cghcZmci f'gh X]Yg'Uhl BGK ""

[\h'hd.##ji V'Y'W'i \]X'Y'g''\]VfUfm'i bgk "YXi "Ui #' \]gY#J'Vci h' \]gY](#)

