



# ARTS1570

hfcXi Wc fmGdUb]g\ '5

HYfa 'CbY' '# '&\$&%

7ci fgY`Cj Yfj ]Yk

GHJZZ7cbHJW`8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]UV]`]m	@cW]h]cb	D\cbY
B UHJ]U`C fh]n 7 YVYf]c	b"cf]h]nWVYf]c4 i bgk "YXi "Ui	6mUddc]b]h]a Ybh	A cfj Yb`6fck b 6i ]X]b[	dfYZffYX W`bHJW`Vm Ya U]`

GWXcc``7cbHJW`bZcfa U]h]cb

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

@cW]h]cb. `GWXcc``C Z]W]Z`A cfj Yb`6fck b`6i ]X]b[ ž`@Yj Y``&ž&),

CdYb]b[ `<ci fg.`A cbXUm!`: f]XUmž`- Ua `!`) da

D\cbY. `ž`\*%&`-`' , ) `%\* , %

: Ul. `ž`\*%&`-`' , ) `; , +\$)

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

7 ci fgY'8YHJ]`g

7 fYX]h'Dc]bhg '\*`

Gi a a UfmcZh\Y'7 ci fgY

[ fci d'X]gW gg]cbgž'UbX'fUg\_cf]YbHYX'UWŋj ]hYg' ]b'dU]fg'UbX' [ fci dg'' b'mci f'YWŋ fYgž'hi hcf]U'g'UbX''j] Y  
Wt'UWŋ]b[ 'mci 'k ]''VY'Yb[ U[ ]b[ ' ]b.

- GdYU\_]b[ 'UWŋj ]hYg
- ; fUa a Uf'UWŋj ]hYg
- K f]h]b[ 'UWŋj ]hYg
- F YUX]b[ 'Wt'a dfY\Ybg]cb'UWŋj ]hYg fY'UH'X'hc'h'Y'h'Ya Yg'gh X]YX
- '5i X]c!j ]gi U'Wt'a dfY\Ybg]cb'UWŋj ]hYg

## 5ggYgga Ybh

H\]g]g'U\*I c7 `Wci fgY""Gh XYbfg`UFY`YI dYVW`X'hc`]bj Ygh%) \$\`ci fg`cZgh XmiFl UW`hc`ZJW`cf`Uh\ca YL"

Mci `bYYX'hc`Wca d`YH`h`Y`k YY\_`m\ca Yk cf\_`]b`dfYdUfU]cb`Zcf`mci f`K YV`YW`i fYg`UbX`h`hc`f]U`"  
7ca d`YH`k YY\_`mUW]j`]hYg`]b`A ccX`Y"

@YUfb`h`Y`hc`d]WfY`UH`X`j`cW]Vi`UfmiUbX`[ fUa`a`Uf`VY`Zc`fY`mci f`h`hc`f]U`""5VgYbW`hc`Y`W`i fYg`cf`K`YV`XY`]j`YfmYbfc`a`Ybhg\ci`X`bchVY`Ub`YI`W`gY`hc`Wca`Y`hc`h`hc`f]U`g`i`bdfYdUfYX"

H\Y`UW]j`]hYg`UbX`fYgci`fW`g`Zc`f`h`g`Wci`fgY`UFY`Uh`5%`@Y`j`Y`f7ca`a`cb`9i`fcdYUb`:`fUa`Yk`cf\_`cZ`FY`ZY`fYbW`Zc`f`@Ub`[`i`U`[`Ygk`

@Ub`[`i`U`[`Y`cZ`]bgf`fi`W]cb`]b`h`hc`f]U`g`]g`GdUb`]g`\`"

## 5ggYgga YbhHUg\_g

5ggYgga YbhHUg_g	K Y][ \h	8i Y`8UH`	Gh XYbh@YUfb]b[ Ci hWca Yg`5ggYggYX
K f]h]b[ `hYgh`	` `) i	K YY_`%\$	%ž`&
h!7`Ugg`E`i`]n`	&) i	K YY_`)	%ž`&ž`(`
C fU`	&\$i	: ]bU`]b`k`YY_`-`	%ž`&ž`'`
9!DcfhZ`c`c`	&\$i	k YY_`m`	&ž`'`ž`(`

## 5ggYgga Ybh8YHJ]`g

5ggYgga Ybh%`K`f]h]b[ `hYgh`

GHUfhXUH`. `K`YY\_`%\$`

@Yb[`h`. `%)`\$!`!`&\$`\$`k`cfXg`"(``\$`a`]bi`hYg`Xi`f]b[ `WUgg`h]a`Y`"

8YHJ]`g.`

G\cfhYggUmif%)`\$!`&\$`\$`k`cfXgž`(``\$`a`]bi`hYg`Xi`f]b[ `WUgg`h]a`Y`"

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

Mci`k`]`bYYX'hc`gi`Va`]hU`g\cfhk`f]hYb`k`cf\_`" `h`Wci`X`VY`Ub`Ya`U`]ž`U`Y`hY`fž`U`X]Ufmc`f`V`c`[ `Yb]fmž`Y`hW`K`Y`k`]`k`cf\_`cb`h`g`hmd`Y`cZ`hY`hY`g`Xi`f]b[ `h`Y`Wci`fgY`"

5ggYgga Ybh&.`h!7`Ugg`E`i`]n`

GHUfhXUH`. `K`YY\_`)

@Yb[`h`. `"\$`a`]bi`hYg`"

8YHJ]g.

H\Y`ei ]n`a UmVY`hYgh]b[ `j cWUVi `Ufmž[ fUa a UfžW`h fYž`]gh]b]b[ žfYUX]b[ `UbX#cf`k f]h]b[ `g\_]`g"@Yb[ h.` \$  
a ]bi hYg"H\Y`ei ]n`a Um]bWm XY`gYj YfU`hmdYg`cZei Ygh]cbg`gi W\ Ug`"Z`"b`hY`V`Ub\_g`ž`a i`hd`Y`W\c]Wž  
g\cfh]Ubgk Yfgž`YhW"

: YYXVUW`dfcj ]XYX`j ]U`F i Vf]Wgžk f]h]b`Wca a Ybhg`UbX`]b!WUgg`ZYXVUW`"

5XX]h]cbU`XYHJ]g.

E i ]n`Xi f]b[ `hY`gYWcbX`h hc]f]U`

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

5ggYgga Ybh`. `CfU`

Gh]fhXUH. `K YY`" !`Cb[ c]b[

@Yb[ h.` j Uf]Yg

8YHJ]g.

5`g\cfh]cfU`hYgh`C b[ c]b[ `UbX`Z]bU`f) `a ]bi hYgk`VmUddc]bha Ybh`

CfU`ZYXVUW`UbX`a Uf\_g`dfcj ]XYX"

5XX]h]cbU`XYHJ]g.

H\]g`hYgh`Ug`&`Wca dcbYbhg.

- #`WUgg`h hc]f]U`f%\$i Ł
- : ]bU`hYgh]b`k YY`-`f%\$i Ł

8YHJ]g.

@Yb[ h. j Uf]Yg

8YHJ]g.

Dcfh`c`cZk YY\_mcb`]bY`UW]j ]hYg"@Yb[ h`Ufci bX`%` `a ]bi hYg`dYf`k YY\_žghUfh]b[ `Zca `k YY\_`%"

: YYXVUW`dfcj ]YX`cb`]bY"

5XX]h]cbU`XYHJ]g.

9j Yfmk YY\_mci `bYYX`hc`Wca d`YH`YI YfW]gYg`Zca `mci f`6CC? `J #H5A #B5`5%`H\YgY`YI YfW]gYg`UfY`dUfh`cZ`hY`YW`i fYgž`h`hc`f]U`gž`UbX`K`99?`@M\ca`Yk`cf`\_"

9LD97H98`H9LHG.`J #H5A #B5`5%`@ž9>"

Mci f`9DCFH: C`@`C`k`YY`mk`cf`\_`UbX`fYgci`fW]g`UfY`]b`mci`f`hY`hifYgch

%o







# F Ygci fWg

## DfYgWf]VYX`F Ygci fWg`

9j Yfmk YY\_`mci `bYYX`hc`Wca d`YH`YI YfWgYg`Zca `mci f`6CC?`J #H5A`B5`5%"`H\YgY`YI YfWgYg`UfY`dUfhcZ`hY`YWi`fYgZ`h`hc`f]U`gZ`UbX`K`99?`@M\`ca`Yk`cf`\_`"

9LD97H98`H9LHG.`J #H5A`B5`5%"`

Mci f`9DC`F`H: C`@`€`ž`k`YY\_`mik`cf\_`ž`UbX`f`Ygci`f`Wg`UfY`]b`mci`f`H`I`h`UbX`YI`YfWgY`Vcc\_`gž`h`YfY`Zc`fY`mci`bYYX`h`YgY`Vcc\_`g`cb`X`Umicb`Y`k`YY\_`%"`6`ch`ž`h`Y`X][`]H`H`I`h`UbX`YI`YfWgY`Vcc\_`ž`Vc`gh`U`hc`h`U`c`Z`~`&(`Uddfci`f`l`G`E`"

%"`Di`f`W`UgY`h`Y`X][`]H`Vcc\_`g`cb`h`hdg`#`g`d`cd`V`]b`\_`Y`Ufb]b[`"Wca`!`@`cc\_`Zc`f`J`#H5A`B5`5%`5`ž`9`>`"

&`"C`b`W`mci`h`Uj`Y`h`Y`Vcc\_`g`c`]b`ci`f`W`Ugg`B`HF`C`8I`7`HC`F`M`5`k`]h`h`Y`Z`c`k`]b[`W`e`X`Y`g`"

HI`HC`F`5`@`D`5`F`7`U`gg`7`c`XY.`7`@`&`%`(`%`,`+`,`)`

HI`HC`F`5`@`8`5`@`5`7`U`gg`7`c`XY.`7`@`\*`+`)&`,`+`,`'`"

C`b`W`mci`c`]b`Y`X`h`Y`W`Ugg`k`]h`h`Y`U`V`c`j`Y`W`e`X`Y`g`ž`U`b`Y`k`J`#H5A`B5`5%`Vcc\_`k`]`g`l`c`k`U`g`D`9`F`G`C`B`5`@`N`5`8`C`c`f`7`I`G`H`C`A`N`9`8`ž`i`g`Y`X`H`<`5`H`Vcc\_`Zc`f`mci`f`ca`Yk`cf`\_`cf`Y`g`Y`k`cb`f`f`i`f`Y`W`e`f`X`mci`f`a`U`f`\_`g`"9I`d`c`f`Y`h`Y`Vcc\_`g`hc`[`Y`h`Z`J`a`]]`U`f`k`]h`U`h`Y`U`W`j`]h`Y`g`"H`h`g`g`]h`Y`[`]`Y`g`mci`U`W`W`g`g`hc`h`Y`f`]`W`h`c`c`g`UbX`f`Ygci`f`W`g`Uj`Uj`U`V`Y`Zc`f`h`]g`h`I`h`"

<U`f`X`W`e`d`]`Y`g`U`f`Y`U`j`U`j`U`V`Y`U`h`h`Y`I`B`G`K`Vcc\_`g`hc`f`Y`"H`h`Y`h`U`f`X`W`e`d`m`j`Y`f`g`]`c`b`]`b`W`i`X`Y`g`U`W`e`X`Y`h`c`c`]`b`h`Y`X`][`]H`d`U`h`Zc`fa`U`b`X`U`h`Y`f`Ygci`f`W`g`"

[\`hdg`#`k`k`k`"Vcc\\_`g`l`cd`i`bgk`"Y`X`i`"U`i`#`Y`h`j`\]`g`"W`\]3`#`9`A`B`C`1`-`+`,`\\_`,`\(`%`\\*`,`+`,`&`,`'`,`\)`&`"](#)

[\`hdg`#`k`k`k`k`"Vcc\\_`g`l`cd`i`bgk`"Y`X`i`"U`i`#`Y`h`j`\]`g`"W`\]3`#`9`A`B`C`1`-`+`,`\\_`,`\(`%`\\*`,`+`,`&`,`'`,`\\*`,`-`,`\)`&`"](#)

#`A`D`C`F`H`5`B`H`!`M`c`i`A`I`G`H`h`U`j`Y`h`Y`g`Y`Vcc\_`g`cb`X`U`i`%`k`YY\_`%"`

## F YWca a YbXYX`F Ygci fWg

G`Y`Y`ci`f`A`c`c`X`Y`7`ci`fg`Y`Zc`f`Z`f`h`Y`f`f`Ygci`f`W`g`"

7`ci`fg`Y`9`j`U`i`U`h`]`c`b`U`b`X`8`Y`j`Y`c`da`Y`bh`

7`ci`fg`Y`g`U`f`Y`d`Y`f`]`c`X`]`W`]`m`i`f`Y`j`]`Y`k`Y`X`U`b`X`g`h`X`Y`b`h`g`'Z`Y`X`V`U`W`\_`]`g`i`g`Y`X`h`c`]`a`d`f`c`j`Y`h`Y`a`"`"

:`Y`Y`X`V`U`W`\_`]`g`[`U`h`Y`f`Y`X`Zc`a`g`h`i`X`Y`b`h`g`i`g`]`b[`a`m`9I`d`Y`f`]`Y`b`W`"`h`i`]`g`Y`b`W`ci`f`U[`Y`X`g`h`i`X`Y`b`h`g`W`e`a`d`Y`h`h`Y`f`"

gi fj Ymg:VmiUWVgg]b[ 'hY'dYg Yg Yg Yg Yg Yg

Y

Y

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Yg Y

Gi Va ]gg]cb 'cZ5ggYgga YbhiHUg\_g

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

Ẓmci 'YbWci bHYf'U'dfcV'Ya 'k \Yb'UHYa 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'fI \*) 'XUmg'U'mYUfI" Ẓmci  
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 UmiUdd'm'Zc'f'Ub'YI HYbg]cbž'Vi hmc i  
a i ghfYH]b'mci f'h]W'Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb[ 'k ]H'Ubmich'Yf'fY'Yj UbhXcW a Yb'gk'hc  
]bWi XY'Ug'Yj ]XYbW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd'j]W]h]cb" Ẓmci 'Ya U] '9I HYfbU'Gi ddcfhmc i 'k ]`

## 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] ]hYg'Ug'U'gh XYbhUhl BGK
-

# 5 WUXYa ]WbZcfa Uh]cb

: cfYggYbh]U`gh XYbh]bZcfa Uh]cb fY`Uh]b[ `tc.

- fYei Ygh]Zcf`YI H`bg]cb/
- `Uh`gi Va ]gg]cbg`[ i ]XY`]bYg/
- fYj ]Yk `cZa Uf\_g/
- I BGK `<YU`h`UbX`GUZ`mdc`]WYg/
- YI Ua ]bUh]cb`dfcW`Xi fYg/
- gdYW]U`W`bg]XYfUh]cb`]b`h`Y`Yj YbhicZ`]`bYgg`cf`a ]gUXj Ybh fY/
- gh XYbhYei ]m]UbX`X]gUV`]m/
- UbX`c`h`Yf`YggYbh]U`UWUXYa ]W]bZcfa Uh]cbz`gYY

[\ftdg.#k k k "Uftg"i bgk "YXi "Ui #W ffYbhgh XYbh\]UWUXYa \]W\]bZcfa Uh\]cb#dfchW`g`\[ i \]XY`\]bYg#](#)

⇒ U[ Y`7 fYX]h

D\ch`Vm[F`cXc`Z`7`\]](#) `fca [DYI`Y`g](#)

7F ⇒ CG

7F ⇒ CG`Dfcj ]XYf`7cXY.`\$\$\$-.,;

5W\_bck`YX[ Ya YbhicZ`7ci b]fm

K Y`UW\_bck`YX[ Y`h`Y`6YXY[ U`dYcd`Y`k`c`UfY`h`Y`fUX]h]cbU`W`ghcX]Ubg`cZ`h`Y`UbXg`cb`k` \]W`I`BGK  
?Ybg]b[ hcb`W]a`di`g`]g`cW]h`Y`X"