



# ARTS1450

ϠhfcXi Wc fm7 \]bYgY '5 'Zcf' Bcb!6UW\_[ fci bX'Gh XYbhtg

HYfa 'Cby''##'&\$&%

7ci fgY`Cj Yfj ]Yk

GHJZZ7cbHJW`8YHU]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
5#DfcZ`D]b[ `K Ub[	d"k Ub[ 4 i bgk "YXi "Ui	VmUddc]bħa Ybh	A 6&' *	- ' , ) ' ( ) %

Hi ħcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@cW]h]cb	D\cbY
8f`Mcb[ !>i `Fi Y	m`fi Y4 i bgk "YXi "Ui		A 6&*,	- ' , ) \$) %
8f`M]b[ `]Gi b	m]b[ `]"gi b4 i bgk "YXi "Ui		A 6&))	- ' , ) &*( \$

GWXcc``7cbHJW`ħZcfa Uh]cb

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

@cW]h]cb. `GWXcc``C Z]W`žA 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](#)

7ci fgY'8YHJ]g

7fYX]hDc]bHg '\*

Gi a a UfmicZhY'7ci fgY

H\]g]g'Ub]bfcXi WcfmWci fgY]b'A cXYfb'GHUbXUfX'7\]bYgY'Ub[ i U[ Y'fA UbXUf]bE'Zc'f'bcbl'VUW\_[ fci bX gdYU\_Yfg'"H\Y'Wci fgY'k]'ghUfhk]h'VUg]WWca dcbYbHg'cZ7\]bYgY'Ub[ i U[ Y.'hY b[ k[ žUbX'WXUfUWYfg" k]j'fYUW' mci '\ck'hY'7\]bYgY'Ub[ i U[ Y'k cf\_g'Vch'[ fUa a Uh]W'mUbX]b'gcWci'W'hi fU'WcbhY' hg'gc hUhmci 'ghUfhc'XYj Y'cd'mci f' ]b[ i ]gh]WUbX'Wca a i b]WU]h] Y'Wca dYh'bwWg'"H\Y'Zci f'Ub[ i U[ Y'g\_]`g! @]ghYb]b[ žGdYU\_]b[ žFYUX]b[ žUbX'k f]h]b[ '! UfY]bHY[ fUH'X'h'fci [ \ci h'hY'Wci fgY'"5'W'hi fU'Uk UfYbYgg ]g'U'gc'Vi ]h]bhc'hY'Wci fgY'"H\fc[ i ]Ub[ i U[ Y'gh] Xminci 'k]'XYj Y'cd'Ub]bZcfa YX'i bXYfg]UbX]b[ 'cZ 7\]bYgY' ]b[ i ]gh]WVY\Uj ]ci fž'gcWYfmUbX'W'hi fY'"

H\]g'Wci fgY]g'U'VY[ ]bbYfg]'Yj Y'Ub[ i U[ Y'Wci fgY'"5'gh] XYbHg'k \c'\Uj Y'\UX'gca Y'Yi dYf]YbW'k]h'hY' 'Ub[ i U[ YžY]h'Y'Ug'U'\Yf]hU[ Y'Ub[ i U[ Y'cf'h'fci [ \d'fYj ]ci g]bgf]i W]cbž'a i gh]Z' ]b'hY'd'UW'a Ybh ei Yg]h]cbU]fY'Uj U]UV'Y'Uh'h'fdg.#'A'U'U'f'f'g'i b'gk "YXi "Ui #gh] XYbHg#Wci fgYg#Ub[ i U[ Y]d'UW'a YbHg'"Mci 'k]' bchVY'dYfa ]hY'X'hc'Ybfc' ]b'U'Ub[ i U[ Y'Wci fgY'h'Uh]g'hc'c'YUgm]Zc'f'mci "'Z'h]g'c'W'W'fgž'mci 'k]'VY fYei Ygh'X'hc'WX'Ub[ Y'mci f'Ybfc'a Ybh'

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

%' F YWci [ b]gYž'dfcbci bW'UbX'k f]h' ]d]bm]b'UbX'WXUfUWYfg'Uh]bfcXi Wcfm'Yj Y' &' I 'gY'Z' `g\_]`g'cZ7\]bYgY'Ub[ i U[ Y'f]ghYb]b[ žFYUX]b[ žGdYU\_]b[ 'UbX'k f]h]b[ E'Uh]bfcXi Wcfm'Yj Y' k ]h]b'hc'd]Wg'fY'Uh'X'hc'Yj YfmXUmdfUWY]W'g]h] Uh]cbg ' "' žYb]h]Z'm'U'Ug]WV]h]W' i bXYfg]UbX]b[ 'cZUgdYW'g'cZ7\]bYgY' ]b[ i ]gh]WVY\Uj ]ci fž'gcWYfmUbX W'hi fY'"

HYUW]b[ 'GhfUH[ ]Yg'

@Ub[ i U[ Y' ]g'VYghUWci ]fYX'h'fci [ \U'\c' ]gh]WUbX]bHYfUW]j Y'Z]g\]cbž'gc'U'Zci f'Ub[ i U[ Y'g\_]`g! ]ghYb]b[ žGdYU\_]b[ žFYUX]b[ žUbX'k f]h]b[ '! Ug'k Y'Ug'U'W'hi fU'Wca dcbYbhUfY]bHY[ fUH'X'h'fci [ \ci h'h]g Wci fgY'"H\Y'Ya d\Ug]g' ]cb'hY'f'UbgZcfa Uh]cb'cZ' ]b[ i ]gh]Wg\_]`g' ]bhc'UW]h] Y'Wca a i b]WU]h]cb'"GdYW]Z]W ]bgf]i W]cbg'UbX'dfUW]W'g'dYf]h]bYbh'hc'YUW'g\_]`g'XYj Y'cda YbhUfY'k c] Yb]bhc'hY'YUfb]b[ 'UW]h]h]Ygž U' ]bYX'k ]h'hY'UggYgga YbHgž'U\_]b[ ]bhc'UW'Wci bh'h'Uh'h]g'Wci fgY]'g'Zc'f'bcbl'VUW\_[ fci bX'VY[ ]bbYfg'"Hc UW]jYj Y'hY'XYg]fYX'YZYWž'YZc'fh'UbX'WUfY'Z' 'd'Ubb]b[ '\Uj Y'VYb'a UXY'hc'U' ]b'ci f'h'UW]b[ 'ghfUH[ ]Ygž a Y'h'cXg'UbX'gh]i W'hi fY'k ]h'hY'U]a g'UbX'YUfb]b[ 'ci hWca Yg'cZ'hY'Wci fgY'"H\Y'Y'W'hi fY'g'f] Yg'Ug'Ub c] YfU' ]bfcXi W]cb'hc'Vch' ]Ub[ i U[ Y'UbX'W'hi fU'UgdYW'g'fY'Yj Ubh'hc'YUW'WX'Ud'h'f'"H\Y'hi hc'f]U'g'Zc'W'g cb'hY' ]bHY[ fUH'X' ]Ub[ i U[ Y'g\_]`g'h'fci [ \Uj Uf]Yh'cZYI YfW]gYg'"5' h'Y'UggYgga YbHgž' ]bW' X]b[ 'WUgg UW]h]h]Yg'UbX' ]fci d' ]bHYfUW]j Y'dfc'Y'W'gž'UfY'gYh'hc'Yb[ U[ Y'gh] XYbHg' ]b'UW]h] Y'YUfb]b[ 'UbX'YZY'W]j Y Wca a i b]WU]h]cb'"5'a i 'h]! a YX]U'UddfcUW'UbX'cb!]bY'UggYgga YbHg'UfY'U'gc'UXcd'h'X'hc'Wca d'Ya Ybh'hY


9I Ua 'DYf]cXŁŻ '%\$i '7ca dcl]hcb'HYghfKcbY'jb'K ? '%\$@YWh FYŁŻ') i 'l' ad]Taa] Wj WdU[eWē fWXYW\_YX  
Xi f]b[ 'Hi hcf]U'gŁ

A cfY'8YHJ]YX'jbZc'ff      ]cb'k ]''VY'dfcj ]YX'k Y'']b'UXj UbW'cb'h\Y'7ci fgY'A ccX'Y'UbX'jb'WUgg"

5ggYgga Ybh' . '7cb    ]bi ci g'UggYgga Ybhg

8YHJ]`g.

H\]g'jbWi XYg'('gYhg'cZcb`)bY'ei ]nnYg'fUfci bX" \$'a ]bi h'g'YUWŁ'UbX'U'B[ k[ 'h'ghfUfci bX'&'a ]bi h'g'dYf  
gh XYbŁ"

Gh XYbŁg[ Yh]bX]j ]Xi U'f      \_g/cfU'UbX'k f]h'Yb'ZYXVUW\_"

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

7cb    ]bi ci g'UggYgga Ybhg'f&) i 'Ł') i 'l' ('cb`)bY'ei ]nnYg'fci hg]XY'cZWUggYgZ'hc'VY'gi Va ]h'X'cb!'`]bY'ŁŻ  
) i b[ k[ 'h'ghfKcbY'jb'K ? '' 'h' hcf]U'Ł"

A cfY'XYHJ]YX'jbZc'ff      ]cb'k ]''VY'dfcj ]YX'k Y'']b'UXj UbW'cb'h\Y'7ci fgY'A ccX'Y'UbX'jb'WUgg"

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





F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

7ca di `gcfmHYI hVcc\_g.

;`fWdSfW 5Z[`WeWFW]fTaa]ž@Yj Y`%DUfh%fG]a d`]ZYX`7\UfUWYfg`J Yfg]cbŁž (h`9X]h]cb

;`fWdSfW 5Z[`WeWI`adjTaa]ž@Yj Y`%DUfh%fG]a d`]ZYX`7\UfUWYfg`J Yfg]cbŁž (h`9X]h]cb

VmHUc!Wxi b[`MjC`UbX`M Y\i U`@] ž`UbX`di V`]g\YX`Vm7\Yb[`/ Hgi ]"ž5j U]UV`Y`Zca

I BGK `6cc\_g\cd"

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F YWca a YbXYX`F Ygci fWg

F YWca a YbXYX.

;`fWdSfW 5Z[`WeW5ZScSufWdI`adjTaa]ž@Yj Y`%DUfh%fG]a d`]ZYX`7\UfUWYfg`J Yfg]cbŁ

VmHUc!Wxi b[`MjC`UbX`M Y\i U`@] ž`UbX`di V`]g\YX`Vm7\Yb[`/ Hgi ]"ž5j U]UV`Y`Zca

I BGK `6cc\_g\cd"

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C hYf`cdh]cbU`fYgci fWg.

hY[ fUHYX`7\]bYgY`J c`i a Y`%K YV`5dd.`

\hdg.##k k k "WXYb[ !hgi ]"Wca #/fck gY#bH[ fUHYX!W]bYgY!(h!YX]h]cb#bH[ fUHYX!W]bYgY!(Y!j c`!%WXYb[ hgi ]!  
k YV!Udd3]X1&%&%&

H\]g`5dd`]bW XYG`8][ ]H`HYI hVcc\_ž5i X]cžJ ]XYcg"``hWcgh]i G8`~ ('`- -`Zcf`U`gi VgW]dh]cb`cZ\*`a cbhlg"``

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C hYf`fYWca a YbXYX`fYgci fWg`UbX`hcc`g`k ]`VY`dfcj ]XYX`cb`hY`7ci fgY`A ccX`Y"``

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



H\]g'Wci fgY'k ]''VY'Zcfa U''mYj U'i UH'X'h'fci [ \ 'A m9l dYf]YbW'z'Ug'k Y''Ug']bZcfa U''mXi f]b[ 'h'Y  
k \c'Y'h'UW' ]b[ 'dfcV'gg'' '5bm]ggi Yg'fU]gYX' ]b'ghi XYbhgf'ZYXVUW'k ]''VY'UXXfYggYX'z'UbX'ghfU'h' [ ]Yg  
hc'Z' fh'Yf'Yb\UbW'h'Y]f''YUfb]b[ 'Yl dYf]YbW'k ]''VY'X]gW'ggYX'k ]h'ghi XYbhg']b'WUgg''

Gi Va ]gg]cb 'cZ5ggYgga YbhiHUg\_g

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

≠mci 'YbWci bhYf'U'dfcV'Ya 'k \Yb'UffYa dh]b[ 'hc'gi Va ]hirci f'Ugg][ ba Ybhih'fci [ \ 'Hi fb]h]bž'd'YUgY

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

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

⇒ U[ Y`7 fYX]h

G\i H`Yfg`hW\_

7F ⇒ CG

7F ⇒ CG`Dfcj ]XYf`7cXY.`\$\$\$- ;

5W\_bck `YX[ Ya Ybhcz7ci bhfm

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