

# ARTS2092

# ; `cVU``AYX]U. AUf\_Yhgž: `ckg'UbX'7i `hifYg

HYfa 'Hk c''#'&\$&%

# 7 ci fgY<sup>-</sup>Cj Yfj ]Yk

### GHJZZ7cbHJWhi8YHJ]`g

#### 7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]m	@c₩Jh]cb	D∖cbY
G₩cthiG∖UbYf	g"g\UbYf4 i bgk "YXi "Ui	C b`]bY'j ]U'Ya U]` UbX'A ccX`Y	gYY A ccX`Y	B #5

#### Hi hcfg

BUa Y	9a U]`	5j U]`UV]`]m	@cWUh]cb	D∖cbY
5mYg\U <sup>-</sup> <ugub< td=""><td>UmYg\U"\UgUb4 i bgk "YXi "Ui</td><td>cb`]bY'j ]U'Ya U]`'UbX</td><td>]b<sup>.</sup>WUgg</td><td>B#5</td></ugub<>	UmYg\U"\UgUb4 i bgk "YXi "Ui	cb`]bY'j ]U'Ya U]`'UbX	]b <sup>.</sup> WUgg	B#5
		A ccX`Y		

#### GWXcc``7cbHJWhi=bZcfaUh]cb

GWXcc``cZhXY`5fhg`UbX`AYX]U

Fcca '' &&ž@Yj Y``' žFcVYfhK YVghYf6i ]`X]b[`f] %(Ł

D\cbY.`f\$&Ł'-',)`(,)\*

9a U]` <u>gUa 4 i bgk "YXi "Ui</u>

K YVg]hY. k k k "Ufhg"i bgk "YXi "Ui #gUa\_

H\Y'GW\cc``cZh\Y'5fhg'UbX'AYX]U'k ci `X``]\_Y'hc'FYgdYW2 ``m5W\_bck `YX[Y'h\Y'HfUX]h]cbU``7i ghcX]Ubgž h\Y'6YXY[U``f?Ybg]b[hcb'WJa di głź; UX][U``f7]hm'UbX'5fh/ '8Yg][b'7Ua di gYgŁ'UbX'h\Y'B[i bbUk U` dYcd'Y'f5i ghfU`]Ub'8YZYbW': cfW'5WJXYa m']b'7UbVYffUŁ'cZh\Y``UbXg'k\YfY'YUW\'WJa di g'cZI\_BGK ']g `cWJhYX"

## 7ci fgY<sup>·</sup>8YHJ]`g

### 7 fYX]h Dc]bhg \*\*\*

#### Gi a a UfmcZh\Y'7ci fgY

fi `cVU``A YX]U. `A Uf\_Yhzi: `ck g`UbX'7 i `h fYgfiZcW gYg`cb'h.Y `fY`Uhjcbg\]d'VYhk YYb`a YX]U`UbX [`cVU`]gUhjcb''`K Y`k]``YI Ua ]bY`h.Y`\]ghcfmcZ]bhYfbUhjcbU``HfUXY'Zck g`]b`Ui X]cj ]gi U``[ccXg`UbX`gYfj ]W'g UbX'YI d`cfY`\ck 'h.YgY`\Uj Y`WLUb[YX'h.fci [\`[`cVU``HfYbXg`hck UfX`fY[]cbU`]gUhjcbz'Wci bhYf`Zck `UbX`h.Y ]bWfYUg]b[`HfUbgbUhjcbU``dfcXi Wjcb`UbX'X]gHf]Vi hjcb`cZa YX]U''BYk`mYa Yf[]b[`Zcfa g`cZW``h fY`UbX ]XYbhJmVUgYX`cb`h.Y`YI dYf]YbW`cZWcga cdc`]hUb]ga z`\mVf]X]miUbX'X]UgdcfU`k]```VY`YI Ua ]bYX`]b`XYhU]``]b fY`Uhjcb`hc`a YX]U`Zcfa g`gi W.`Ug`hY`Yj ]g]cb`Zcfa Uhg`UbX'XfUa U`dfc[ fUa gz`bYhk cf\_YX`a YX]U`Zj`a``UbX a i g]WGh`XYbhg`Vca d`Yhjb[``h.]g`Vci fgY`k]``fYVW]j Y`U`h.cfci [\`[fci bX]b[`]b`h.Y`k Uma YX]U`Vcbhf]Vi hY`hc h.Y`]bhYbg]Z]WUhjcb`cZci f`YI dYf]YbVW`cZh.Y`k cfX`Ug`U`k \c`Yz`k \]W.`k]```dUj Y`h.Y`k UmZcf`Z] fh\Yf`gh`Xm]b ]bhYfbUhjcbU``UbX`HfUbgbUhjcbU``a YX]U"

#### 7cifgY'@YUfb]b['CihWcaYg

- %" =XYbhJZmUbX`Udd`m`\_YmWcbWfdhg`UbX`h\Ycf]Yg`k \]W\`YI d`U]b`h\Y`fY`UhJcbg\]d`VYhk YYb`a YX]U`UbX [`cVU`]gUhJcb
- &" 5 WWci bhZcfih,YifciYi[`cVU``a YX]U'd`Umgi]b'ZcghYf]b[`bYk 'dUhhYfbg'cZW `hi fY'UbX']XYbh]Z]WUh]cbž k \]W\`UfY'bc``cb[Yf'gc`Y`mVUgYX'cb'[Yc[fUd\mž'UbX']b'Xc]b[`gc'UddfYW]UhY'X]j Yfg]hmUa cb[`UbX k]h\]b'W'`hi fYg"
- ' " 8 jgw gg h Y VU UbW VYk YYb h Y fli cVU flubX h Y fcwu fijb X jZYfYbhZcfa g cZa YX U jb fY Uhcb h h Y WcbhYl hcZh Y jf dfcXi Wjcb UbX X ghf]Vi hcb"
- ("=XYbhjZm\_YmhfYbXg`UbX`dUhhYfbg`]b`h\Y`Zck `cZUi X]c!j ]gi U``[ ccXg`UbX`gYfj ]WYg`UbX`Yj U`i UhY`h\Y ]a dUWicZUhhYa dhg`hc`fY[ i `UhY`h\Ya

#### HYUWX]b[ GhfUhY[]Yg

FUhj]cbU`Y.

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

: cfʿUʿZ ``XYgŴ]dh]cbʿcZh\]gʿUgg][ ba Ybhd`YUgY Wcbgi `hh\Y`5F HG&\$-&`7 ci fgY`A ccX`Y"`H\]gʻ]gʻU`[ fci d Ugg][ ba Ybh

### 5 HYbXUbWY FYei ]fYa Ybhg

Ghi XYbhgʻUfYʻghfcb[`mYbWci fU[YX'hcʻUhhYbX'U```WUggYgʻUbX'fYj]Yk ``YWhi fYʻfYWcfX]b[g"

# 7 ci fgY GWX YXi `Y

#### <u>J]Yk WUgg'hja YHJV`Y</u>

### H]a YHJV`Y'

8 UhY	HmdY	7 c bhYbh	
K YY_`%`' %A Um'!`(`>i bY	@YWhifY	I bXYfgHUbX]b[ ; `cVU`]nUh]cb`UbX`A YX]U	
	FYUX]b[	<ul> <li>In bit ingroot x ingroot x</li></ul>	
K_YY_`&.`+`>i bY`!`%% >i bY	@YWMifY	Dc`]h]WU`YWcbca]WUddfcUWXYg'hc'; `cVU`AYX]U UbX'h\Ycf]Yg'cZ'aYX]U'XYdYbXYbWm	
	Hi hcf]U`	HcXUmk Yfi`X]gW gg'h\Y`dc`]h]WU`YWcbca mcZf[i`cVU` a YX]UfiUbX``cc_`Uh'WJgY`gh X]Yg`k \]W\`fU]gY`[`cVU` fY[i`Uhcfmei Ygh]cbg`]b`fY`Uh]cb`hc`h\Y`a YX]U	
	FYUX]b[	7 ci fgY`FYUX]b[ • 5fmŽ̃z"@"`7∖UdhYf"'"HfUbgbUh]cbU``AYX]U″ : fca `5fmž"@"`9 'aTS^7` fWdfS[`Wf? WW[S, 3 5d[f[US^;` fdaVgUf[a` K YghGi ggYI žI ?ž K ]`Ym6`UW_kY``ž"&\$%) ž"d[g`+%], ("	
K YY_''.'%) '>i bY'!'% >i bY	@YWMifY	7 i `hi fU``=a dYf]U`]ga `UbX`8Y!K YghYfb]nUh]cb. 8cYg`h\Y`h\YcfmcZWi``hi fU``]a dYf]U`]ga `gh]`` Udd`mhc`[`cVU``a YX]U'hcXUm3	
	Hi hcf]U`	Hi hcf]U``!`∉g`W``h fU``]a dYf]U`]ga `gh]```fY`Yj UbhhcXUm3	
	FYUX]b[	GdUf_gži7 "`f&\$% Ł"`″; `cVU``A YX]U`GhiX]Yg.`≢foj	

		8YjY`cdaYbhUbX`8]`YaaUg"´´?WV[Sł5g/fgdWS`V EaU[Wfk"`')f%łžid[g"`%&%1%%%
K_YY_(.:&%:>i_bY'!'&)	@YWhifY	8]UgdcfU. A i `h]`cWU`]hm]b`U`[`cVU``k cf`X
>i bY	Hi hcf]U`	Hi hcf]U``!`A YX]U`UbX`Wca a i b]h]Yg`cZX]UgdcfU
	FYUX]b[	G]bWU]fž=UbX'7ibb]b[\UažG"'f&\$\$%L''8]UgdcfUg UbX'h\Y'AYX]U"''': fca`8'aSf[`Y>[hWe, FZW? WV[S S`V3e[S`6[SebadSe"CIZcfXžI?žFckUb'UbX @]hYYZ]Y`Xg'DiV`]g\Yfgž'dd"'%'!'\$`CB@MfBchh\Y Ybh]fY'W\UdhYf'!'YIWiXY'Zfca`h\Y'fDiV`]W Gd\Yf]W`YgfigYW]cb'cbkUfXgLL"
K YY_`).`&, `>i bY`!`&`>i `m	@YWMifY	7cgacdc`]HJb]ga. 5fY'kY']bWfYUg]b[`m'Wjh]nYbg cZ'h\Y'kcf`X3'
	Hihcf]U`	7 cga cdc`]HUb]ga `!`U`Zcfa `cZW``hi fU``Y`]Hjga `cf Y[U`]HUf]Ub`[`cVU``Wj]`]``gcWjYhm3
	FYUX]b[	JUbXYjccfhžF"'f&\$% Ł´AcfU``Wcgacdc`]HUb]ga`UbX h\Y`YjYfmXUm`]ZY.`\ck`ghiXYbhg`YbWcibhYfX]gHUbh ch\Yfg´´?WW[Sł5g/fgdW`EaU[Wfk`&\$% žJc`"(\$f&Ł %) –&%\$
K YY_`*.`) `>i `m!`- `>i `m	⊧bhYbg]jY	: @9L`K 99?`!`H<9F9`5F9`BC`7@5GG9G 8IF=B; `K 99?`*`f)`>I @V!!`-`>I @VL
K YY_`+.`%&`>i `m!`%*`>i `n	n@YWhifY	7i`hifU``\mVf]X]hmUbX`ai`h]Wi`hifU`]ga`Ug [`cVU``Wi`hifY
	Hi hcf]U`	7 i `hi fU``< mVf]X]hmUbX`A i `h]W `hi fU`]ga
	FYUX]b[	?fU]XmžA "´´´7i`hifU`` <mvf]x]miubx`ŧohyfbuh]cbu` 7 ca a i b]WUh]cb´´: kTd[V[fk, FZW5g/fgdS^&gt;aY[UaX 9 ′aTS/[eSf[a` "`D\]`UXY`d\]Už`HYa d`Y`I b]j Yfg]mž &amp;\$\$) ž'dd"`%%("</mvf]x]miubx`ŧohyfbuh]cbu` 
K_YY_', .'%-'>i `m!'&' '>i `m	@YWhifY	=b₩fbUh]cbU`>ci fbU`]ga
	Hi hcf]U`	

		″5ih\cf]HJf]Ub`8ckb[fUX]b[žfGY`ZŁWYbgcfg\]d`UbX BYk`AYX]U`5Wfjj]ga`UZHYf`H\Y`5fUV`Gdf]b[″`
K_YY_*%\$.*&*5i[igh!**	@YWhifY	7cbWig]cbg.FYgYUfWX]b[;; `cVU``AYX]U
5i[igh	Hihcf]U`	E#5°UVcihh\Y`fYgYUfW\°dUdYf

### FYgci fWg

#### DfYgWf]VYX F Ygci fWfg

• 5```fYUX]b[ g`UfY`Uj U]`UV`Y`j ]U`@Y[ Ubhc`UbX`h\Y`Wci fgY`A ccX`Y

#### FYWca a YbXYX FYgci fWYg

DYf]cX]WU``mžUXX]h]cbU``fYgci fWYg`k]``VY`a UXY`Uj U]`UV`Y`hc`ghi XYbhg`j ]U`h\Y`Wci fgY`A ccX`Y"`Ghi XYbhg`UfY fYgdcbg]V`Y`Zcf`\_YYd]b[`i d`hc`XUhY`k]h\`Ubm`]bZcfa Uh]cb`cf`fYgci fWYg`h\UhUfY`dfcj]XYX`j ]U`h\Y`A ccX`Y`cb U`k YY\_`Vmik YY\_`VUg]g"

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

DYf]cX]WU``mighi XYbhYj U`i Uhji YʻZYYXVUW\_`cb`h\Y`Wci fgY`]g`[Uh\YfYXži g]b[`Ua cb[`ch\Yf`a YUbgži BGK fig A m9l dYf]YbWY`DfcWYgg"`Ghi XYbhZYYXVUW\_`]g`HU\_Yb`gYf]ci g`mž`UbX`Wcbh]bi U``]a dfcj Ya Ybhg`UfY`a UXY`hc h\Y`Wci fgY`VUgYX`]b`dUfhcb`gi W\`ZYYXVUW\_"

### Gi Va ]gg]cb cZ5ggYgga YbhHUg\_g

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

Zmci YbWci bhYf'U'dfcV'Ya 'k \Yb'UhYa dhjb[ 'hc'gi Va ]hmci f'Ugg][ ba YbhN fci [ \ 'Hi fb]hjbž'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'mYUfŁ''Zmci UfY'i bUV'Y'hc'gi Va ]hmci f'Ugg][ ba YbhXi Y'hc'U'ZJi 'hk ]h. 'Hi fb]hjb'mci 'a UmUdd`mZcf'Ub'YI hYbg]cbžVi hmci a i ghfYhU]b'mci f'hjW\_Yhbi a VYf'Zfca '9I hYfbU'`Gi ddcfhfU'cb[ 'k ]h. 'Ubmch\Yf'fY'Yj UbhXcW a YbhgŁ'hc ]bWi XY'Ug'Yj ]XYbWY hc'gi ddcfhimci f'YI hYbg]cb'Udd`]WUh]cb'''Zmci 'Ya U]`'9I hYfbU'`Gi ddcfhimci 'k ]`` Ui hca UhjWU'`mfYWY]j Y'U'hjW\_Yhbi a VYfž'Vi h]Zmci 'hY`Yd\cbY'mci 'k ]``bYYX'hc'gdYWJZWU``mUg\_'Zcf'cbY" Hi fb]hjb'U`gc'dfcj ]XYg'i dXUhYg'cb'h\Y]f'gmghYa 'gfUhi g'cb'Hk ]hYf"

; YbYfU``mž'UggYgga YbhHUg\_g`a i ghVY`gi Va ]HYX`Y`YWfcb]WU``mj ]U`Y]H\Yf`Hi fb]h]b`cf`U`A ccX`Y Ugg][ ba YbH'`=b`]bgHUbWfg`k \YfY`H\]g`]g`bchdcgg]V`Yž`]hk ]```VY`gHUHYX`cb`mci f`Wci fgY**'**g`A ccX`Y`g]HY`k ]H\ U`HYfbUh]j Y`gi Va ]gg]cb`XYHU]`g"

: cf`]bZcfa Uh]cb`cb`\ck `hc`gi Va ]hUgg][ ba Ybhg`cb`]bY`j ]U`A ccX`Y.`\hhdg.##gh XYbh'i bgk "YXi "Ui #\ck! gi Va ]hUgg][ ba Ybha ccX`Y

### 5WUXYa ]W<cbYghmUbX`D`U[ ]Uf]ga

D`U[]Uf]ga `]g`i g]b[ 'H\Y`k cfXg`cf`]XYUg`cZcH\Yfg`UbX`dfYgYbH]b[ 'H\Ya `Ug`mci f`ck b"`=h\Wb`HU\_Y`a Ubm Zcfa gžZīca `XY`]VYfUHY`W\YUH]b[ 'hc`UWV]XYbHU``mWcdm]b[ 'Zīca `U`gci fW'`k ]H\ci hUW\_bck `YX[ Ya YbH'

I BGK '[fci dg'd`U[]Uf]ga ']bhc'h\Y'Zc``ck ]b[ 'WUhY[cf]Yg.



### 5₩UXYa]W≠bZcfaUh]cb

: cf<sup>·</sup>YggYbhJU<sup>··</sup>gh XYbhJbZcfa UhJcb<sup>·</sup>fY<sup>·</sup>UhJb[<sup>··</sup>hc.

- fYei YghgʻZcf'Yl hYbg]cb/
- `UHY 'gi Va ]gg]cbg [ i ]XY `]bYg/
- fYj ]Yk 'cZa Uf\_g/
  I BGK '< YU'th 'UbX'GUZYhmidc']WJYg/</li>