

ARTS3452

 $DfcZYgg]cbU``7 \]bYgY`5$

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7ci fgY'Cj Yfj]Yk

GHJZ7cbHJWh8YHJ]`g

7cbj Ybcfg

B Ua Y	9a U]`	5j U]`UV]`]lm	@cWJhjcb	D\cbY
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@YWhi fYfg

B Ua Y	9a U]`	5j U]`UV]`] m	@cWUh]cb	D\cbY
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GWXcc``7cbHJWhi±bZcfa Uh]cb

 $\label{eq:GWCCCCZ} $$GW.cc``cZ<$ia~Ub]h]Yg`UbX`@Ub[i~U[~Yg$

@c\WUhjcb.'G\W\cc`'C\Z]\\Y\z'A\cfj\Yb'6fck\b'6i]\X]b[\z'@\j\Y\`\&z'&),

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

7ci fgY 8YHJ] g

7 fYX]hDc]bhg**

Giaa UfmcZh\Y 7ci fgY

 $H\g`Wci fgY`dfcj]XYg`dfcZYgg]cbU```Yj Y``]bglfi Wf]cb`]b`7 \]bYgY``Ub[i U[Y`UbX`W``hi fY`ghi X]Yg''`6mghi Xm]b[U`k]XY`fUb[Y`cZhYl hg`h\Uhg\ck WUgY`h\Y`i gY`UbX`Yj c`i h]cb`cZj YfbUW``Uf`7 \]bYgYžmci `k]```Wcbh]bi Y`hc]a dfcj Y`mci f`]bhY[fUhYX``Ub[i U[Y`g_]``gžYgdYW]U``mdfcZ]W]YbWh]b``fYUX]b[`UbX`k f]h]b[ž'Ug`k Y```Ug`XYj Y`cd U`gYbgY`cZh\Y`\]ghcfmcZ7 \]bYgY``Ub[i U[Y''H\Y`a YX]i a `cZ]bglfi Wf]cb`]g`7 \]bYgY''H\Y`Wci fgY`WUhYfg`Zcf ghi XYbhg`YbHYf]b[`h\Y`7 \]bYgY`'dfc[fUa `Uh'h\Y`dfcZYgg]cbU```Yj Y``UbX`U`gc`gYfj Yg`Ug`Ub`cdh]cbU``Wci fgY$

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5ggYgga Ybh'HUg_g

5ggYgga Ybh'hJg_	K Y][\h	8i Y'8UHY	Gh XYbh@YUfb]b[Ci hWca Yg 5ggYggYX
Cb`]bY`Ei]n`	&\$I	k YY_g [.] Xi Y. [.] &/(/*/,	%ž'&ž''
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5ggYgga Ybh'8YHJ]`g

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GhUfhXUhY. Bch5dd`]WUV`Y

8YHJ]`g.

6]!k YY_`m``Ub[i U[Y'YIYfW]gYg'Zc``ck]b['h\Y'Wcad`Yh]cb'cZYUW\``Yggcb'hc'UggYgg'a UghYfmcZj cWUVi``Ufmž[fUaaUfžgYbhYbW'dUhYfbžWcadfY\Ybg]cb'UbX'ch\Yf'``Ub[i U[Y'fY[]ghYfg"'AUf_YX'cb`]bY"

Hi fb]hb gYhb[. H\]g]g bchU Hi fb]hb Ugg][ba Ybh

5ggYgga Ybh& = 1WUgg hYghg

GhUfhXUhY. Bch5dd`]WUV`Y

8YHJ]`g.

Ghi XYbhg·Wca d`YhY·lk c`hYghg·fWU"'&`\ci ft-]bWi X]b['g\cfh'·UbX``cb[Yf! Ubgk Yf'ei Ygh]cbg"'A]X!hYfa '&\$ı ž 9bX!cZhYfa '&\$ı "'Ghi XYbhg·fYWY]j Y·U'a Uf_'UbX`WUb`Wcbgi `hih\Y``YWi fYf'Zcf'Z fh\Yf'ZYYXVUW_"

Hi fb]hb qYhb[. H\]q]q bchU Hi fb]hb Uqq][ba Ybh

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GhUfhXUhY. Bch5dd`]WUV`Y

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#J!WUgg'dfYgYbhUh]cb', 'a]bi hYg'dYf'dYfgcb'&\$i /fYgYUfWX'dUdYf'%\$\$\$!%(\$\$'WXUfUWWYfg'dYf'dYfgcb'&\$i "Ghi XYbhg'Zcfa ']bhc'[fci dg'VUgYX'cb'gi [[YghYX'hcd]Wg'h\UhiUfY'YI hYbg]cbg'cZh\Y'hYI hg"'H\YmfYgYUfWX UbX'X]gWi gg'h\Y'hcd]Wg'hc[Yh\Yfž'Vi hYUWX'dfYgYbhg'UbX'k f]hYg'cb'cbY'dUfhcZh\Y]f'fYgYUfWX"'H\YmUfY a Uf_YX']bX]j]Xi U``m'': YYXVUW_j]U']bX]j]Xi U``Wca a Ybhg"'H\]g']g'h\Y'Z]bU``UggYgga YbhZcf'UhhYbXUbWY di fdcgYg"

Hi fb]h]b`gYh]b[.`H\]g`Ugg][ba Ybh`]g`gi Va]hhYX`h\fci [\`Hi fb]h]b`UbX`gh XYbhg`WUb`gYY`Hi fb]h]b`g]a]`Uf]hm fYdcfhg"

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HY'Yd\cbY'9| hYfbU''Gi ddcfhcb'-',) "''' %cf'Ya U]''h\Ya 'cb'Y! 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'mYUft'''=\mathred{Image: Wa Jhmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]h]b'mci 'a UmUdd'm\mathred{Image: Wa Jhmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]h]b'mci 'a UmUdd'm\mathred{Image: Wa Jhmci f'Ugg][ba YbhXi Y'hc'U'ZJi 'hk]h\'Hi fb]h]b'mci 'a UmUdd'm\mathred{Image: Wa Jhmci f'Ub'Y! hYbg]cb\mathred{Image: Wa Jhmci h\Yf'f'Y'j UbhXcW a Ybhg\mathred{Image: Wa Uj''9! hYfbU''Gi ddcfhmci 'k]'`

JbWi XY'Ug'Yj]XYbW' hc'gi ddcfhmci f'Y! hYbg]cb'Udd']\wUh]cb"'\mathred{Image: Wa Uj''9! hYfbU''Gi ddcfhmci 'k]'`

Ui hca Uh]\wU'`mfYW']j Y'U'h]\w_Yhbi a VYf\mathred{Image: hY'Yd\cbY'mci 'k]\tag{Y}\wu''mug_'\mathred{Image: Wa'\mathred{Image: hY}\wu''mug_'\mathred{Image: hY}\wu''mug_'\mathred{Image: hY}\wu''mug_'\mathred{Image: hY'Yd\cbY''mci 'k]\tag{Y}\wu''mug_'\mathred{Image: hY'\mathred{Image: hY'\mathred{I

; YbYfU``mž'UggYgga YbhiHug_g'a i ghVY'gi Va]hhYX'Y`YVWfcb]\W)``mij]U'Y]h\Yf'Hi fb]h]b'cf'U'A ccX`Y Ugg][ba Ybh'' =b']bgHJb\W'g'k \YfY'h\]g']g'bchdcgg]V`Yž']hk]```VY'gHJhYX'cb'mci f'\\circ i fgY'g'A ccX`Y'g]hY'k]h\U`hYfbUhjj Y'gi Va]gg]cb'XYHJ]`g''

cfi]bZcfa Uhjcbicbi\ckihcigi Va]hUgg][ba Ybhgicbi]bYij]UiA ccXiY.i\hdg.#gh XYbhi bgk "YXi "Ui #\ck! gi Va]hUgg][ba Ybha ccXiY

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

D`U[]Uf]ga i]gii g]b[ih\Yik cfXgicfi]XYUgicZch\YfgiUbXidfYgYbh]b[ih\Ya iUgimci fick b"i=hWJbihU_Yia Ubm Zcfa gžZfca iXYi]VYfUhYiWXYUh]b[ihciUWW]XYbhU`mWcdm]b[iZfca iUigci fWYik]h\ci hiUW_bck iYX[Ya Ybh'

IBGK [fcidg'd'U[]Uf]ga]bhc'h\Y'Zc``ck]b['WUhY[cf]Yg.

• i bXYfgHJbX'mci f'f][\hg'UbX'fYgdcbg]V]`]h]Yg'Ug'U'gh XYbh'Uhil BGK

5 WUXYa]W + DZcfa Uhjcb

: cf'YggYbhJU`gh XYbh]bZcfa UhJcb fY`UhJb[hc.

- fYei Yghg Zcf Yl hYbg]cb/
- `UhY 'gi Va]gg]cbg '[i]XY`]bYg/
- fYj]Yk 'cZa Uf_g/
- I BGK < YU`h\ UbX GUZYmdc`]W[Yg/
- YI Ua]bUh]cb dfcW/Xi fYg/
- gdYWJU``Wcbg]XYfUHjcb']b'H\Y'Yj YbhcZ]``bYgg'cf'a]gUXj Ybh fY/
- gh XYbhYei]hmUbX'X]gUV]`]hm/
- UbX'ch\Yf'YggYbhJU`'UWUXYa]W]bZcfa UhJcbž'gYY