

ARTS3451

5Xj UbWX'7 \]bYgY'6

GYa YghYf'Hk c''##'&\$%

GWcc``cZ< i a Ub]hYg'UbX'@Ub[i U[Yg'`# 'I BGK ``5ftg'UbX'GcWU'`GWYbWg

7ci fgY`Cj Yfj]Yk

`GHUZZ7cbhUWih8YHU]`g`

`7cbj Ybcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]h]cb	D\cbY
8f"D]b[`K Ub[d"k Ub[4 i bgk "YXi "Ui	K YXbYgXUm %&.' \$da	A cfj Yb'6fck b &' *	- ' ,) ' () %

`@YWi fYfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]h]cb	D\cbY
DfcZ`8f">cb 9i [YbY`j cb ?ck U`]g	^_ck U`]g4 i bgk "YXi "Ui	6m5ddc]b]a Yb]h`	A cfj Yb'6fck b &' -	- ' ,) %\$&\$
8f"M]b[`]Gi b	m]b[`]gi b4 i bgk "YXi "Ui	6mUddc]b]a Yb]h`	A cfj Yb'6fck b &)	D`YUgY Ya U]`"

`Hi hcfg`

B Ua Y	9a U]`	5j U]UV]`]m	@cW]h]cb	D\cbY
<i Ub[\i Ub[`7 <9B	\i Ub[\i Ub["WXYb4 i bgk "YXi "U i	6m5ddc]b]a Yb]h`	A 6&%%	D`YUgY Ya U]`"

GWxccc`7cbhUWihZcfa Uh]cb

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

@cW]h]cb. `GWxccc`C Z]W]zA cfj Yb'6fck b'6i]X]b[z`@Yj Y`&z&),

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

D\cbY. `Z`*%&`- ' ,) `%* , %

: Ul. `Z`*%&`- ' ,) `; , +\$)

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

5hYbXUbW`F Yei]fYa Ybhg

fYa Ybhg

fYa Ybhg

cf][]bU`cf`WfhjZYX`WdmcZU`a YX]W`WfhjZWU`cf`ch`Yf`Zcfa`cZUddfcdf]UH`Yj]XYbW`"

5`7ci fgY`5i hcf]ma UmYI W gY`U`gh XYbhZca`WUggYg`cf`UW]j]hYg`Zcf`i d`hc`cbY`a cbh`"<ck Yj YfZ`hYm
a UmUgg][b`UXX]h]cbU`UbX`#f`U`H`fbU]j Y`hUg`_g`hc`Ybgi fY`Wta d`]UbW`"5`7ci fgY`5i hcf]mWtbg]XYf]b[`hY
[fUbh]b[`cZUVgYbW`a i ghVY`gUhgZ]YX`U`gh XYbhk]`gh`"VY`UV`Y`hc`a YYh`hY`W`i fgY`g`YUfb]b[`ci hW`a Yg
UbX`#f`j c`i a Y`cZ`YUfb]b["5`gh XYbhgYY_]b[`Uddfcj U`hc`VY`UVgYbhZcfa`cfY`hU`b`cbY`a cbh`a i ghUdd`m
]b`k`f]h]b[`hc`hY`8YUb`UbX`dfcj]XY`U`cf][]bU`cf`WfhjZYX`gi ddcf]b[`XcW`a YbhU]cb"

: cf`a cfY`]bZcfa Uh]cb`UVci h`hY`UH`bXUbW`dfc`hc`Wt`g`]b`hY` : UW`hmcZ5fng`UbX`GcW]U`
GW]YbWg. [\hfdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbhghi XYbng#UW\]XYa \]W\]bZcfa Uh\]cb#dfc`hc`Wt`g!\[i \]XY`\]bYg#](#)

5W]XYa]W]bZcfa Uh]cb`

: cf`YggYbh]U`gh XYbh]bZcfa Uh]cb`fY`Uh]b[`hc`fYei Ygng`Zcf`YI`H`bg]cb/fYj]Yk`cZa`Uf`_g`cW]W`dUh]cbU`"YU`h
UbX`gUZ]m`YI`Ua]bUh]cb`dfcW]Xi fYg`gdYW]U`Wtbg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
gh XYbhYei]mUbX`X]gUV`]m`UbX`ch`Yf`YggYbh]U`UW]XYa]W]bZcfa Uh]cbž
gYY`[\hfdg.#k k k "Ufng"i bgk "YXi "Ui #W ffYbhghi XYbng#UW\]XYa \]W\]bZcfa Uh\]cb#dfc`hc`Wt`g!\[i \]XY`\]bYg#](#)

7ci fgY'8YHJ]`g

7fYX]hDc]bhr '*`

Gi a a UfmicZ\hY'7ci fgY

Gi VYWh5fYU.'7\]bYgY'Gh X]Yg

9I hYbX]b['cb'5F HG' () \$žh]g'Wci fgY'dfcj]XYg'UXj UbWVX'h]hcb]b'7\]bYgY'Ub[i U[Y'fA UbXUf]bE'gh Xmž
i g]b['U'hYI hVcc_XYg][bYX'gdYW]Z]WU'miZc'f'UXj UbWVX'7\]bYgY'YUfbYfg'Uhi b]j Yfg]hYg'ci hg]XY'cZ7\]bU'"h
Wca V]bYg'Ub[i U[Y'gh X]Yg'k]h' Ub'YI d'cfU]hcb'cZ7\]bYgY'W'hi fY'UbX'gcV]Yhmž]bW' X]b['hfUX]hcbU'
W'hi fY'"H\Y'a YX]i a 'cZ]bghfi W]hcb]g'A UbXUf]b'"Mci 'k]'YI hYbX'mci f'i bXYfg]hUbX]b['UbX'i gY'cZ7\]bYgY
'Ub[i U[YžYgdYWU'mia cfY'gdYWU]gYX'j cWUvi 'UfmUbX'Wca d'YI 'gYb]h]bW'ghfi W'h fYg'"H\Y'Ya d\Ug]g]g'cb
hY'hfUbgZc'fa U]hcb'cZ]b[i]gh]W_bck 'YX[Y]bhc 'UW]j Y'g_]`gž]bW' X]b['hfUbg'U]hcb'h'fci [\ 'cfU'UbX'k f]hYb
UW]j]hYgžZc'W g]b['cb'Ui hYb]h]W7\]bYgY'hYI hg'Vmi h]g]b['j Uf]ci g'fYUX]b['ghfU]h []Yg'"H\Y'hYI hg'Wc]j Yf'U
fUb[Y'cZ]hcd]W]g]b'7\]bYgY'Ub[i U[YžW'hi fY'UbX'gcV]Yhm' H\YgY'WUfYZ'`mW'cgYb'hYI hg'k]'gYf] Y'Ug'U
k]bXck 'h'fci [\ 'k \]W' mci 'k]'gY'7\]bU'Uhk cf_žk]hYg]g]hg'UW]j]Y' Ya Yb]h'Ug'k Y'Ug'hY'W'U'Yb[Yg
UbX'dfcV'Ya g']h]Z]W'g"

5h'hY'WcbWi g]cb'cZ'h]g'Wci fgY'h'Y'gh XYbhk]'VY'UV'Y'hc

- % " 8Ya cbghfU]h' Zi YbW]h]UbX'WcbZ]XYbW']b'hY'i gY'cZ'hY'Ub[i U[Yž]bWi X]b['hfUbg'U]hcb
- &" 5bU'mgY'UbX'Wca a Ybhcb'gcd\]gh]W]hYX'hYI hg'k]h' Ya d\Ug]g'cb'Wcb'hYI hi U'a YUb]b[
- ' " ⇒XYbh]Zm'U'k]XY'fUb[Y'cZ'Ub[i U[Y'ghmYg'UbX'fY[]ghYfgž'UbX'k f]hY'Wca dcg]hcbg'k]h'g_]`UbX
WcbZ]XYbW'
- (" 8Ya cbghfU]h'U'W'hi fU'UbX'`]hYfUfmUk UfYbYgg]b'fY'U]hcb'hc'Wcb'hY'a dcfUfm]7\]bUž'UbX'UbW]Ybh
7\]bYgY'W]j]]nU]hcb
-)" #j Ygh] [U]h'UbX'fYdcf]hcb]ggj Yg'fY'U]hYX'hc`]b[i]gh]Wcf'gcV]c!W'hi fU'UgdYW]g'cZ'hY'7\]bYgY
gdYU_]b['k cfX'Vch'cfU'mUbX']b'k f]h]b["

HYUW]b['GhfU]h []Yg'

#XYg][b]b['h]g'Wci fgYž'k Y'hU_Y]bhc'UW'Wci bh'hY']bW]YUg]b['W'hi fU'UbX'`]b[i]gh]W]j Yfg]mž'UbX'hY
a i 'h]d']W]m]cZ'Wca a i b]W]h]cb'a cXYg'Vfci [\hUVci hVmi['cVU]gU]hcb'UbX'h'W]bc'c []WU'UXj UbW]g'"K Y
VY'9 U5mUXYbdYg'"K h f 'WbU]bYW]hYXWU]vi

5ggYgga Ybh

5g'ghUHX'j]b'h\Y'7ci fgY'Cj Yfj]Yk žghi XYbhg'j]b'h]g'Wci fgY'UfY'YI dYVWX'hc'UHX'U'WUggYg'UbX
 Wca d'YH'U'UWj]jYg"5HbXUbW'k]'VY'hU_Yb'VmH\Y'j]bglfi Wcf'UhYUWX''YWH'fY'UbX'hi hcf]U'žUbX
 fYWcfXg'k]'VY'_YdhVmH\Y'Wcbj Ybcf"Gh XYbhg'k \c'Zj]'hc'UHX'U'YUgh, \$i 'cZ'YWH'fYg'UbX'hi hcf]U'g
 a UmVY'fYž gYX'ZbU'UggYgga Ybh'H\Y'ZbU'UggYgga YbhZcf'UHX'U'UbW'di fdcgYg'j]g'jYbh]Z'YX'j]b'h\Y
 "5ggYgga Ybh'gYW'cb'cZ\Y'7ci fgY'Cj Yfj]Yk "

5ggYgga YbhHUg_g'

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GhUfhXUHY.

8YhU]g. 7ca dfY\Ybg]j Y'hYghf%) \ci fgk'cZkY`UghZk`WUdhYfg'g]bW`HYgh%"Gh XYbhg'fYW]j Y`U`a Uf_
UbX`WUb`Wcbgi`h%`hYUW]b[`ghUZZcf`%`f\Yf`ZYXVUW`H\]g`hY`ZbU`%ggYggafk`b`Zf`X`U`b`X`U`b`%`g`hY`ZbU`UggY`
di fdcgYg"

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

5ggYgga 5ggYgga]ba(.Y5"gg][ba Ybhg

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Gi Va]gg]cb'cZ5ggYgga YbhHUg_g

Gh XYbHg'UfY'YI dYW'X'hc'di h'Y]f'bUa Yg'UbX'gh XYbhbi a VYfg'cb'Yj YfmdU[Y'cZ'Y]f'Ugg][ba Ybhg"

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

zmc i'YbWci bhYf'U'dfcV'Ya'k \Yb'U'HYa dh]b['hc'gi Va]hmc i f'Ugg][ba Ybh'fci [\ 'Hi fb]h]bzd'YUgY
HY'Yd\cbY'9I HYfbU'Gi ddcfhcb'-' ,) ' ' ' %cf'Ya U] 'hYa 'cb' [YI HYfbU'HY'fji 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'mYUfL' zmc i
UfY'i bUV'Y'hc'gi Va]hmc i f'Ugg][ba YbhXi Y'hc'U'ZU' 'hk]h'Hi fb]h]b' mci 'a UmiUdd'm'Zcf'Ub'YI HYbg]cbz'Vi hmc i
a i ghfY]b' mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]h'Ubmc'hYf'fY'Yj UbhXcW a Ybhg'hc
]bW' XY'Ug'Yj]XYbW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd']W]h]cb" zmc i 'Ya U] '9I HYfbU'Gi ddcfhmc i 'k]`
Ui 'ca U]W' m'fYW']j Y'U'h]W_Yhbi a VYfz'Vi h]Zmc i 'HY'Yd\cbY' mci 'k]` b'YX'hc'gdYW]W' m'Ug_ 'Zcf'cbY"
Hi fb]h]b'U'gc'dfcj]XYg'i dXUHY'g'cb'h'Y]f'gmghYa 'ghU'g'cb'Hk]h'f"

; YbYfU'mz'UggYgga YbhHUg_g'a i ghVY'gi Va]h'X'Y'YW'fcb]W'mj]U'Y]h'Yf'Hi fb]h]b'cf'U'A ccX'Y
Ugg][ba Ybh' b]bg]UbW'g'k \YfY'h']g']g'bchidcgg]V'YZ]hk]` VY'g'U'X'cb' mci f'Wci fgY'g'A ccX'Y'g]h'k]h'
U'h'fbU]j Y'gi Va]gg]cb'XY]g"

@UH'5ggYgga YbhDYbU'h]Yg

Gh XYbHg'UfY'fYgdcbg]V'Y'Zcf'h'Y'gi Va]gg]cb'cZUggYgga YbhHUg_g'Vmi'h'Y'f'Yei]fYX'XUHY'g'UbX'h'a Yg"
8YdYbX]b['cZ'Y'YI HY'hcZXY'Um]b'h'Y'gi Va]gg]cb'cZUb'UggYgga YbhHUg_'dUgh'h'Y'Xi Y'XUHY'UbX'h'a Yz

- K cf_gi Va]hYX`%\$`hc`%-`XUmg`UZhYf`h`Y`gh]di`U`hYX`XYUX`]bY`k`j`VY`UggYggYX`UbX`ZYXVUW`dfcj`]XYX`Vi`hU`a`Uf`_`cZnYfc`k`j`VY`fYW`fYX`" `Z`h`Y`k`cf`_`k`ci`X`\\Uj`Y`fYW`]j`YX`U`dUgg`a`Uf`_`Vi`hZcf`h`Y`U`h`b`Y`gg`UbX`h`Y`k`cf`_`]g`U`W`a`di`gcfm`W`i`fgY`W`a`dcbYbhf`i`fX`Y`fYei`]fYa`YbH`Z`U`gh`XYbhk`]`VY`XYa`YX`h`_`Uj`Y`a`Yh`h`UhfYei`]fYa`Ybh`
- K cf_gi Va]hYX`&\$`cf`a`cfY`XUmg`UZhYf`h`Y`gh]di`U`hYX`XYUX`]bY`k`j`bchVY`U`W`W`d`h`Y`Z`cf`UggYgga`Ybh`UbX`k`j`fYW`]j`Y`bc`ZYXVUW`z`a`Uf`_`cf`[`fUXY`" `Z`h`Y`UggYgga`Ybh`Ug`_`]g`U`W`a`di`gcfm`W`a`dcbYbhc`Z`h`Y`W`i`fgY`U`gh`XYbhk`]`fYW`]j`Y`Ub`l`bgUhgZUW`c`fm`U`]`fl`:`k`[`fUXY`Ug`U`fYgi`h`c`Z`i`bgUhgZUW`c`fmdYfZ`fa`UbVW`]b`Ub`YggYbh]U`W`a`dcbYbhc`Z`h`Y`W`i`fgY`"

H\]g`]bZ`fa`U`h`cb`]g`U`gc`Uj`U`]\$

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5 WUXYa]W<c bYghmiUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck`YX[Ya Ybh`

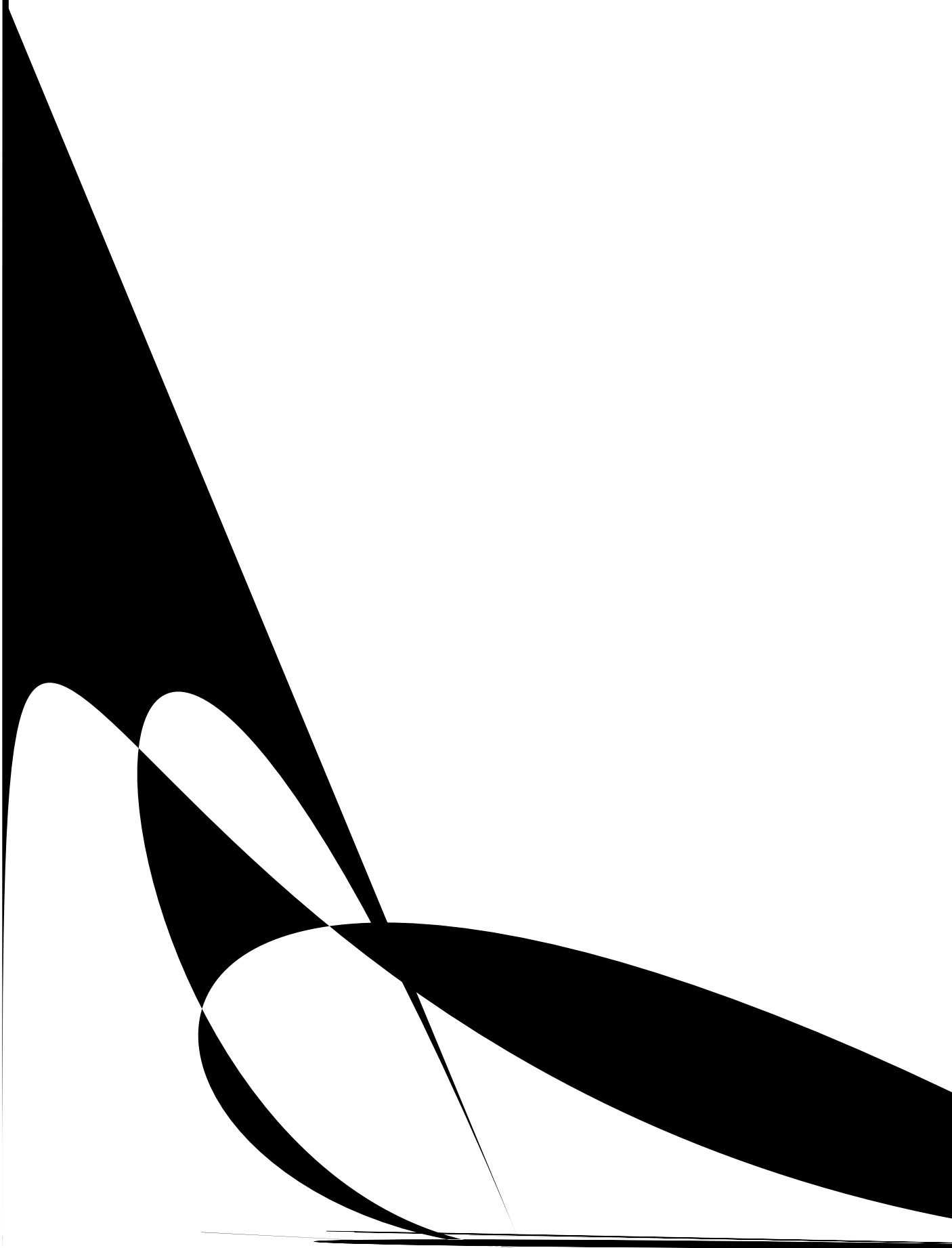
I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][b`dfc`YWgZ`Ug`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hWYX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmiFYhU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`Z`UbX`]bZcfa U]cb`k]h`ci hUW_bck`YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hWYX]hU`bX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`Yz`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb. `k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_"`7 c`i g]cb`U`gc

i bXYfgHUbX'mci f'f][\hg'UbX'fYgdcbg]V']hYg'Ug'U'gh XYbhUhl BGK



7ci fgY`GwXYXi `Y

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H]a YhUV`Y`

8UHr	HmY	7cbhYbh
K YY_`%`&`'`>`i`m!`&-`>`i`m	Hcd]W @YWh`fY Hi`hcf]U` F`YUX]b[BQ`Hi`hcf]U`
K YY_`&`.`'`\$`>`i`m!`.)` 5i`[`i`gh	Hcd]W @YWh`fY Hi`hcf]U` F`YUX]b[@YWh`fY
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Topic

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@YWh`fY

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K YY_ '\$. '%C WtcVYf!' + C WtcVYf	Hcd]W	
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DfYgW]VYX F Ygci fWg