



ARTS2021



: cf`YggYbh]U`gh XYbh]bZcfa Uhcb`fY`Uh]b[`rc.`fYei Ygrg`Zcf`YI hYbg]cb/fYj]Yk`cZa Uf_g/cVW dUhcbU`\\YU`h
UbX`gUZ`hm/YI Ua]bUhcb`dfcW`Xi fYg/gdYW]U`Wcbg]XYfUhcb`]b`h`Y`Yj YbhcZ]`bYgg`cf`a]gUXj Ybh fY/
gh XYbhYei]mUbX`X]gUV]`]m/UbX`ch`Yf`YggYbh]U`UWXYa]W]bZcfa Uhcbž
gYY`[\hdg.#k.k"Ufng"i bkg "YXi "Ui #W ffYbhgh XYbng#UWXYa \]W\]bZcfa Uhcb#dfcfcW`g!\[i \]XY`\]bYg#](#)

7 ci fgY'8YHJ]`g

7 fYX]hDc]bng`*`

Gi a a UfmicZ`h`Y'7 ci fgY

Gi V`Y`W`h`U`F`Y`U. 5 d`V`S`f`h`W`I d`f`f` Y`

H\]g:k cf_g\cd!VUgYX`Wci fgY`[]j Yg`mci `h`Y`cddcfh b]m]h`c`XYj Y`cd`U`a U`cf`W`Y`U`h]j Y`k cf_`]b`Z`W`h`c`b`z`
dcY`f`m`z`a`Ya`c]f`z`d`U`m`c`f`g`W`Y`Y`b`k`f`]`h`b`[``7`U`g`g`Y`g`U`f`Y`g`f`f`i`W`h`f`Y`X`h`c`Y`b`g`i`f`Y`U`g`i`d`d`c`f`h]j`Y`k`c`f`_`g`l`c`d`
Y`b`j`]`f`c`b`a`Y`b`h`z`c`f`m`c`i`h`c`X`Y`j`Y`cd`U`a`U`cf`k`c`f`_`h`c`Z`]`b`U`X`f`U`Z`h`g`h`U`[`Y`H`h`Y`W`c`i`f`g`Y`k`j`Y`d`m`c`i`h`c`b`Y`m`c`i`f`
g`_`g`]`b`h`Y`U`f`Y`U`g`c`Z`Y`X`]`h`b`[`z`W`c`d`m`Y`X`]`h`b`[`z`f`Y`U`X`]`b`[`W`]`h`W`h`m`z`[]j`]`b`[`d`Y`Y`f`Z`Y`X`V`U`U`_`U`b`X`]`b`b`U`j`][`U`h`b`[`
]`b`X`i`g`h`f`m`c`d`d`c`f`h`b`]`h`Y`g`"
M`c`i`k`j`Y`V`Y`f`Y`e`i`]`f`Y`X`h`c`g`i`V`a`]`h`U`d`f`c`Y`W`h`d`f`c`d`c`g`U`b`Y`U`f`h`Y`g`h`U`f`h`c`Z`h`Y`W`c`i`f`g`Y`"

5 h`h`Y`W`c`b`W`i`g`]`c`b`c`Z`h`]`g`W`c`i`f`g`Y`h`Y`g`h`i`X`Y`b`h`k`j`Y`V`Y`U`V`Y`h`c`

%`D`U`b`z`X`f`U`Z`h`U`b`X`Y`X`]`h`U`a`U`cf`d`]`Y`W`c`Z`W`Y`U`h]j`Y`k`f`]`h`b`[``
&`7`f`]`h`W`h`m`U`d`d`f`U`]`g`Y`h`Y`]`f`c`k`b`U`b`X`c`h`Y`f`g`f`W`Y`U`h]j`Y`k`f`]`h`b`[``
'`8`Y`j`Y`cd`U`b`X`f`Y`Z`]`b`Y`U`b`]`b`X`i`g`h`f`m`g`d`Y`W`]`Z`W`g`h`U`h`Y`a`Y`b`h`U`V`c`i`h`h`Y`k`c`f`_`"

HYUW`X`]`b`[`G`h`f`U`h`Y`[]`Y`g`

H\]g`W`c`i`f`g`Y`k`j`Y`V`Y`h`U`i`[`h`k`h`c`m`U`g`U`!`h`c`i`f`k`c`f`_`g`l`c`d`"

H`h`Y`k`c`f`_`g`l`c`d`Z`c`f`a`U`h`d`f`c`j`]`X`Y`g`U`_`Y`m`c`d`d`c`f`h`b`]`m`]`z`c`f`g`h`i`X`Y`b`h`g`h`c`X`Y`j`Y`cd`h`Y`_]`b`X`c`Z`]`b`h`Y`b`g`]j`Y`U`b`X`
d`f`U`W`]`W`h`Y`X`]`h`b`[`U`b`X`d`Y`Y`f`Z`Y`X`V`U`U`_`b`Y`Y`X`Y`X`h`c`h`Y`d`V`i`]`X`d`f`c`Y`W`h`g`h`h`f`c`i`[`h`c`W`c`a`d`Y`h`c`b`"h`U`g`c`
W`c`b`h`f`]`V`i`h`Y`g`h`c`h`h`Y`W`c`i`f`g`Y`g`d`f`U`W`]`W`h`]`b`X`i`g`h`f`m`Z`c`W`g`"

5ggYgga Ybh

H\]g`jg`U`k`cf_g\cdd!VUgYX`W`ei`fgY`UbX`jg`bchfYW`fXYX`"5H`YbXUbW`jg`W`a`di`gcfm`i`Za`cfY`h`Ub`cbY`WUgg`jg`a`jggYX`U`a`YX]W`W`fh]WUHY`jg`fYei`jFYX"

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5ggYgga YbhHUg_g`	K Y][\h	8i Y`8UH`	Gh XYbh@YUfb]b[Ci hW`a Yg`5ggYggYX
K cf_g\cdd]b[`UbX : YYXVUW`_`	&)	%- #/\$#&,\$% `\$(. \$\$`DA	&
A U`cf`K`cf`_`))	%- #/\$#&,\$% `\$(. \$\$`DA	%Z
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5ggYgga Ybh8YHJ]`g`

5ggYgga Ybh%`K`cf_g\cdd]b[`UbX`:`YYXVUW`_`

GHUfhXUH`. `Bch5dd`]WV`Y`

8YHJ]`g`. Gh XYbh]UfY`fYei`jFYX`h`dfcj`jXY`k`f]hYbZ`W`bgf] W]j`Y`ZYXVUW`_`YUW`k`YY`_`h`gh`XYbh]`dfYgYbh]b[`h`Y]f`k`cf`_`b`WUgg" Gh XYbh]k`j`VY`UggYggYX`cb`h`Y`ei`U`]mcZ`h`Y]f`k`f]hYb`ZYXVUW`_`H\Ym`k`j`fYW]j`Y`U`k`f]hYb`ZYXVUW`_`Zca`h`Y]f`h`h`f`U`Z`Y`f`h`Y`Z]fgh`k`YY`_`g`c`Z`k`cf_g\cdd]b[`UbX`k`j`h`Yb`fYW]j`Y`U`Z]bU`a`Uf`_`Uh`h`Y`YbX`c`Z`g`Ya`YghYf`

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

Gh XYbh]UfY`fYei`jFYX`h`dfcj`jXY`k`f]hYbZ`W`bgf] W]j`Y`ZYXVUW`_`YUW`k`YY`_`h`gh`XYbh]`dfYgYbh]b[`h`Y]f`k`cf`_`b`WUgg"

Gh XYbh]k`j`VY`UggYggYX`cb`h`Y`ei`U`]mcZ`h`Y]f`k`f]hYb`ZYXVUW`_`UbX`k`j`fYW]j`Y`U`k`f]hYb`ZYXVUW`_`Zca`h`Y`W`bj`YbYf`U`Z`Um]brc`h`Y`k`cf_g\cdd]b[`dfcVWgg"

: YYXVUW`_`Zc`f`U`k`cf_g\cdg`UfY`fYei`jFYX`j`b`cfXYf`h`dUgg`h`Y`W`ei`fgY"

Gh XYbh]k`j`fYW]j`Y`a`Uf`_`b[`fi`Vf]WUbX`bi`a`Yf]W`_`[`fUXY`Uh`h`Y`YbX`c`Z`g`Ya`YghYf`f&) |`E`

5ggYgga Ybh&.`A`U`cf`K`cf`_`

5ggYgga Ybh' . ð]hU`Dfc^VhDfcdcgU`

GhUfhXUHy. %\$#\$, #&\$% '\$(. \$\$'DA

8YhU]`g.

Gi Va]gg]cb'cZ5ggYgga YbhHUg_g

Gh XYbng'UFY'YI dYW'X'hc'di h'AY]f'bUa Yg'UbX'ghi XYbhbi a VYfg'cb'Yj YfmdU[Y'cZ'AY]f'Ugg][ba Ybng"

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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]'h'Ya 'cb'[YI HYfbU'HY'fji ddcfh i bgk "YXi "Ui."](#)Gi ddcfh
\ci fg'UFY', .\$\$Ua '-'%. \$\$da 'cb'k YY_XUmg'UbX'-. \$\$Ua '-'). \$\$da 'cb'k YY_YbXg'f1 *) '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 ghfYh]b' mci f'h]W_Yhbi a VYf'Z'ca '9I HYfbU'Gi ddcfhfU'cb['k]h'Ubmc'h'Yf'f'Yj UbhXcW a Ybng'hc
]bWi XY'Ug'Yj]XYbW'hc'gi ddcfhmc i f'YI HYbg]cb'Udd'j]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 dXUHYg'cb'h'AY]f'gmghYa 'ghU'g'cb'Hk]h'f"

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

@UH'5ggYgga YbhDYbU'h]Yg

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

H\]g`]bZcf`a`U`h`cb`]g`U`gc`Uj`U`]\$ %ofm %o %o %o

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

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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`

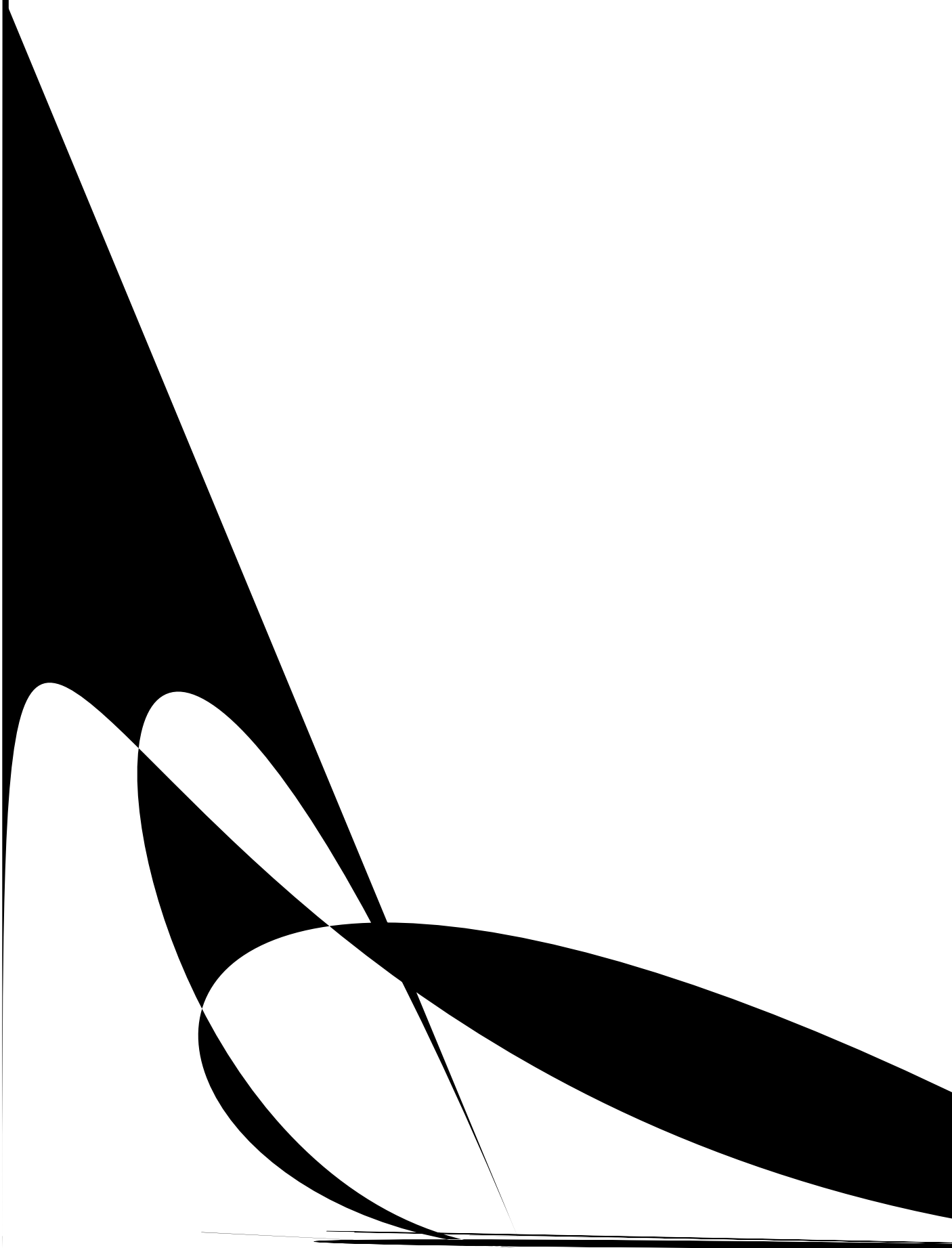
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7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf`]XYU`k]h`ci hUW_bck`YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g`"H\]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][b`dfc`YWgZ`Ug`k Y`Ug
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]g`UbchYf`g`]XYUg`cf`k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

hUddfcdf]UHY`dUfUd`fUg]b[.`7`Ub[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]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



F Ygci fWg

DfYgWf]VYX`F Ygci fWg`

BchiUj U]UVY

F YWca a YbXYX`F Ygci fWg

BchiUj U]UVY

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

⇒ U[Y`7 fYX]h

6cX]Yg/``bHYfZJWg`&\$%*

7F ⇒CG

7F ⇒CG`Dfcj]XYf`7cXY.`\$\$\$- , ;