

6H[\ 6PDOO &RS\ 1XPEHUV LQ +HUHGLWDU\ *D\

+LGHW-~~DNFD~~GBLURPL 6DN~~DQFW~~UUXKLNK 6XJLPXUD

+DPDPDWVX 8QLYHUVLW\ 6FKRRO RI 0HGLFLQH 6KLJXRND -DSDQ

1DWLRQDO &DQFHU &HQWHU 5HVHDFK ,QVWLWXWHV 7RN\R -DSDQ

&RUUHVSQRGLQ#~~DXWKRR~~ 6XJLPXUD +DPDPDWVX 8QLYHUVLW\ 6FKRRO RI 0HGLFLQH 6KLJXRND -DSDQ
KVXJLPXU#KDPD PHG DF MS

5HFHLYHG-~~GDWH~~ \$FFHSW~~HG~~ GDWH 3XEOLVKHG GDWH -XO\

&RS\ULJKW < <DPDGD + HW DO 7KLV LV DQ RSHQ DFFHVV DUWLFOH GLVWULEXWHG XQGHU WKH WHU
XVH GLVWULEXWLRQ DQG UHSURGXFWLRQ LQ DQ\ PHGLXP SURYLGHG WKH RULJLQDO DXWKRU DQG VRXU
&RPPHQWU\

2FFXU~~UH~~QJ~~FW~~WULF FDQFHU LQ D IDPLO\ KDV EHHQ NQRZQ IRU PDQ\
\HUV DQG VLQFH WKH GLVFRYHU\ RI JHUPOLQH PXWDWLRQV RI &' LQ
ODRUL IDPLOLHV > @ WKH HQWLW\ RI KHUHGLWDU\ GLIIXVH J~~DV~~WULF FDQFHU
'*& 20,0 KDV EHHQ DOPRVW HVWDEOLVKHG 7KH
JXLGHOLQHV RI GLDJQRVLV DQG PDQDJH~~PHQW~~ KD~~YH~~ EHHQ UHJXODUO\ XSGDWHG
> @ ,Q PDQ\ FRXQWULHV LQFOXGLQJ -DSDQ ZKHUH J~~DV~~WULF FDQFHU LV
HQGHPLF WKH VHDFK DQG VXUYHLOODQFH RI WKH IDPLO\ KDV EHHQ FRWLQXHO
5HYLHZLQJ WKH SXEOLFDWLRQV IRU WKH SDVW WZR GHFDGHV WKH SURJUHVV L
QRW UDSLQ EXW FRQVLGHUDEO\ VWH~~GG~~ 1HZ PXWDWLRQV DUH FRPLQJ RXW
IURP PDQ\ FRXQWULHV HYHU\ IHZ PRQWV 7KH F~~DV~~HV GR QRW DOZD\ IXOILOO
WKH FULWHULD RI DJH DQG IDPLO\ KLVWRULHV VRPH RFFXUUHG LQ WKH ROGHU
SDWLHQWV > @ DQG WKH RWKHUV RFFXU LQ WKH SDWLHQWV ZLWKRXW DQ\ IDPL
KLVWRU\ > @ 7KH UHSRUWV RQ RUWV@ p H P € p LQJÀ 0 0° Ö 0 `ä UHSRI POILOO

LGHQWLILFDWLRQ RI WKH JHQHV EHVLRQH RPH YZKLBWLRQH UHVSRQVLEOH XIRUWK
IDPLOLDO JDVWULF FDQFHU PRUH WKDQDULBWWKQV LQ KXPdq JHQRP 7KH FR
8VDJHV RI QH[W JHQHUDWLRQ VHTXH QFLOXW*6 WR JOXWDWKLBOH 6 WUDQVIHU
RSWLRQ IRU WKH LQVWLWXWHV ZKHUH WKHQXWLVW 6 QDQWLEHGDQHDVLOQRXYWDOHV
,Q WKH UHFHQW \$PHULFDQ \$VVRFLDWLRQ & DQRWLVW 5HDFK\$QORXDO EXW WKLW
LQ 6DQ 'LHJR WZR SRVWHUV SUHVHQW \$FDVWLVW 5HDFK\$QORXDO EXW WKLW
,GHQWLILFDWLRQ RI QRYHO VXVHSHW \$FDVWLVW 5HDFK\$QORXDO EXW WKLW
XVLQJ QH[W JHQHUDWLRQ VHTXHQFLQJ \$FDVWLVW 5HDFK\$QORXDO EXW WKLW
*HQHWLF EDLV RI KHUHGLWU\ JDVWULF FDQFHU 6% JY\RODQW KH & WXYORFXV
%RWK DQG DQRWKHU -DSDQHV JURXS \$FDVWLVW 5HDFK\$QORXDO EXW WKLW
DSSURDFKHV DQG ZH DUH QRZ ZDWFKLQJ WKHLU WYUDQJLGDWLFHQHJH
SURFHVVHV :KROH H[RPVHTXHQFH 6 @ZLOO WYUDQJLGDWLFHQHJH
PXWDWLRQV \$FWXDOO\ &711\$ PXWDWLF FDQFHU DSSURDFKHV WKH WKLW
DQDO\VLV > @ LQ D KHUHGLWU\ JDVWULF FDQFHU WYUDQJLGDWLFHQHJH
FDQGLGDWH JHQH DVVRFLDWHG ZLWK &HYHUVLJODDWRUPVWGLRQ ZDV LQFL
FKDQJHG LQ DQRWKHU FRKRUW RI KHUHGLWU\ JDVWULF FDQFHU WYUDQJLGDWLFHQHJH
7KLV PD\ FRRO GRZQ RXU K\SHU H[SHFWDWLRQ RQ 1*6 HLDFWO\ :6 WR
LGHQWL\ QHZ UHVRQVLEOH JHQHV 7KH JHQHV IRXQG E\ :6 PD\ EH
VSRUDGLF RU DQHFGRWDO RQH

/LNH WKH KLVWRU\ RI VHDUFKHV IRU &' FKDQJHV LQ -DSDQ WKH FR
QXPEHU FKDQJHV LQ RWKHU JHQH ORFL ZRXOG EH SRVVLEOH FXOSULW IRU
IDPLOLDO RFFXUUHQFH RI JDVWULF FDQFHU 8QGHUVWDQGLQJ WKH KXPdq

6DODK~~W~~KR~~B~~X + 'LHS &% /RXNROD \$ =KDQJ + HW DO \$
JHUPOLQH (FDGKHULQ PXWDWLRQ LQ D IDPLO\ ZLWK JDVWULF DQG FRORQ FDQFHU
,QW - 0RO 0HG
)UHER~~X~~U~~2~~OLYHLUD & +RFKDLQ 3 .DUDP 5 0DQRXYULHU 6 HW DO
&OHIW OLS SDODWH DQG &' (FDGKHULQ PXWDWLRQV LQ IDPLOLHV ZLWK
KHUHGLWDU\ GLIIXVH JDVWULF FDQFHU - 0HG *HQHW
.OXLMW