

COMING TO GRIPS WITH  
EFFECTIVENESS IN RIFLES

## WHY WORRY ABOUT RIFLES?

- THE RIFLE IS THE MOST BASIC -- AND PROBABLY THE MOST IMPORTANT -- WEAPON OF WAR
- WITH ONE EXCEPTION, U.S. ORDNANCE HAS BEEN MAKING A MESS OF RIFLE IDEAS, RIFLE DESIGN, AND RIFLE PRODUCTION FOR OVER A CENTURY
- IF YOU CAN'T THINK CLEARLY ABOUT WHAT MAKES A RIFLE EFFECTIVE IN A SQUAD FIREFIGHT, YOU CAN'T TELL A GOOD RIFLE FROM A BAD ONE -- AND YOU CERTAINLY CAN'T DEVELOP A BETTER ONE

## HOW ARE RIFLES REALLY USED IN COMBAT?

- THEY ARE FIRED BY MEN WHO ARE :
  - INADEQUATELY TRAINED
  - OVERLOADED
  - STRESSED BY FEAR AND FATIGUE
- DISTANCE TO TARGET IS NEVER KNOWN
- MOST TARGETS ARE NEVER SEEN - JUST FAINT LOCATION CUES
- TIME PRESSURE IS EXTREME -- A SECOND'S DELAY IN FIRING CAN GET YOU KILLED
- KEEPING THE ENEMY DOWN IS NEARLY AS GOOD AS HITTING HIM - BUT MUST BE SUSTAINED OVER TIME
- COMBAT PERMITS AIMED SEMI-AUTO FIRE LESS THAN 20% OF THE TIME (1973 ISRAELI COMBAT DATA - COL. UZI STUDY)

### CONCLUSIONS :

- COMBAT SHOOTING SKILLS HAVE NO RESEMBLANCE TO MARKSMANSHIP SHOOTING SKILLS
- TEST RESULTS FROM KNOWN DISTANCE RANGES TELL YOU NOTHING ABOUT COMBAT EFFECTIVENESS

## WHAT ARE COMPONENTS OF RIFLE EFFECTIVENESS IN COMBAT?

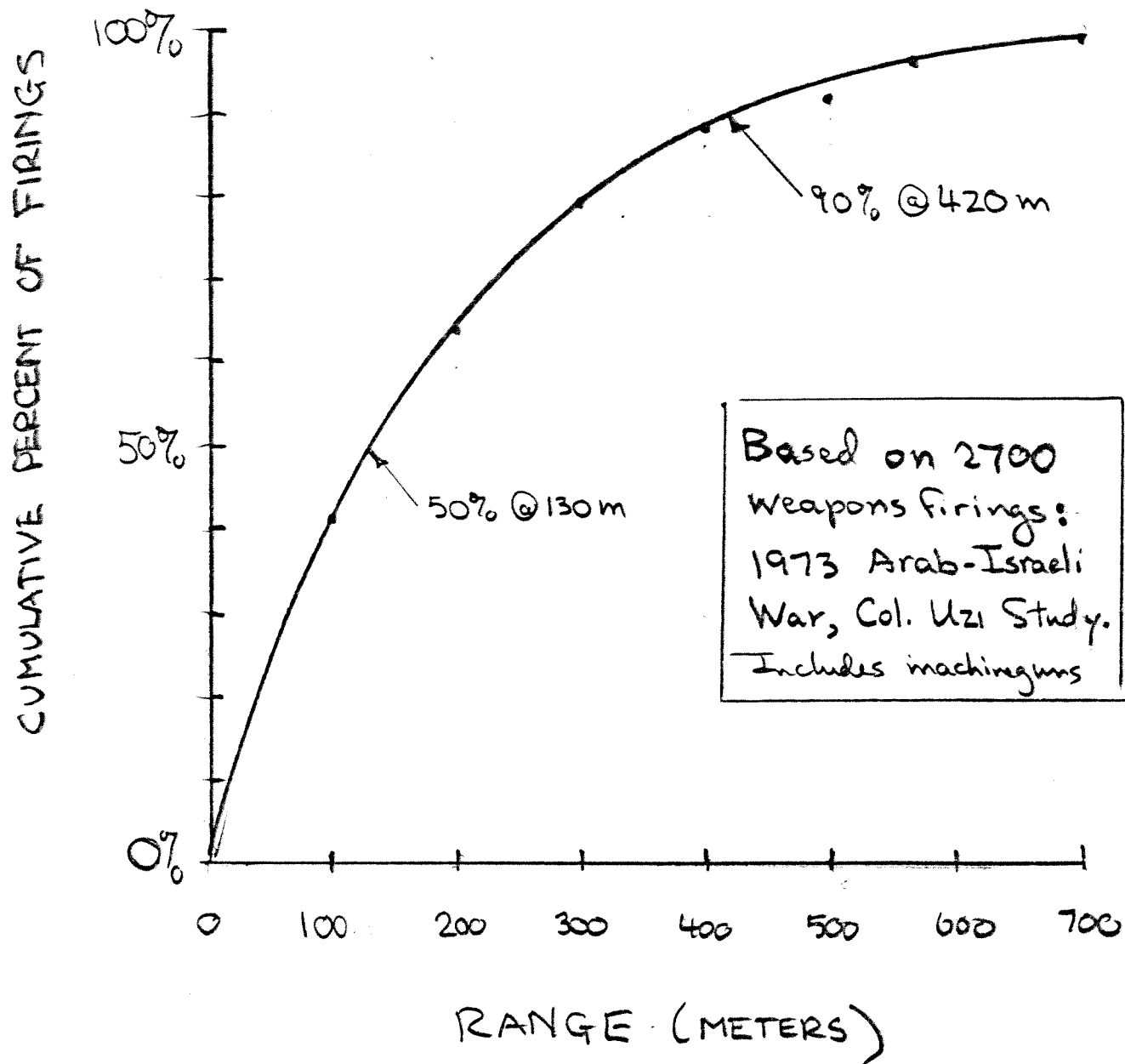
GOAL: ESTABLISH FIRE SUPERIORITY IN THE  
FIREFIGHT QUICKLY -- AND BE ABLE TO  
SUSTAIN FIRE SUPERIORITY WITH THE  
AMMO YOU'RE CARRYING

- ① <sup>(AND INCAPACITATE)</sup> HIT AS MANY OF THE ENEMY AS POSSIBLE,  
AS ^EARLY AS POSSIBLE
- ② FORCE THE ENEMY DOWN EARLY AND  
KEEP HIM DOWN WITH CONTINUING  
NEAR MISSES
- ③ KEEP UP EFFECTS 1) AND 2) AS  
LONG AS POSSIBLE, WITHIN THE RIFLEMAN'S  
LOAD LIMIT ASSIGNED TO RIFLE AND AMMO.

①, ② AND ③ ARE  
EASY TO QUANTIFY .

- ① MAN-MINUTES OF ENEMY FIRING  
OPPORTUNITY (WITHIN A 2 MINUTE  
FIREFIGHT)
- ② NUMBER OF NEAR MISSES (OR RATE)
- ③ MINUTES OF FIRE AVAILABLE WITHIN  
AMMO LOAD

# WHAT DISTANCES COUNT IN SMALL ARMS COMBAT?



CASE I - PROTOTYPE FOR GOOD FIELD TESTING

CDCEC SAVS FIELD EXPERIMENT-1988

(AK-47 VS M-14 VS M-16)

USED TRAINED & AIT TROOPS

REALISTIC SCENARIOS - FLEETING, HARD-TO-FIND,  
MOVING, POP-DOWN

FIELD TESTS IN SOUND SIZE UNITS

FLORQUATION/STRESS TYPE DUST, SIMULATED RETURN FOR  
TIME URGENCY, HIGH MOTIVATION

REALISTIC EFFECTIVENESS CRITERIA

WEIGHT-LIMITED RIFLEMAN

HIT-BASED FIRE REDUCTION (GET)

SUPPRESSION (TOTAL NEAR MISSES)

SUSTAINABILITY (% OF LOAD REMAINING)



# STYLISH

Squad	Hit-based fire reduction	Suppression	File duration
7 M-16/2AR	1.01	1.21	1.50
9 M-16	1.00	1.17	1.51
9 M-14	1.00	1.00	1.00
7 M-14/2AR	.99	1.07	.85
9 AK-47	.77	.89	.89



## SIGNIFICANT UNEXPECTED RESULTS

AK-47 IS SIGNIFICANTLY QUICKER WITH M-16

AK-47 IS 3 TIMES AS RELIABLE AS M-14 WHICH IS 5 TIMES

BETTER THAN M-16 (BALL PROPELLANT IS UNSUITABLE)

AK-47 IS MORE ACCURATE AT ALL RANGES; AK-47 IS POOR

AT LONGER RANGES

CLADS DIFFER 30-100% IN MDE'S EFFECTIVENESS IS

QUANTIFIED BY SINGLE "ACES"

FILE REQ'S BEYOND 400M AND MACHINE GUN REQ'S

BEYOND 600M ARE IRRELEVANT