

The 'Jedi' PROJECT

An investigation into the
mental and physical
aspects of handgun mastery
By Major Richard Groller

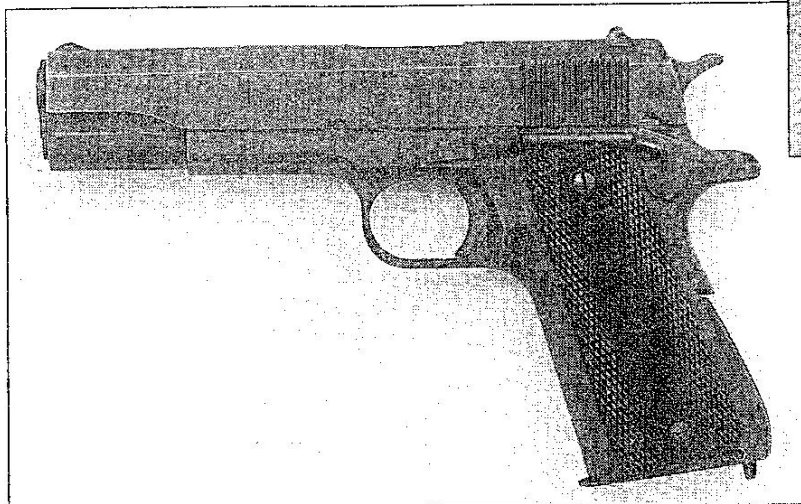
In the late 1970s, a fictional class of warrior-monks captured the imagination of the world when the Jedi Knights were brought to life in the *Star Wars* trilogy. The best of these Jedi were masters—individuals who through rigorous training developed great physical and mental powers. Such masters have epitomized the warrior's aspirations throughout history.

In 1983, the Jedi master provided an image and a name for the Jedi Project, a human-performance modeling experiment based on Neuro-Linguistic Programming (NLP) (1) skills. Neuro-Linguistic Programming is defined as a set of techniques used to facilitate individual pattern changes. NLP teaches ways to modify counter-productive behavior patterns and ways to instill useful behavior pat-

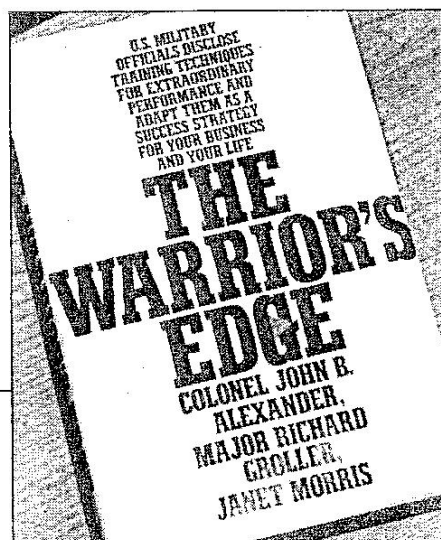
terns. The Jedi Project utilized very advanced applications of a subset of NLP called influence technology. Influence technology researches revolutionary methods of influencing or altering human behavior. In this case, the subjects involved were participants who were willing to be influenced in a positive manner to acquire desirable skills.

To acquire these skills, an advanced optimization technique was borrowed from computer network analysis, called CPM or Critical Path Method. (2) A critical path is the minimum number of steps required to accomplish a specific task. The performance of any task requires a number of steps. Many individuals add extra steps to the process and may not be aware of which steps are

unnecessary to achieve the desired goal. The critical path provides a model of all the steps that *must* be included or else the goal will not be reached. The goal of Jedi was to model a critical path to excellence so clearly that the model could then be



Groller's study centered around the U.S. Army Marksman Unit and the Government Model .45 auto. Although generations of recruits have been intimidated by the .45's fearsome reputation, it is by no means difficult to shoot well.



This article is adapted from the book *The Warrior's Edge*, which Major Groller co-authored. It was published by William Morrow in 1990, and is out in an Avon paperback edition.

transferred to any quantifiable skill.

The Jedi Project grew out of a U.S. Army program called New Patterns of Influence. This program was developed during the early 1980s to disseminate NLP skills throughout the Army under the auspices of the Intelligence and Security Command (INSCOM) and, until 1984, the Organizational Effectiveness School.

We realize that the sample size—the

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number of human subjects involved in the Jedi Project—was not statistically significant; however, the experiment, run as a "proof of principle," had stand-alone results that are impressive.

MODELING CRITERIA

Under the auspices of Major General Albert Stubblebine, a small interagency team (with Army as the lead member) was formed to determine what benefits could be derived from applying NLP modeling technology to real-world training problems. The team was a part of the large-scale organizational look at training technologies conducted by the U.S. military, the largest training institution in the world.

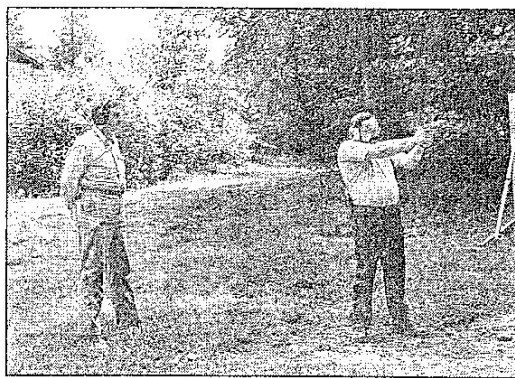
The military, recognizing that new and more complex skills will be required of warriors in the future, conceived this project as an attempt to adapt training skills to meet future needs.

An acceptable test bed for the modeling technology was determined to be the skill of .45 pistol shooting. Because millions of dollars are spent annually on the training and maintenance of marksmanship skills, anything that reduces training time or ammunition requirements while maintaining or surpassing current training standards is inarguably desirable. Marksmanship is also easily quantifiable—either you hit the target or you don't, and there is an established scoring system.

The team did a comprehensive survey of the experts available to be modeled and chose the Army Marksmanship Unit (AMU) at Fort Benning, Georgia, acclaimed by all respondents (including the National Rifle Association) as best in the world with the .45 pistol.

The .45 has a well-established reputation for being hard to handle. Some people, afraid of its heavy recoil, go so far as to say one is better off throwing the weapon at an assailant rather than trying to fire it. Others swear by it.

The .45-caliber pistol has been in the inventory since before the First World War, and although much is known about its characteristics, there has been little improvement in the firing techniques in over 50 years. Despite mechanical advances, better ammunition and even laser rangefinders, the basics of firing have remained the same.

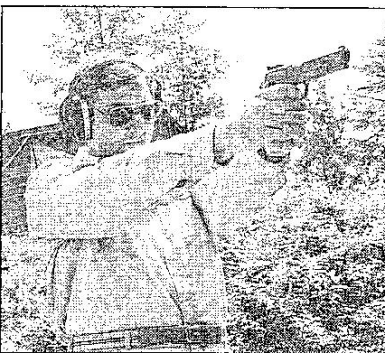


Officer Wright engages in rapid-fire practice from the Weaver stance as Groller observes.

THE "MASTERS"

The Army Marksmanship Unit agreed to provide the best. The three selected masters included Master Sergeant (MSG) Roger Willis, the National Champion, MSG Max Barrington, the Inter-Service Champion, and their boss, Lieutenant Colonel (LTC) Ralph Talbot, Chief of the AMU Pistol Team and an expert in his own right.

On February 8, 1984, they came to Arlington Hall Station, Virginia, INSCOM Headquarters, where they were severely tested both physically and mentally for four days at the



Major Groller tries an isosceles stance. Pistol is Jerry Ahern's Detonics .45 ScoreMaster.

marksmanship range.

The three experts were separated from each other and questioned in detail about their beliefs surrounding shooting. One of the first things learned was that all of the experts had a very positive view of shooting. They not only shot constantly at work, but they even shot recreationally on weekends. It was a passion for them, not just their skill. They believed in shooting: that it could save one's life either in combat or during a robbery at home. They felt positively about their ability to save the lives of family or comrades.

The two non-commissioned officers (NCOs) saw shooting as a way to make a good living. Each had spent many years on the AMU Pistol Team and only one year with regular troop units. Every day they went to the range and practiced shooting. This gave them great confidence in the capability of the .45 auto pistol to hit the target consistently.

All three shooters grew up at a time when defense of the country and military service were considered positive virtues. (The modeling team knew that those same sentiments might not be shared by new trainees.)

As well as positive beliefs about shooting, each of the experts had great confidence in his own abilities. They knew they could shoot well, even when not in top form. They also knew from experience that, if they got off balance, even by a little, their years of training had produced "muscle memory" that would correctly realign their shots. They were so skilled that they trusted their bodies to do what they were trained to do: fire when they were on target, never throwing a round off target and losing all their points.

Each expert was asked to fire a number of rounds at a specific target. So that their eye movements could be safely observed, television cameras were placed slightly off center in front of the shooters. The cameras were the safest and most practical way to collect the data without being in front of the shooters.

After the shooters fired a number of rounds at their own pace, they were asked to vary their style by adjusting their physical stance. To determine the parameters of their physical capability, we asked them to shift their weight from right to left and front to rear. We changed their footing and asked them to fire while sighting with their weaker eye.

All shooters used a certain position, or stance—which agreed with the classical "good form" long taught to marksmen. Altering that form confirmed that their belief in training or muscle memory was justified: They could extensively distort their normal physical firing position and still shoot accurately. Yet, eventually these adjustments measurably affected their shooting.

The next step was to examine the experts' mental techniques. Subsequent mental examination of the shooters made it apparent that each expert employed a very specific

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mental pattern. Each of the experts had received extensive training in internal visualization. (An entire chapter is devoted to visualization techniques in *The Warrior's Edge*) (3). Both of the master sergeants went so far as to shoot the entire match in their heads the day prior to the match. This was not just a quick mental rehearsal of how to shoot a match. *Every shot* was fired mentally, sometimes more than once.

The experts believed that shooting was 20 percent physical and 80 percent mental. They had specific, similar mental techniques that they employed while shooting. Each became one with the weapon. The gun was an extension of the shooter. *They let the bullet go downrange—they didn't fire it.*

If this mental targeting was interrupted, their firing effectiveness was lost. Asked to perform a simple but mentally distracting task such as humming "Mary Had A Little Lamb" while shooting, they immediately fell off target. This confirmed that the mental aspects were the key to shooting accurately.

Although much of what the modeling team learned was predicted by theory, the expert shooters had a few surprises in store for us. The styles of the shooters varied considerably. One, when interrupted during his shooting cycle, would put the gun back in the case, take off his glasses and start the entire cycle all over again—taking the gun from the case; loading it; putting on his glasses. This shooter had developed all match-related activities into an extensive ritual. The others could put the gun down, talk to you, pick up the gun and begin again where they left off, although one was quite causal about it while the other was a bit more formal. There was substantial variance in the amount of ritual behavior the three displayed. These differences proved useful—remember, what was being sought was the required critical path rather than whatever embellishment a specific shooter added for personal comfort.

The shooters found that they could not adequately describe how they learned to shoot or how each step in the shooting process was performed. As experts, they had "chunked" information into a reduced number of steps. A chunk is a variable unit of data absorption and retention used by individuals. Some individuals like minute detail; others want the "big picture." These experts took many individual actions, learned over a long period of time and condensed them into a single action or chunk: "shoot-ing." They successfully exported to

COMPARISON OF THE CONTROL AND TEST GROUPS				
	CONTROL GROUP (1)	TEST GROUP (2)	RATIO OF TEST/CONTROL GROUP	
Length of training	3½ days (27 hours)	1½ days (12 hours)	0.44	
% of personnel qualified	8/11 73%	12/12 100%	1.37	
Points per person	292.7	295.9	1.01	
Hits per person	35.6	36.3	1.02	
% of experts	10%	25%	2.50	
Average rounds per person to qualify	375	176	0.47	
(1) Using Conventional Training Technologies (2) Using NLP Training Technology				
DEMOGRAPHIC COMPARISON				
	CONTROL		TEST	
	RANGE	AVERAGE	RANGE	AVERAGE
AGE	20-34	23.8	19-37	23.16
GRADE	E2-E6	E4.08	E1-E6	E4.1
GT SCORE	92-143	113.8	69-139	105.75
MALE/FEMALE	ATTEND	QUALIFY	ATTEND	QUALIFY
	9/2	7/1	11/1	11/1

unconscious memory all of the supporting subcomponents of shooting necessary to achieve winning form.

Surprisingly, these experts do not need to hold the weapon perfectly still to shoot accurately. Under observation, the shooters displayed a great deal of arm movement as they were firing. They *mentally* controlled the trigger squeeze and would not allow the bullet to go downrange until the sights were on target. This mental control was an unconscious process that allowed trigger squeeze to occur only when the sights were aligned. The experts called this technique "controlling the smallest arc of movement." They knew they would be moving and controlled the arc.

Attempting to hold perfectly still

proved counterproductive, causing the shooters to become tense and increasing the vibration in their arms to the point of uncontrollability.

THE MODEL

After two days of intensive work with the expert shooters, the task force took a day to synthesize the collected data. They then designed a universal model for shooting that was readily transferable to other weapon systems.

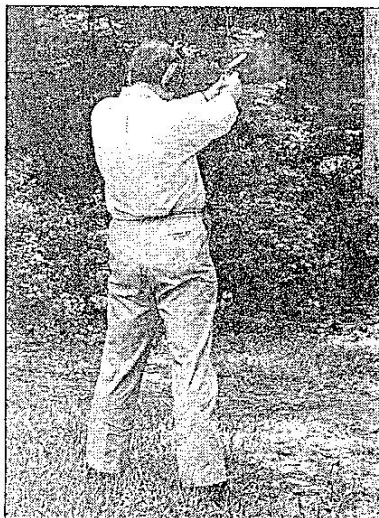
The model involved elaboration of positive and negative beliefs about shooting; the analysis of physiological components involved in shooting as well as the design of a universally effective mental strategy for shooting.

This process revealed certain limiting beliefs about shooting that had to be removed before they could be replaced with more appropriate ones:

- That firearms are "bad."
- That the .45 is an inaccurate and undesirable weapon.
- That the .45 cannot be controlled because of the kick.
- That one must hold the gun totally still to shoot bull's-eyes.
- That people cannot learn to shoot as an expert in two days.

It was decided that the beliefs of the experts should be instilled in novice shooters. These included:

- That it is good and natural to learn to shoot.
- Anyone willing to apply themselves can become an expert, and that this can be accomplished quickly.
- Learning to shoot effectively may be an important tool for future survival.
- Shooting is a long-term and important job skill.
- Shooting may be for sport, for fun, and can carry prestige.
- Hitting the bull's-eye can be done naturally.



Major Groller fires the Detonics ScoreMaster from the isosceles stance. Most of the Army Marksmanship Unit's work was done from the classic one-hand target stance.

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- The gun will fire without one's conscious effort when the sights are aligned.
- One becomes the weapon system—you and the weapon are one.
- Guns are safe but must be respected.
- Muscle memory may compensate for miscalculations.
- The shooter needs to be willing to try new approaches.
- Dry firing 15-20 times before shooting will improve shooting scores.
- Shooting is mostly mental, "allowing" the biocomputer to do its thing.

Next, the important physiological components were outlined. These included:

- Correct stance
- Body posture
- Muscle tone
- Grip on the pistol
- Arm position
- Breathing
- Sight alignment
- Trigger pressure

The installation of mental strategies for successful pistol shooting includes mental rehearsal of all aspects of the shooting process and the physical rehearsal of the sequence followed by the expert shooters. The task force monitored the installation process to ensure that all trainees demonstrated, through repetition, the proper sequence of events to achieve success.

The critical piece in the installation process is the mental rehearsal of the sensory input, i.e., visual, auditory and kinesthetic (or "feels good check"), in the proper sequence. Note that they rehearsed all the mental aspects, not just visual ones.

Another key aspect to the mental process was to establish a success



Another example of poor form is supporting the wrist with the weak hand. Although this technique and the similar "cup and saucer" hold had some vogue years ago, clapping the support hand around the front of the gun hand is now universally preferred.

cycle. This meant that the first time the students fired, they were put into a situation that guaranteed success. For pistol shooting, this was accomplished by starting live fire at full-sized targets at very close range—about ten feet. At that range, no one could miss, and success was experienced from the start. This was a major departure from traditional training, where students begin at 25 meters and most of the early rounds miss the target. Nothing builds a better attitude as quickly as success.

Although success in hitting the target was the objective in this process, close-range shooting is not uncommon. Most police shootings take place at seven meters or less, and most miss the intended target. The "pucker factor"—the stress of combat—has something to do with this.

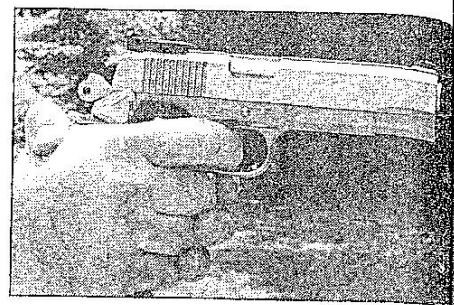
The critical path of the success cycle included reinforcing all mental aspects of shooting. The strategy for beginning shooters included:

- Correct position and grip
- Relaxation and taking a deep breath
- Take up the slack (increase the tension) on the trigger
- Visualization of perfect sight alignment
- Concentration on the sight alignment
- Application of steady trigger pressure and letting the gun go off
- Recovery and preparation for the next shot
- Internal auditory dialogue that supports the success sequence

The internal dialogue was modeled on what the experts said went on in their heads while they were shooting. All of the experts talked to themselves while firing. They had a cyclical dialogue that went "Breathe," "Trigger slack," "Sight alignment," (or "Get on the sights") and "Let the gun go off." Trigger slack is the distance the trigger can be pulled before it meets resistance. Once the slack has been taken up, they switched between "Sight alignment" and "Let the gun go off" based on the arc of movement and the sight alignment.

To enhance shooting scores, the modelers made a few physical modifications. The front sights of the weapons were painted white to help direct the shooter's focus. This is a common practice and was done by the control group as well. They also placed a bright red dot in the center of mass of the target to help establish an aiming point.

A metronome was played throughout training to subconsciously install a 60-beat-per-minute rhythm; this paid off when the trainees had to shoot a timed fire course (five rounds within a prescribed period).



Bad form should be avoided if the handgun is to be mastered. Avoid the error of locking the thumb of the support hand over the shooting hand. This is acceptable on a revolver, but with an auto pistol it can cause jams as well as injury to the thumb.

Once the task force determined the desired shooting model, they returned to the masters, describing the model and how they believed the training should be conducted.

The response was immediate and enthusiastic. The participating AMU members felt that this approach represented a breakthrough in marksmanship training, possibly the first such breakthrough in a hundred years.

THE TRAINING PROGRAM

The next phase of the project was to translate the model into a training program that ordinary instructors could be taught to administer. A complicated training model that only NLP-trained experts could install would be useless to the average instructor.

The task force was determined to instill the value of positive feedback. Most people do not picture combat-hardened NCOs going around praising everyone, no matter how well their men are doing. The NCO motivational philosophy of "kick ass and take names" has been established over many decades. This new approach would prove to be a challenge.

To set a positive tone and demonstrate success, the AMU experts made a videotape so that desired belief systems were embedded in a very positive way using the theme: *This course is impossible to fail.*

Next, to test the new model of pistol shooting against the conventional system, we established two demographically balanced groups: a control group and a test group. All participants were young male and female servicemembers. None of them was already expert with the pistol, though many had previously fired one in basic training or as a civilian. Weapons enthusiasts were screened out.

To ensure competent training for the control group, the AMU training unit, a

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team of experts at Fort Meade, Maryland, was enlisted. The control group was trained on the Combat Pistol Qualification Course. The training period was 4½ days, ending with the final firing for record.

The test group was trained over two days by two members of the original task force. Other members observed but were prohibited from joining the training process in order not to upset the student-instructor ratio.

The test group watched the video, witnessed a demonstration and then underwent a closed-eye meditation session (a technique described in more detail in *The Warrior's Edge*) during which the trainers instilled positive beliefs about shooting. This closed-eye process involved the use of relaxation techniques, with music and a metronome in the background. The soldiers were taught to visualize themselves as expert marksmen. This process was repeated throughout the training.

Following a safety briefing, weapons were issued to the test group. Physical contact between specific trainee and specific weapon would be maintained throughout the training to reinforce the concept of marksman

ing, and by the end, all test group participants had qualified in less than 12 hours of total training time.

The results of the training and firing for record are on page 117. Anecdotal test data worth noting included:

1) Two people from the test group qualified as expert after eight hours' training. Neither had ever qualified with a pistol previously. One was a female, the smallest and youngest member of that group. This woman reported that she had never fired a pistol before that day.

2) The test group allowed people to be released from training once they qualified on the second day. Experts were released at any stage.

The control group did not fire for record prior to their final day. The choice was made to test against the published, existing system as opposed to any modification. The intent of this preliminary study was to determine whether this NLP modeling technique warranted further study. It was always maintained that a follow-up study employing thousands would be required to validate the study.

The Jedi Project demonstrated that in a short period of time, experts could be modeled and a training program developed to enhance the skills of trainees, using techniques that could potentially save scarce training resources, ammunition and time.

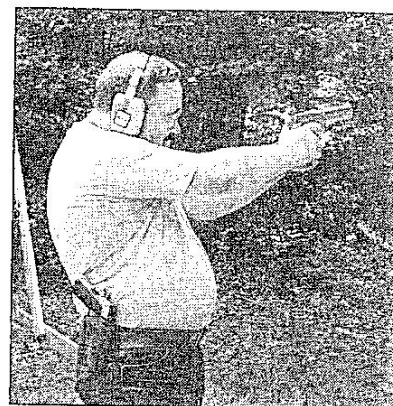
APPLYING ADVANCED MODELING TECHNIQUES

The biggest success of the Jedi Project was the development of a universal modeling process applicable to most skills. Those principles can be used to achieve success in the area of your choice.

Once you have chosen your skill and your master(s), you will employ the following process:

- Elicit the beliefs of the expert.
- Model the pertinent physiology.
- Determine the limits of physiology.
- Model the mental strategy.
- Form a tentative generalization regarding the beliefs, physiology and mental strategy of the experts.
- Mould someone (possibly yourself) to fit the model.
- Review, test and refine the training model.
- Implement the refinements and install the final model.

The most important component of modeling is your ability to observe. The vast majority of people rely on gross generalities and causal observations to learn what is going on around them. They see only what they want, expect—or fear—to see.



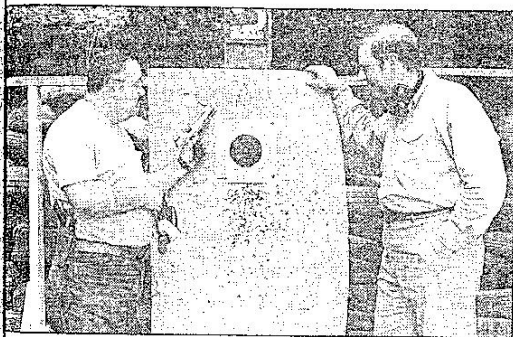
Officer Wright is a true .45 man. He fires Ahern's Detonics while his own cocked-and-locked .45 rests in an "Avenger"-style holster on his hip.

When modeling, you must be open to new possibilities if you are to be successful. Assume the expert has something to teach you and that you know nothing of how he or she achieves results. Watch and listen carefully.

Modeling can be a powerful tool that allows us to focus on excellence. Modeling based on expert performance can enhance the acquisition of complex skills.

For the average trainee, modeling provides a path to excellence in most skills. In lieu of a personal mentor, in our modern world—where apprenticeships are nearly unknown in the traditional sense—modeling allows any motivated individual to access and transfer the skills of those most gifted individuals in a chosen field wherever those experts reside.

For an individual, a business or a government organization, modeling is the true path to excellence. For exceptional students, it provides the chance to become the pathfinders of tomorrow.



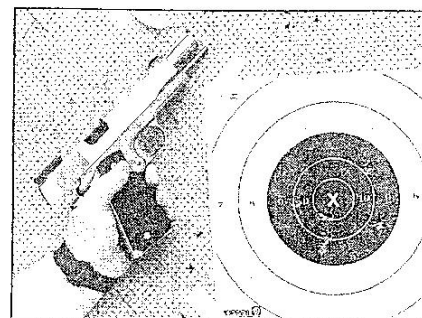
Major Groller and Officer Wright examine the results of Wright's rapid-fire shooting at 50 feet. Wright often assists Jerry Ahern in handgun evaluations because of his skill.

and weapon as one complete system.

The control group took the traditional 4½-day course. In the traditional course, the introduction to weapons is slower. The shooter starts firing at a much great range and invariably misses a large number of times. The students gradually learn to hit the target, but their first experience is usually a failure, which must later be overcome.

THE RESULTS

The first firing for the test group was conducted the same afternoon, and most of the group qualified. An additional session was held the next morn-



The results of a fast magazineful at 50 feet—four 10s and three 9s. With proper mental and physical conditioning, almost anyone can eventually shoot this well.