

AGENDA

Springfield Hilton
6550 Loisdale Road
Springfield, Virginia

25 May 1978

1300 - 1315	Introduction	
1315 - 1515	"Patterns of Conflict"	Col. Boyd
1515 - 1530	Break	
1530 - 1600	"WW II Armored Operations, A Frontline Soldiers View"	Mr. Coloney
1600 - 1630	"Nature of European FEBA"	"HERO"
1630 - 1700	Recap/Discussion	

26 May 1978

0900 - 1030	"Countering a Blitz"	Mr. Sprey
1030 - 1200	Col. Rudel Questions	
1200 -	Recap/Discussion	

PATTERNS OF CONFLICT

Colonel John Boyd

If we look back we find out prior to the FX and the lightweight fighter fast airplanes that we had a problem pumping energy. In fact the pilots said these airplanes behave like manhole covers. They started sliding out of the sky very quickly and we could not get very many of them back. So the notion developed that what we really want to do is to conserve energy or at least add on. However, that seemed like the right kind of notion but after we got these airplanes that had high thrust-to-weight ratios and good turnability we found that the pilots like to use it both ways--pump it in very quickly and pump it out very quickly. We find that there are large energy surges to gain in certain situations and also to drag it out as a basis for gaining advantage, and we will get into that.

The evidence is very compelling. We look at the pilots. We look at the evidence and even the simulations. We begin to see that information as kind of drive through what I call a second bullet. It is just that kind of a fighter. We want high aerodynamic G or a high aerodynamic lift. On the other hand, while you have that you also want to be able to get generate higher current rates and lower turn radii or G's as the case may be, positive energy rates. But--note the chalk that I put on here--not necessarily higher turn rates or negative energy--rates. In other words, there are times that we might want to flush it out very quickly for a given turn rate or a given turn radius. You see somewhat of a chop there. It begins to drive us down to the third bullet here.

This suggests a fighter that we can use to pick and choose engagement opportunities using the fighter pilot as an actor. In other words, he likes to have at least in some sense, control over the engagement. Also, he likes to be able to have the capacity to make a natural hook or a button hook turn. The idea being he would really like to get inside his adversary's maneuver space--force the other guy outside his maneuver space so he can use that as a basis for exhibiting aspects of that control. In other words, when he is on the defensive he wants to force overshoot. When he is on the offensive, he wants to stay inside and deny his adversary doing the same thing to him. But you will note, I will introduce a new term here, "fast transit", to depict that because when you are talking about a natural hook, what does that mean to an engineer or persons trying to lay that

out except the fact that he is trying to maybe get around in small circles. But they are very transient kinds of conditions.

When you begin to think about it you say, "Well you are talking about fast dynamics". But really a better word or better term would be a fast transient--one happening over a very short period of time. I use the word fast, fast in a relative sense--faster than your adversary. But you will note that I use this in a very specific sense relative to this maneuver so the idea occurred that maybe we should broaden that notion and maybe that idea of fast transient could be developed over much broader notions and if so what would that be? For lack of a better way, let us go into an idea of expansion and you begin to think about this a little bit. It starts to bug you--get inside your head. Pretty soon you realize that when we talk about fast transient we are talking about operating at a faster tempo or a faster rhythm than our adversary. Putting it another way, we would like to get inside his observations, his decision and action time scale. We are going to have to go through an observation-decision-action loop. We would like to be able to go around that loop over shorter intervals of time than he will do. If we can do that the idea occurs that we want to appear ambiguous to him and we are going to force him into a position where he overreacts and underreacts. As a result, we are going to generate confusion and disorder in our adversary's mind as well as his system whether it be mental, physical, or what have you. Now why does that occur? Let me give you a feel for it. Let us assume that we in this room are going to compete against an adversary and let us assume that we are going to be in a conflict situation. Let us further assume that we can operate at a faster tempo or faster rhythm than he can. And we are going to try to do him in and, of course, likewise he is going to try to do us in.

The idea occurs that we are his environment and he is our environment. He is going to have to adapt and react to us; likewise we are going to have to do the same thing to him. He is going to see us through the lens of tempo and rhythm. He projects his own reality upon the world. Likewise, we are going to see him through our tempo and rhythm but ours is faster because that is the way we set it up. He is not going to get a very good image of us, but we can get a rather precise image of him. The net effect is that he is going to see one image of us yet the real image can unfold somewhat differently. In other words, the psychologists would say he is not adapting to his world. He has a mismatch between

how he perceives the world and how it is unfolding. In other words, we are driving him bananas with a modern banana. As a result, if we keep doing that--sequencing it over time and getting inside his system--no matter what he does he is going to tend to get negative reinforcement. He is going to try to achieve a goal. He is going to keep getting further and further away from it. For our part, we will get closer and closer. Doubt and uncertainty will arise, confusion and disorder and if we drive it far enough, panic and chaos. Now is there evidence to support that particular idea? If we begin to look we begin to discern evidences such as this. One of the first things that comes to mind is the Blitzkrieg versus the Maginot line in 1940. We see this idea of faster tempo or faster rhythm in terms of the Germans versus a slower tempo in rhythm by the French and the British. What would be the impact of that tempo? Well, in any book that you pick up on this thing, one of the first things they discuss is how the Germans are going through these loops at a much faster pace, much quicker pace than the allies. The allies were trying to adapt. They kept getting this negative feedback. Pretty soon doubt and uncertainty began to emerge and confusion, disorder, panic and chaos developed. It has been written up. They talk about confusion and disorder, inability to cope. In fact there is a beautiful account in Fuller's book on the conduct of war where he has an account of a British intelligence officer. On the first day, May 10, the guy was very calm and everything was going beautifully. May 11 there was a little note of anxiety--May 12, more. By May 20 the guy was out of his mind. He has blown his mind. He has gone bananas. And you can look at French accounts of the same thing--that it went the same way and then toward the end they did not know how to adapt so they just went catatonic.

Let us go to the F-86 versus Mig-15 as they were used in Korea. Now let us look at those airplanes and examine the observation-decision-action loop. If you were to compare both the airplanes in terms of silhouette you would find that they are about the same size. The Mig is a little smaller and the F-86 a little larger so in that sense the F-86 was a little easy for the Mig to see. On the other hand, in terms of the ability to see out, the F-86 had an enormous advantage over the Mig. Overall, the F-86 pilots came to the conclusion that it was much easier for them to observe what the Mig was doing as opposed to vice versa. So you get a higher quality observation to be able to see sooner under

a very dynamic or a very transient kind of environment. Now let us skip immediately to the action mode. If we were to compare these airplanes further--this is an important point-- you would find that in terms of ability to climb and accelerate almost throughout the envelope, the Mig had superiority over the F-86. It almost blanketed the total envelope. You would also find in terms of turn rate or radius or G or whatever you want to use, that the Mig had the advantage for the most part. Yet we find that we got the 11 to 1 or somewhere between 10 to 14 in exchange ratio, not them. How do we explain it? It is very interesting.

At that time of course, so-called breakthroughs came out. If you will recall the F-86 came out with a high-powered hydraulic flight control system and later a variance, universal flight control system. The Mig had a lower power. Interestingly enough, the F-86 pilots found that if they would use a scissor kind of maneuver, flip from one maneuver mode to another, that they could shove the Migs forward, get in behind them and shoot them down. They not only did it in a two-dimensional sense but also in a three-dimensional sense. Why do I make a big issue over this? Because if you were to go back to World War II and talk to fighter pilots they said never reverse your turn. Do not reverse your turn. Dumb thing to do. Going to get in trouble. Probably get shot down. On the other hand in Korea the mode was to reverse your turn. Flip-flop the other way because they found through experience that when you start getting up to high pressures, high Q's or high dynamic pressures to flip the F-86 from one mode to another very quickly the Mig pilots were in there struggling trying to keep up. The net effect was that the F-86 pilots were making transitions from one maneuver mode to the other much more quickly than could the Mig-15. Both three-dimensionally and two-dimensionally. Couple that with the ability to observe, and we begin to see these things and begin to accumulate them. Then, if you want to throw in the reason why we were better, the fact that our pilots were better trained and could make better decisions. In effect, our people could actually track through observations to decisions more quickly than could their adversary. And even the pilots themselves, even Gentile himself in World War II remarked, as you start to get the edge, pretty soon this other guy is getting negative feedback, he starts doing random kinds of things. He is very confused. You just knock him right out of the sky. We see that kind of thing happen. Whereas we tend to emphasize the body count, those other things precede that.

Many other cases might be much more interesting. The Israeli raid--no details on it, just an example here. Among the information that came out on the Entebbe raid in 1976 is the fact that they were in and out in 90 minutes and you read the accounts of how the Africans were trying to adjust. Idi Amin and his people were trying to adjust and were totally behind the power curve, and there was panic and chaos. The Israelis were going through those loops very quickly. The other guy was getting negative feedback and just could not keep up. In other words the idea time becomes very important. If we really do want to generate a rapidly changing environment, let us hype up that environment the other guy has to see, make it very difficult for him to adapt in terms of these characteristics--clear observations, fast tempo, fast transient maneuvers, quick kill, and so forth. In other words, so we can get inside his time scale. On the other hand, we would also like to make it difficult for them on the other side of the coin. We would like to inhibit his ability to observe or make decisions relative to us. So we can cloud and distort his observations for decisions. The point that I am trying to make is that in some sense we want to compress the time scales in which we are going to be able to do things. On the other hand, we want to stretch out the time scale in which he is going to be able to do things. So open up his time and mash our's down. The idea is indicated here that we want to collapse him into a bag of confusion and disorder. And if we carry it far enough we can drive him right to panic and chaos. Because what is going to happen in some sense relative to him, if we are clever enough, we are going to appear ambiguous, chaotic, or misleading. Thoroughly try to drive him bananas and at the same time try to prevent ourselves from being driven bananas.

At the same time, we want to suppress and distort our signatures whether it be the size or the camouflage IR, radar or whatever it might be. In other words, make things difficult for him and stretch his time. As we are looking at airplanes, three notions come to mind here including the idea of having high speed relative to him. In other words, we are going to be able to out-cruise him. Air-to-air, high altitude. It might be supersonic cruise, lower altitude, as long as we have the capacity above him. We want to be able to change positions more quickly than he can in terms of speed. The other notion here is the idea of maneuverability. We already talked about it--rapid energy gain, rapid energy loss

coupled with those high turn rates or low turn radii. Obviously, once again high and low being above him. And another idea is this idea of high pitch, roll, and yaw rates. What I have shown you are three things. First is the notion of maneuverability. What are we talking about here? I like to call it agility. You think of a cat. You drop it and that quick it twists and gets on the ground. So in some sense you are talking about high pitch rates, high roll rates, and high yaw rates. You are talking about an agility measure. That kind of thing, and each one obviously feeding into the other. Kill mechanism once again, the idea of quick-shoot fire control. In other words, you do not want a lot of prep time--take all kinds of time to get ready. Get ready fast and then you do not want a slow weapon going up there very slowly because it gives the other guy time to react. You want that thing to hustle and cut down his reaction time. So you want a fast weapon too at the same time. So these are the kinds of things we begin to suggest.

Historical investigation---well, I already said what got me into this and a couple of my friends pushed me. I really did not want to get into this. I went into it with heel marks all the way. Now they cannot get me out of it and they are just as angry, but in any case I looked at the blitz. Can we look into the internal dynamics or the internal ways that that unfolds that causes this confusion and disorder or panic and chaos depending on how far you drive these particular phenomena. As a result of that I started getting at the first books and I found that it was very difficult to really get an understanding unless I went back further in history because when you start reading Guderian and other people right away they start appealing to previous events which I was not familiar with and they just use a couple of words which is the key word everybody knows if they have read it. So I figure I have to go back and understand the key work. So it drove me into this historical investigation. As I went into it I saw some other interesting phenomena--I began to see some strange relationships between gurrilla warfare and Blitzkrieg, so I had to pursue that too. What I am trying to point out is that I looked at it through four categories: I looked at war in general; I looked at Blitzkrieg; I looked at guerrilla warfare; and, for lack of a better word, I looked at dirty tricks, strategems, ruses, and that kind of thing. Here are some of the sources that I looked through. I am not going to go through in detail but I want to point out a couple here in alphabetical order and there are three in there that were particularly interesting, particularly after I had

read some of the other information. One, of course, which I think is greatly misunderstood is Clausewitz's book On War or Treatise on War. There is a new edition out by Howard Brett. If you are really interested in it, it is a masterpiece. But you have to go through and you cannot speed read it through Evelyn Wood's speed reading course. You are going to have to go through the book very carefully, compare the front to the back, the middle to the front, and pretty soon a wave will begin to wash over you and you might even understand it. But you have to go through that.

Another book that I found very interesting is Sun-Tzu's The Art of War which we will talk about as I go through my presentation and one that I think has not been given due credit. I found it fascinating to see how the thinking has evolved. Then there is this one by Manstein, Lost Victories. I think that is a masterpiece and I think there are some very important lessons in there. For some reason it is not articulated or is not brought out and I think if you do not read this book you are not going to really have a deep understanding of how the modern German general staff worked or actually how that Blitzkrieg unfolded and the thinking that went behind it. It is not just a bunch of tanks going 50 miles down the road. So I think you have to get some understanding of it. It is really well written. There is some superb thinking there. There are others that I regard as interesting too, but I think you will see. You will see Sun-Tzu down here again in The Art of War translated by Griffin. We can give you a copy of it later on to look at, but I regard those three as important.

Now, let us drive through the historical part. When you begin to look at this stuff you begin to see or begin to note that people, whether they are individuals or if they become part of a corporation, a bureaucracy, or a nation, they like to survive. Not only do they like to survive, they like to survive on their own terms. Not with a club over our heads. The net effect is that you want to have some capacity for independent action or freedom of action. That tends to be your goal. I do not care whether you are talking about an individual or about a subgroup or a large group in terms of a nation state. As it turns out, though, if we live in a world in which we have limited resources and we have these goals, if we try to improve our capacity for independent action we may deprive somebody else or vice versa. We find that we get a conflict here. If we try to improve ours we may need resources to do that and deprive somebody else and vice

versa. I am not trying to etch this in your mind, but it is the kind of thing you should keep in the back of your mind as we go through this presentation. It leads to these kinds of questions: How do we realize such a goal by waging war, or, the part that I am going to be very interested in, does history give any insights or suggest any patterns for realizing this goal? And as I have already indicated, we are really going to devote a great deal of attention to the second question.

So with that in mind, let us pursue the presentation. Let us go back to 400 B.C.--one of the earliest treatises on war, and talk about this at some length. If we look at the Treatise on War by Sun-Tzu around 400 B.C. you get the impression you have read something important the first time you read it, but you are not sure what you read. One of the reasons is that when you read these Westernized Chinese ideas on war or philosophy, you learn that they talk in metaphors, analogies, and aphorisms and that kind of thing. You are technically oriented--that may make it a bit difficult to assimilate these oriental writings, but if you think about it for a while why things begin to come through. One of the interesting ideas that comes through is that he has a tremendous obsession with the idea of deception. The book literally drips with deception on every page. How you are going to hold your adversary and the benefits to be derived. As a matter of fact he makes the comment "All wars are based upon deception", but he does not even have to make that comment. It is very obvious as you go through it page after page. Another interesting notion is the idea of swiftness of action, speed, rapidity, what have you. This also goes through page after page. You want to deceive them and you want to be fast. As a matter of fact, he makes the point "The essence of war is speed or rapidity".

Another notion, and I think it is a very interesting notion and one which we might not have a good feel for, is fluidity of action. Let me illustrate it this way. He speaks many times of the idea that an army should behave like water going down hill. That you seek the crevices, the gaps and the voids. What is he saying here? You begin to think there are a number of things that come through. One, he is talking about the idea of trying to find a path of least resistance. But I would like to take a little broader context to look at--the idea of being able to adapt to your environment when he is talking about fluidity. You have to deal with the environment and to do it more quickly than your adversary. The other notion when he discusses fluidity is the idea of directing strength against

weakness So this notion of fluidity entails a couple of things--the idea of adaptability and the idea of trying to drive strength against your adversary's weakness, or at least denying him the same possibility against you. The idea of cohesion is also introduced in terms of communications where small groups have to learn to work with large groups and work in a coordinated fashion. Then he uses these principles in order to play what we call a dispersion-concentration game. He would like to hit with a concentrated force, strike at a dispersed adversary, and in a modern sense roll over and destroy them piecemeal. Or on the other hand, when he is opposed by a strong adversary, he wants to be able to disperse and deny his adversary an effective blow against him. He plays it both ways. It is nothing more than another manifestation of strength against weakness. Whereas Westerners think of two concentrations bashing against one another and bodies flying all over, Sun-Tzu has a completely different notion.

The idea of surprise. This is interesting. Normally when we Westerners speak of surprise, the emphasis seems to be on the input side of the house, you are going to get the surprise and everything is going to be wonderful later on. On the other hand, when you look at it through Chinese eyes, they do all these other things so that they can actually have surprise manifest itself. In other words, they tend to put the emphasis on the output side of the house--as a result of doing certain things you acquire or generate the surprise. Their idea of shock is very much the same as ours--the sudden blow or a series of sudden blows over a very short period of time. Then there is strategy. You have to get inside your adversary's organization--learn his strengths, weaknesses, movement, and intentions. In other words, get oriented to your environment. Understand what you are up against so you can adapt to it and also be able to shape that environment and make it difficult for your adversary.

Sun-Tzu is always talking about trying to shape his adversary's perception of the world. Why? Because he is trying to undermine his enemy's plans of action. Then he says that attacking an enemy's plans is the best policy. Strange as it may seem, I made this briefing a number of times, and you ask, "Well, how can you attack an adversary's plans". Well you cannot take an axe and chop it or burn it. The idea behind it is very indirect, a very subtle kind of thing. If you get inside his organization, inside his system, so you are

oriented to his environment and you can shape his perceptions of it, in effect you have altered his plans. You have undermined and are attacking his plans. Next he talks about disruptive alliances. We have heard about that--Julius Caesar's divide and conquer is another version of it. It is another aspect of strength against weakness--trying to get the guy piecemeal, except you are doing it maybe on a larger scale instead of down at the battalion or platoon levels. Finally, our third basis of attack is army. You should still do all these things at the army level so that you can literally shatter them and pull them apart. Finally he brings up the notion of attacking cities only when there is no other alternative and he has a long description of why you do not want to do that, and when you read that, it is the same today as it was then. Nothing has changed. The expenditure, the price is very high. Duck it if you can.

Sun-Tzu talks about a cheng and chi maneuver as a basis to throw strength against weakness. Now the question is, what is a cheng and what is a chi. You might even be able to explain it better than I can, but let me give you an idea. How many people here saw the movie Patton? If you recall in one portion of that movie--I think it was up before the American flag, I do not remember exactly when--he made the comment to the effect "What you want to do is you want to hold them by the nose and kick them in the ass". Everybody said ha, ha, funny. That was a very important statement he made because it really represents in a sense a cheng and a chi. The hold by the nose to get his attention and then the undisclosed movement to the rear in order to pull him apart. That is one manifestation of it. Let us go a little deeper. The idea comes out about the cheng and chi: You are talking about the cheng representing a direct move and the chi an indirect move, or the cheng being the expected and the chi being the unexpected, or the cheng being the obvious and the chi being the hidden. If you want to take it all the way, the cheng in a sense represents the deception, the chi represents the surprise. And it is not cheng or chi. It is cheng and chi. In other words, they go together. In order to generate a surprise, first you have to deceive the guy. Why do I make a big point of that--because I read it in German and other documents. They put the surprise before the deception. Yet, if you look at the evidence, you have to get the deception before you can generate the surprise. So the order is important. It is not cheng or chi. It is cheng and chi. You do not have one or the other; they tend to go together, and I do

want to make that point. If you can do that, and be very clever, then you can slam your strength against his weakness.

Let's press on and go up in time. If we look at some early commanders, and of course I have a very tailored list here, Alexander around 300 B.C., Hannibal around 400 B.C., Belisarius the Byzantine commander around 500 A.D., Genghis Khan around 1200 A.D., and Tamerlane around 1400 A.D. When you see the kinds of things these commanders did, you find that many were familiar with Sun-Tzu. Many of the things they did were in conformity, with the ideas of Sun-Tzu as we have already talked about. However, there is an important difference. The Western commanders tended to apply these ideas within the context or within the frame of a battle. In other words, a formal battle where they would play this idea of a cheng and a chi or deception and surprise, the swift move to the rear or whatever in order to whip their adversary. If you look at the Eastern commanders, particularly Genghis Khan, they played in full conformity with the ideas of Sun-Tzu. They tried to literally unravel their adversary prior to the battle or even to deny the opportunity of a battle, and sweep up the whole nine yards. So in that sense they were much more closely attuned to the ideas of Sun-Tzu. When you look at either one you see this notion that we already discussed, the idea of the cheng and the chi. Let us look at some examples. Probably one of the most famous battles of all time is the Battle of Cannae. Many history books, generals, privates, civilians, and others study it in one form or another. Here we have the Romans at the top of the screen and the Carthaginians under Hannibal at the bottom of the screen. The Romans very seriously outnumbered the Carthaginians. Hannibal took this very unusual disposition and in effect, seduced the Romans to attack this arch wherein he was greatly outnumbered. The Romans pressed this arch back into this view where this dotted line is indicated here. Hannibal, knowing that he had a cavalry that was better than the Roman cavalry, used part of his cavalry to drive off the Roman cavalry. The rest he used to put in this stopper. He had the Romans so jammed in there that they did not even have the space to use their weapons--totally ineffective, confusion and disorder. The result--the Romans were slaughtered. A battle of annihilation. I do not know the exact figures, but I think the Romans lost around 70,000--Hannibal somewhere around 2 and 3,000. A rather fantastic victory. But once again you can see the manifestation of a cheng and chi where Hannibal seduced his adversary. The point I want to make is that this happened within the context of a battle.

On the other hand, let us look at the opposite example, what we can call a strategic maneuver or strategic operation. In this case a move by Genghis Khan against the Persian empire. Here we see four columns going against the Persian empire. Now what it does not reveal here are the dynamics. One of the interesting points--note the scale down here--500 miles. So we see the distance between the two outer columns there, yet it is a coordinated move and at least we do not think they had avionics or electronics. So the question that occurs is, "How did that happen?" One, a lot of preplanning. Two, signals or signalling devices. Three, couriers operating between the columns. They came in against the Shah and the Shah's forces greatly outnumbered them. They made these moves--one column before the other. The Shah tried to set up his disposition. They would shift the columns. The Shah would try to change his disposition. They literally pulled them apart. In effect it was really one major battle. You could not even call it a major battle--it pulled them apart, forced the Shah to abandon his empire, disintegrated his army, and then they sacked both of the major cities--Samarkand and Bokhara. This is the kind of thing we call a strategic operation or a strategic maneuver as opposed to the so-called major battle as depicted by the Cannae move and we will be bringing this up as we go down further in time.

Let us move a little further along--18th Century wherein we will discuss these gentlemen--Saxe Bourcet, Gilbert, and DuTeil. This was basically their theme--mobility and fluidity of force, very much in tune with the ideas of Sun-Tzu. They also bring up the notion of cohesion wherein they recognized that they had to be able to work together and they would use these devices--mobility, fluidity, and cohesion--to play the dispersion-concentration game--to be dispersed initially, at the last moment concentrate so that you can have a piece of your adversary's force. The old piecemeal again. The strength-against-weakness game again. In some circumstances if he outnumbered you, you were going to have to disperse and give him something that he could not attack, the idea being obviously that you still have to be quicker than your adversary or you are not going to get away with it. Very interesting notion here of a plant with several branches, primarily attributable to Bourcet who made the point that you should not have just one branch. Have many branches. If you start going down one branch and you are frustrated there, ricochet off, go for another one. If you are frustrated there, ricochet off and go for another. In other words, you want to keep your

adversary off balance. Another manifestation of that idea of strength against weakness. Another idea is to operate on a line or between alternative objectives. If you start moving between alternative objectives, this will put your adversary on the horns of a dilemma. Which one is he going to defend? If he splits his force at the last moment, you can bang against one and hit a piece of his force.

There is this other notion of concentrating direct artillery fire on key points to be forced. In other words, mass your artillery fire and try to blow a hole right through. You see many of those things today. Later on I will show you how we can take these last three notions--plant with several branches, operate on a line against alternative objectives, and concentrate direct artillery fire--and bring them together in one notion. We will see that begin to come out as we go on here. Napoleon was very familiar with many of these ideas and he used them very effectively, particularly as a general and in his earlier campaigns to defeat superior forces. I use the word superior lightly because obviously he must have been superior, so I am talking in terms of numbers only. He was more skillful, more daring, and more clever. But that was the general. Later on in his campaigns as emperor he started depending upon weight, mass, and power to drive it right up his adversary's rear end and started pitting strength against strength. Obviously he wanted more strength. Battles of attrition. Decisive battles. As a result he was going against these regions of strong resistance and there were very high casualties on both sides. He won many battles that way, but eventually met his demise. Later on he said, "As a general Napoleon was an outstanding general. As Emperor Napoleon was not a very good general". So as he got the wealth of the state he went to mass, he used up mass just to smash his adversary. Instead of using the rake here he started using a club.

The American colonists, the Spanish, and the Russian guerrillas who use these same basic ideas--us against the British and the Spanish and the Russian guerrillas against the French under Napoleon. They always tried to pull their adversaries down by using strength against weakness. Often we tend to draw a sharp distinction between regular warfare and irregular or guerrilla warfare. I think there are some common things that take place in the two and you may get a more integrated or more whole viewpoint and bring out some subtleties you otherwise would not see if you consider them simultaneously. The point that I am trying to bring out here is that regular warfare and irregular warfare exploit the

same principles. It makes no difference whether you are talking about Sun-Tzu, Saxe, Bourcet, Gilbert, or others, their ideas are at home with regular or guerrilla warfare. As we go down through history we will keep track of this and see whether regular and irregular warfare diverge or tend to hold together in these terms.

Let us move up to the 19th Century. Clausewitz's masterpiece On War came out about 1832. I want to get a nice chart on Clausewitz and put it in my briefing, but to try to condense his essential ideas to one chart is a pretty tough job, and I want to do him justice. The one thing I do want to point out here is that when we read his works we realize that he has a very heavy emphasis on the notion of the decisive or major battle and he tends to underplay or puts an underemphasis on the notion of a strategic maneuver. The question is why did this happen? By looking at his works and trying to see what happened, can you tell why this tended to come out? You have to be very careful when you start to criticize Clausewitz because he is using a dialectical approach. On the one hand, he takes a very extreme view in one chapter, a few pages later he takes the opposite extreme view, and he goes back and forth trying to weave his way through his story. He is going through this duality or this dialectic where he takes his extreme views--absolute versus real wars, and so on.

One of the big notions that he has in his treatise is this idea of friction, uncertainty, and chance of war. He recognized that this is just something that is going to occur and one of the biggest jobs of the commander was to be able to overcome or at least deal with friction, uncertainty, and chance in an effective fashion. Today we call it confusion, disorder, chaos, or whatever you want to call it, that kind of thing. Interestingly enough, even though he goes through this dialectic, he does not come down on the other side. He really does not address the idea of trying to magnify his adversary's friction and uncertainty. Yet when you look at his works you find out that if he had done that you would begin to see some more positive aspects from strategic maneuvers because the kind of things you are trying to do in strategic maneuver is to generate that confusion, chaos, and disorder, or friction and uncertainty as he called them. In any case, I regard this as being the crucial difference between him and Sun-Tzu. Of course they wrote at different times. Sun-Tzu was trying to magnify his adversary's friction and uncertainty or confusion and disorder, whereas Clausewitz generally thought in terms of trying to overcome it from a

commander's perspective. In modern vernacular, Sun-Tzu was trying to drive his adversary bananas; Clausewitz was trying to keep himself from being driven bananas.

Let us move on and look at the 19th Century a little differently. The idea of technology began to show its head--the railroad, the telegraph, the quick-fire artillery, machine gun, repeating rifle, and so forth. You will note what happened. We improved our logistics capability through the railroad and our communications capability through the telegraph. We also magnified the effect of firepower to deliver massive amounts and at the same time we developed a logistics network to serve that. The point is that we began to see solutions based upon firepower and the logistics to support it--like an incestuous feedback with more firepower, more logistics, more firepower, and more logistics. Battles of attrition took place, with incestuous amplification. We also note this idea that shows itself: the idea of a small holding force dug in to hold off a large force, with a flank or a real attack and a broad flanking maneuver. This is another example of Patton's "Hold them by the nose and kick them in the ass" in order to gain a decision. Lee, in particular, was very successful at that during the Civil War.

Yet, even with Lee and others we still see these frontal assaults, pour on the firepower, artillery barrage and everything else, pounding against reaches of strong resistance--battles of attrition. That kind of thing. Notice the basic result--huge armies, mass firepower. Because we had this we see a suppression of the ideas of deception, surprise, and mobility. Do not forget those railroads have to run on a track; they cannot run off and that is sort of a one-dimensional mobility. If you base your decision on firepower you have to build up these tremendous logistics bases, build up these huge supplies, and the other guy is watching. He has an idea of where you are coming from. As a result of that, your actions are not surprising. Putting it all together, here are the key points I want to stress. If you tie together Clausewitz's battle of philosophy and firepower, technology, and logistics, we find what I call Cro-Magnon warfare in a modern sense. The club is technology. We are going to beat the guy over the head with that club. We are using a crude club, technology, through the artifice of battle. And we see it in all these wars. We have probably had others besides the ones I went through--the Civil War and way down to World War I in 1914-1918.

I am not going to discuss each one of these wars. One of the interesting things though is that the Russo-Japanese War of 1904 and 1905 had many of those 19th century implements and we actually see a precursor or small blueprint of World War I. They had the trenches, the barbed wire, the machine guns, the artillery, even searchlights, and field phones. Interestingly enough, they also found that the cavalry did not prove too useful during the Russo-Japanese War. It seems that machine guns and barbed wire diminished the utility of the cavalry. There were many learned articles written between the Russo-Japanese War and World War I trying to defend the cavalry. It was not used right and all that kind of stuff. Then they tried it in World War I, they found out that things did not change very much. But interestingly enough, in 1939 we find out that the Chief of the United States cavalry (I don't know how he was forced into this response) was over in Congress trying to defend the cavalry. I forget the question but the response was like this: "We are going to make the cavalry more mobile by putting the horses in trucks." That is called defending the farm--from 1904 right up to 1939. Of course we do not defend the farm nowadays do we? That kind of thing actually happened.

Now, with that in mind, as I said I do not want to look at all these wars. Let us look at World War I because in a sense that is the grand focus of the Clausewitzian battle philosophy and the 19th century technology. You can break it up in about three phases, and many historians do this: plans and execution, the stagnation, and the finale. In the plans and execution phase we will talk about the Von Schlieffen plan and the French Plan. Basically, they unfolded and petered out between August and October of 1914. Very shortly after that the stagnation set in with trench warfare, and that really held pretty much until the finale, for lack of a better word, in spring or later in 1918.

In World War I the offensive was usually conducted on very wide fronts. Even though they might have had a columnar advance, like the Germans used in 1914, they still tried to maintain an evenness of advance. In other words, a column moving at fairly equal pace because they were very worried about the flanks. They did not like to get attacked in a flank. It was very dangerous. That slowed down the pace somewhat. The other idea was that they also wanted to be able to have artillery available so that if they were stopped they could keep the advance going. The third notion was that when they came up against strong points they

would commit the reserves against regions of strong resistance. Both the allies and the Germans and other people did that kind of thing, especially on the Western front. Not so much on the Eastern front. The reaction: They decided they could organize themselves in so-called linear defense, belts of fortified terrain, trench warfare, barbed wire, centrally directed artillery, machine guns. The idea was that if a guy tried to make the advance, you would dump in the artillery on him in order to break up the coherence of the advance. If he got in closer, pump in the machine gun fire, break it up even more and pin them down, and then finally the counterattack to throw them out. Many lives were lost. And then a few weeks later the other side would try the same thing. They were literally only gaining yards with a very high attrition.

An interesting case here on the firepower notion would be the British Battle of Somme in 1916. I do not know whether many of you people realize, but they had one week of preparatory barrage before the British infantry moved out. One week; they were going to blow everybody away, have the big breach there and go on into Germany. Of course they wanted to have the big breach there so the cavalry would have something to do too. But in any case, that was the idea-- firepower is simply a firepower solution. So what happened? As they tried to move in behind the barrage the British had 60,000 casualties on the first day-- 60,000 casualties. They have never forgotten. Well, you would think that maybe the Germans after a couple of days would suspect that something was going to happen in this portion of the front when the artillery was being delivered at such a high rate and so obviously they were going to switch reserves behind the front, plus they had already had artillery barrages before that so they had a lot of bunkers dug in very deep to try to minimize the effects of the artillery barrage. They did all those things and of course the British paid very heavily for that, with many, many people lost.

As I indicated, you look at that you see the stagnation and this enormous attrition. Why? Because these people knew pretty well where the advances would come from. When you start building up millions of numbers of artillery shells, huge supply dumps, and the other guy's agents or recon people are watching that, they get the notion that something is going to happen. So you have these people waiting at these regions of strong resistance and the net effect is huge battles of attrition. You could use up a couple hundred thousand men and gain maybe a

mile or two or even less. Now this is principally on the Western front. On the Eastern front, some of you are familiar with Von Hoffman and Ludendorff at Tannenberg which was in a sense a modern Cannae.

How do you duck around this? It turns out that the idea of infiltration tactics was put forth. There were others who were responsible for it but three names come to mind--the French Captain LaFarge, I think it was around 1500 or 1600, wrote this pamphlet titled Infiltration, which went up to the Allied high commands and German agents got it. It also went up to the German high command and eventually reached Ludendorff's desk. The Germans were working the same problem at the same time of how to get through these linear defenses. How can they penetrate? How do you go about it? And so when he saw that plus their own works the idea of the so-called infiltration tactic was discussed. Another gentleman's name that is attached to that is General Von Hutier sometimes called the Hutier Tactics. Modern historians tend to agree, though, that he might have done that but he really was not the originator and that is why I have a question mark after him. I do not want to get into that fight between the historians whether he originated it, but you will see that going around. I think the modern consensus of the historians is that he was not the originator. Of course, General Ludendorff, the German general, implemented in four or five drives on the Western front these infiltration tactics. Then there were the guerrilla tactics as seen through the eyes of Lawrence--many of you have probably read his book Seven Pillars of Wisdom or The Arab Revolt and Encyclopedia Britannicas 1929, 1927, or thereabouts, and the Germans down in East Africa know Lawrence is a very clever writer, very articulate, very sharp, and he was very successful in many ways, but he did have a great deal of outside help. I think that made his success possible, whereas Lettow-Vorbeck down in German East Africa was left pretty much to his own devices. And it is pretty much a modern consensus that even though he did not explain it very well, he seemed to be the better of the two. In other words, the best guide is not necessarily the more articulate person. As a matter of fact, you find that with only a few hundred officers, a couple thousand Germans and some Africans, he held off between 250,000 and 300,000 British troops and I think roughly 30 British generals and I believe at the time he was a Lieutenant Colonel. He surrendered after Germany did in World War I. As a matter of fact

he was even making his ersatz gasoline in World War I. A rather outstanding individual. But since he was not very articulate, when I looked through it I had to look through Lawrence's eyes. I do not have some accounts on Lettow-Vorbeck.

Let us look at infiltration tactics and you will note that I will be looking at things in a little more detail as I move up to the present time. Basically, it went like this. Instead of having one week's artillery bombardment, maybe two or three hours in which they also used smoke and gas shells with the idea of trying to obscure what they were trying to do, make the movement of their adversary a little bit difficult. So they are trying to suppress the defense and obscure the assault. Then they would send in this specially trained infantry or special team which the Germans called the Sturmtruppen or in English I guess we would call them Storm Troops, but instead of coming in these huge waves trying to pour over the defenses they started dancing in small groups of platoon strength--real low level fire and movement. The idea was to try to get through the crevices, the gaps, the voids in the defense. In other words, seep in or infiltrate. Try not to hit the strong points, press on, and work their way through. As a matter of fact, they were given instructions "Don't worry about your flanks. Just keep going". Instead of trying to set their pace to the guy on the right or left of them, each guy was to move at his own pace. As a result, they were independently providing support for one another as independent units. Very small, low level. Equipped as indicated--grenades, light machine guns, and so forth. The idea once again was to avoid the opposition, then send in these follow-up teams which the Germans call the Kampfgruppen or battle groups, and they even used this word during World War II. What they would do then was to pour through the gaps to reduce these isolated centers of resistance. These were not centers of resistance that were being fed from the rear, which would make for huge battles of attrition, but isolated centers of resistance which were left after they had cut their linkages to the other units. Then, of course, the reserves were sent in to feed both these operations, because you had to keep feeding not only the Sturmtruppen but also the battle group, the Kampfgruppen. You funneled these reserves right up the breaches and gaps that they had created. The purpose was to go through paths of least resistance or to support success, not to try to redeem failure. The idea was to drive these fingers or stilettos in the other guy's front, envelop him

from behind, collapse the whole nine yards. An envelopment game. So we see a completely opposite notion to the one that prevailed in the 19th century. Also, instead of seeing these huge waves operating, even when they had large groups of people available, they operated in small groups trying to work their way through these voids or gaps. Strength against weakness.

How did it work out? Well, fairly successfully at the platoon company and battalion level, but ultimate failure at the corps and army level. Here are some of the reasons why. Even though Ludendorff seemed to start out right, at least seen through Liddell Hart and others, later on he seemed to start burning his reserves against these regions of strong resistance. I want to comment more on this. It is not clear that this is exactly what happened. In any case, it has been stated that Ludendorff, started out right, then started switching reserves and going against strong points, thus blowing his reserves away and seemed to be reverting back to type. The other thing, was the exhaustion of the combat teams leading the assault. Do not forget this is kind of a new thing. Rotations and all that had not been worked out. Those Sturmtruppen got very tired and that tended to make it fall apart. A very important thing is this idea of logistics. Do not forget that they were going over those battlefields that were all torn up and they only had horse carts and that kind of stuff. They just could not keep pace with the assault to bring up the artillery, supplies, and so forth. They did not have logistics or the gasoline engine to support that kind of thing, plus the terrain was all torn up. Another very interesting thing is this idea of communications. They did not have the communications that they had later in World War II and such as we have today. Without the communications, after they started making their advance and they were trying to support these breaches or gaps that had been made, how could the commander at the rear, Ludendorff himself or subordinate commanders, know who was succeeding unless somebody was telling them. Where were they to get their information? There would be some confusion in the German line as to where breaches and gaps were that they should serve because they did not have good information on who was succeeding or who was not succeeding. They might have diverted the reserves to the wrong area.

The idea of the elastic defense, principally developed by the Germans but applied by Pétain and a few others, was not used very often to undercut or slow down the German offenses. The basic idea of the elastic defense was to

come back and get outside the German artillery and the German Sturmtruppen and come out from behind and if they could not bring theirs up, dump in artillery and pinch off the flanks with the Allied troops, instead of trying to defend every foot of ground.

In guerrilla tactics, as you have seen through the eyes of Lawrence, the idea is to gain support of the population. We hear this through Mao and others today. We talked about this idea of trying to arrange the mind. It is a quote right out of his Seven Pillars of Wisdom. Trying to arrange the mind of friend, foe, and neutral alike. He did not say exactly friend, foe, and neutral alike. He said it a little bit differently, but that is what he meant. So you see that this notion is very close to what Sun-Tzu was talking about. That is why I want to bring it out. This other notion he talked about, you see it in many historical references. Many historians use it this idea of behaving like a gas. He is not talking about behaving like water. He said to behave like a gas--and drift about like a gas and be more delicate than the notion of water. Not only the notion of fluidity, but the idea of not being obvious or inconspicuous. So it is a more delicate notion of fluidity and he also talked about an attack in depth, but not the same as we talk about today. In that case it was a distributed attack against his adversary, while today an attack in depth is thought of in terms of a deep, narrow penetration. Also, instead of hit and run, he talks tip and run. The delicate notion again. Do not use force. Do not try to ram it down their throats. Hit them, back off. Hit them, back off. In other words, try to avoid the battle of attrition; do not get involved in attrition games. Then there is this notion of using the smallest force and the quickest times and the furthest lengths. He very often used these terms. Quickness. Which suggests that he was trying to get inside his adversary's system, whether he said it that way or not. He also wanted to have a war of detachment. Even though you are not everywhere, at least your adversary should perceive you as being everywhere. So you can fragment or disperse his force and when he does not want to do so. As a matter of fact, one of Lawrence's strategic notions there with regard to the Hejaz railroad, between Damascus and Medina, was that he did not want to drive the Turks away from the railroad. He just wanted to make them so uncomfortable they would use their forces and use their supplies very badly. In other words, he wanted them there, but he wanted to be a pain in the neck to them all the time.

He felt that if he drove them out they would be able to unify elsewhere and he really was trying to keep them separated just by keeping the pressure on all the time. That was one of his strategic notions. In any case, he applied the ideas of mobility and fluidity of action and using the environmental background for cover and concealment. In the case of Lawrence it was the desert. At that time it was very easy to hide in, but not so easy today, perhaps. He was trying to ultimately throw the Turks out of Arabia. Disintegrate the ability of the Turkish adversary and regime to govern.

Whether you look at infiltration tactics as seen through Ludendorff or at the guerrilla tactics of Lawrence, you begin to see that same theme again. I do not care whether Ludendorff had more forces and Lawrence had fewer forces, we still see this notion of fluidity, and we see this notion of cohesion of these small units. Remember that in the infiltration tactics Ludendorff used small units of platoon size to get through even though he had more forces. There are great differences between the two obviously--different levels of concentration. Ludendorff could generate higher levels of concentration. But the notion, the theme, is still the same.

Let us move up to more recent times. We find that during World War I there was a gentleman by the name of J.F.C. Fuller, British, I believe he was a major at that time, who observed these infiltration techniques that the Germans used against the British and he saw the panic and pandemonium, the chaos that occurred in the British lines as they started collapsing in front of the German assault. Now you have to understand even prior to that Fuller was very much interested in how to use the tank and he actually laid out some plans and some drives for the tank in World War I. It occurred to him at that time to take those infiltration tactics and mechanize them. In other words, instead of just people wiggling their way through, they would mechanize and use these motorized vehicles of mechanized infantry plowing through. He came up with some of the original ideas of mechanized infiltration. Today we call it Blitzkrieg. It is seen through the nose of the tank, motorized artillery, tactical aircraft, transport, and obviously better communications.

Then there came another gentleman by the name of Heinz Guderian. He was a signal officer during World War I and he recognized the problems he had with communications. He read these pamphlets by Fuller, expanded upon his ideas, and, as a matter of fact, I do not know whether you know it or not, Guderian did

not see his first tank until 1929, while Fuller had been working with tanks from about 1916 or 1917 onward. Guderian did not even see his first tank, but he had read Fuller's pamphlets. Since Guderian was also a signal officer, he came up with the extraordinary and radical idea that you should put a radio in every tank. Of course, everybody said that was ridiculous. Even so, he elaborated upon Fuller's idea. Fuller was one of the initial people that came up with the idea. Guderian was the first one to make it work. The result is indicated here-- Blitzkrieg. Blitzkrieg really is a mechanized variant of the infiltration tactics that the Germans applied during World War I, and it evolved from Fuller through others. You will see other names associated with it--Liddell Hart, Charles de Gaulle, Martelle, and others. In any case, you see these breakthroughs on a narrow front through very small regions. Maybe only one or two kilometers wide, leading off with a division, motorized infantry, and followed up with the foot infantry division and supported by tactical aircraft. The tactical aircraft do two things-- local air security plus support the ground troops.

Guerrilla war as seen through the eyes of Mao. Basically he did not come up with any really new nugget, per se, but what he really did was to systemize or codify or put together a lot of the ideas which many people had previously put forth regarding guerrilla warfare. One idea he did come up with was total war: political, economic, social, and military. One interesting thing is Mao was very familiar with the ideas of Sun-Tzu. He was also a student, a great follower of the ideas of Clausewitz, plus he obviously learned much from his own experiences. So when you read his works you really see kind of a synthesis of the ideas of Sun-Tzu, Clausewitz, and his own experiences.

If you were to look at this part of the chart, we talk about total war and we look at this in the tactical sense, it would give the impression maybe that guerrilla warfare is more general than Blitzkrieg. I do not want to leave you with that impression because there was also another person by the name of Adolf Hitler who was familiar with these techniques and he did not think of it just in terms of a tactical or grand tactical sense, but also in a strategic sense as a vehicle for total war. Both these things were used in a total war context. With that in mind, let us track down through a Blitzkreig-guerrilla strategy. I want to reemphasize the point that whether you are talking about Blitzkrieg or about guerrilla warfare, their modus operandi is infiltration. One is mechanized and the other is

not, and they work against all aspects of the regime--political, economic, social, and military. You look at many of Hitler's statements and you say "My God, he must have read Sun-Tzu or at least been briefed on it". His statements are almost exact quotes from Sun-Tzu. We know he was familiar with Clausewitz. In any case, the idea is to get inside the adversary's systems and know his strengths, weaknesses, his maneuvers. When I talk about maneuvers here it is in a very broad sense. Not just physical--stratagem, ruse, and obviously his intentions, always trying to shake your adversary's perception of the world so you can unravel his plans and his actions. Try to get him to do the wrong thing or have him perceive what is happening the way you want him to perceive it. Shape his perception of the world so you can manipulate or undermine his plans and action. The purpose? To put that external pressure on plus the inside pressure. Shatter the whole system and make it come unglued. Both Hitler and Mao liked to do it. If you have to fight, they are so weakened they fall apart. They come unglued. Any success? Example: What about Austria in 1938? Czechoslovakia in 1938? Even when they had to go against Poland they went through very quickly. And what about France in 1940? Same things. In other words unravel your adversary. Get that strength against weakness. That sort of strategic aspect.

Now let us look at it from the operation or tactical aspect and we will separate it out. This is a fairly detailed chart of Blitzkrieg. I want to point out a number of things here. This subtitle is action. This one down here is idea. But the Germans very definitely depended very heavily upon their intel and recon activities at all levels. Intelligence and reconnaissance. They wanted to get inside their adversary's system to uncover strength, weakness, moves, and intentions. You want to understand what is going on in a tactical sense, and you will note an interesting word here--"Schwerpunkt" or "point of main action". They would base upon this information and establish that point of main effort, then shift it during their combat operations. The idea being they were trying to drive through with their strength, bypass their adversary's strength, and drive right at his weakness. If you want to say it in the words of Sun-Tzu: Avoid strength, flow through emptiness, strike at weakness. Then there are those other points. I did not know what the word was, so I talked to some of my friends here who are very familiar with German--it is Nebenpunkt, or those points of secondary or other efforts, which they would use to tie up or drain away their adversary's strength.

They were playing two kinds of games there: the point of main effort, or schwerpunkt, and points of these other efforts, nebenpunkt. This was not just a thrust point or prongs driving into some adversary's front. That is one aspect and that is one facet of it. It turns out, as I will show you in a minute, there was a unifying concept of the Blitzkrieg which was articulated in an initial sense by Clausewitz in his On War in 1832 and I will get to that in a minute. It is a very important concept and if you do not understand this you do not understand Blitzkrieg. In any case, then, once they set this up they began to make their moves using their firepower--indirect and direct firepower. For the Germans, "indirect" was for interdiction and "direct" was their close air support. The idea here, and they coupled that with artillery, was to do a number of things. One, to impede or channel their adversary's movement. Obviously, they wanted to channel it to their advantage. The other things include trying to disrupt his communication, suppress his forward defenses, and obscure the advance by the way they use their artillery, the way they use their air power or smoke, shells, or whatever they do. Very important ingredient. Then they used their recce or storm trooper teams to find these voids and gaps, and infiltrate the front. The basic idea is to find these paths of least resistance for the follow-on effort. So they filtered through and then behind them, and with the information they provided, these armored assault teams, which the Germans themselves even in World War II call kampfguppen or battle groups, containing tanks mechanized infantry, combat engineers, antitank assault guns, and so forth, supported by the air, went through and ripped or breached and widened these gaps. They tried to go along or against these weaknesses. Then when the breakthrough occurred, mobile armored teams led, by the armored reconnaissance, would blow through deep into the adversary's rear. Their basic idea, once again supported by the recce, fire, and air lift, when necessary, was to cut the lines of communication, disrupt movement, paralyze the command and their support activities. Behind them would come the motorized or foot infantry which was to secure the gains against counterattack or complete envelopment, whatever the case might be.

Here you see an orientation phase first. The Schwerpunkt in some sense is the intention. Here is the preparation. Here is the infiltration. Here is the penetration. Here is the exploitation. Here is the consolidation. A very systematic fashion. The idea was to conquer a region in the quickest possible time. Generate that initial surprise. Use the very fast tempo and fluidity of

action to bring that surprise over and over again. The guy is always behind the problem. Cannot keep up. Just pour it on them. Bingo. Bingo. Bingo. Keep it on all the time. He cannot catch up. And they direct that effort then against the guy's communication, command, and support structure. The idea is make the whole thing just fly apart.

Now, we have a problem. When you look at it, they also trust to their lower level commanders. Give them a high degree of independence to operate so if you give them independence, the whole thing could fly apart. So how do they even keep the Blitzkrieg together, keep it from flying apart? If you give your lower level commanders a lot of independence, they all start doing their own thing and pretty soon you might have a comic opera going on there. With that in mind let us get back to that notion of the schwerpunkt. If you look at the schwerpunkt and you start reading the German accounts you find out they use this over and over again. Well thrust point. They do not have to tell me. I understand it. But you really begin to see that there is something much more involved intuitively understanding some of the things that come out. One of the ideas that is implied is a dramatic thinning out of force and effort in other sectors and the reason they are trying to generate a local superiority. They use the words prior to World War I--the tactics of "surface" and "gaps". They recognized that they had to have gaps and voids in order to generate these schwerpunkt. They are applied at all levels from platoon to theater. In other words, the platoon will have a schwerpunkt. A company will have a schwerpunkt, a battalion, regiment, division, corps, army, group, theater. So you have schwerpunkt inside schwerpunkt. They applied at all levels. The other notion is the center or axis around which they maneuver using fire and movement of all arms and supporting elements. They even talk about a schwerpunkt for their logistics effort. The air has a schwerpunkt. And even their personnel. All supporting elements. The idea is to focus those things in order to exploit those opportunities and maintain the tempo of operation. So it is a center or axis around which these things are focused. Then we can actually mesh together the initiative of the tactical level with the intent of the strategic. In other words you do not go down to the name tag and tell a guy what to do. You communicate to that schwerpunkt. And that is how you glue it together. So it acts as a glue in order to hold that Blitzkrieg together so it can function as intended.

The final point here is that a buildup does in fact turn out to be a unifying concept of the Blitzkrieg. They can actually provide the way to focus that effort to harmonize as well as focus those support activities with combat operations, whether it be communications, logistics, or whatever. As a result, it does permit them a true decentralization of tactical command within the strategic guidance. I did not use "control", although that might be the right word; the reason I use guidance is because when we Americans use control it is very rigid and they are not talking about a rigid control. It is an indirect kind of control without losing the cohesion of the overall effort. So it is a unifying glue. It turns out to be a unifying concept of the Blitzkrieg. It is not just a thrust-point or a prong going through the adversary's front. It is a very important notion.

Let us go into it a little bit more. Here is an impression you can get out of it. You notice it looks like lightning. The impression of the Blitzkrieg, it is just an impression overexaggerated, but in any case the idea is to have these forward thrusts in a narrow front, two or more, where they are going to thrust through. As they start working their way through, they do not just go straight through. They start zig zagging their way in order to go against weakness, as a result of these paths uncovered by the armored reconnaissance. So they are trying to zigzag their way through. Then, at the same time as they start working through in order to collapse the front, they start making those lateral movements, and they also zigzag laterally, which the Germans call a "roll out". The idea is to start cutting those communication links between the enemy's forward strength. The interesting thing, whether you are talking about these columns going forward or these roll outs going to the sides, they do that at all levels. They will have the roll-out at the platoon, company, regiment, and so forth. You see flying column inside flying column inside flying column. You see roll-out inside roll-out inside roll-out. They not only have Schwerpunkt at all levels, they have these other activities working at all levels. They start cutting these connections, then that previous strength just dissolves away into nothing. They shatter their adversary's cohesion. It would be the same thing if I came up to this gentleman and took some scissors and clipped some blood vessels, clipped his nervous system, and clipped his tendons, I would turn him into a bowl of jelly. What I am trying to tell you is that it is organic warfare or look at it as a biological organism. You start cutting those linkages--jelly. They do it not only in terms of penetration.

When they are in the exploitation phase and they break through, they play the same game. They keep zigzagging their way through once again led by the armored recce units. Once again they start driving these wedges or these spearheads both in and laterally to dismember the organism so they can treat it piecemeal.

What is the result if you start playing this game? Let me give you some examples. Poland, 1939. Hitler had 40,000 casualties of which about 8,000 were dead. The Polish had roughly 800,000 of which a little less than 600,000 were prisoners--the rest were in other categories. Belgium, Holland, and France, 1940. Hitler had about 156,000 casualties of which around 35,000 were dead. The allies had roughly 2,300,000 of which about 2,000,000 were prisoners. If I throw in Norway and Denmark, add another 5,000 casualties or maybe less so what I am saying is that for roughly 200,000 casualties he took over Poland, Norway, Denmark, Belgium, Holland and France. That is a low investment. The allies had around 3,500,000 casualties, of which almost 3,000,000 were prisoners. Now that is interesting, because we do not have any models today that measure how you capture prisoners. They are all PK or body count models or expected values which are nothing more than an accumulation of body count. So if they cannot measure that phenomenon that generates prisoners I am saying that any model we have that is not a Blitzkrieg is attrition warfare. It is the only thing we understand, so that is why we do it. I want to see the P sub C, P captured or P prisoners. You analysts think that because you have this body count you think you understand Blitzkrieg. I am telling you, you do not do us much good either. I will get to that later. You do not understand it. There is a phenomenon that is taking place here. They are half out of their mind. They are bananas. Just read the reports. They are glad to walk in the POW cages. They are putting barbed wire out in front of 50,000 guys and nobody does anything. They just sit there. Glad to be there. It happened. That is not the battle of the Somme. Now here is the way you normally see it; this is the typical impression. It could happen.

If you look at the Blitzkrieg you see this kind of phenomenon taking place. You see the envelopment. We showed you Cannae. This is a playback to Cannae. Flying columns, that is a playback to the Mongols. The infiltration, a playback to Ludendorff. The tank attack or mechanization--a playback to Fuller and his contemporaries. What Guderian did was just to take all that stuff and suck it together into one concept called the Blitzkrieg, plus he added his own

wrinkles. Narrow front, armored recce, very strong emphasis. Panzer commanders forward--in other words they did not sit back at a chateau, look at all the lights and all the information, and then decide where they were going to go next, because those opportunities are very perishable. If there was a void or a gap there, their commands were expected to shoot it. So their commanders were forward. It is a very dynamic ball game. You have to have the information. Have it now. Act now. Extensive communication, both laterally and vertically, so the thing can play. Then of course they use the air in lieu of or with artillery as the case may be. You see these envelopments at every level. Platoon, company, battalion, division. Envelopment inside envelopment. Flying column inside flying column. You have to think of it in that sense. And those strong points are gone. The strength just fritters away. The key to their success--I have already pointed it out, and I want to stress it again, the idea of the schwerpunkt to do these things: focus, shift, and harmonize organizations support at all levels. It is the central glue that makes the whole thing work. The operation was heavily dependent upon intelligence and recce activities at all levels.

The idea was not only to understand their adversary's strength, weaknesses, moves, and intentions, but also to shake them and to cause them to do the wrong thing. The idea of initial surprise. If they have done all these things, they are going to get it. They not only want to get that initial surprise but to keep that pace going very rapidly, this fluidity of action as we have already talked about. So they can generate that surprise over and over again. The idea being to slam that strength against weakness, start generating that initial doubt and uncertainty, very quickly transforming it into panic and chaos, the big prisoner of war bag. The decentralized command once again based upon Schwerpunkt where they actually give their lower level commanders this freedom of action so they can shoot the gaps. They can shoot the voids. Take advantage of opportunities. The idea is superior mobile communications in order to maintain the cohesion and to reallocate efforts or reserves wherever you have to shift that point of main effort to every now and then. Keep the thing working. Always plan it back and forth. Then your logistics. I guess if we Americans would try to run a blitz we would be shipping up the PX and the swimming pools and everything else first. So I am not really thinking that way. Essential and only essential. Only those things you really need. In fact, I read a recent German document. It said, "We want to give them all they need, and then we are going to take

away all that hinders them", which is the same thing. I like the words. We are going to give them all they want, but we are going to take away all that hinders them.

Now to the modern guerrilla campaign. I do not want to spend too much time on that because we are not really going to be into that here but it does apply. Once again, the idea is to drive a wedge between the institutions and the people. That is the guts. How they are going to do it—try to bring out the corruption, the unfitness, inability to govern, try to get the people on their side, start setting up their administration, military organization, sanctuaries, and the political guerrilla leadership without arousing the regime's intelligence and security apparatus. The big important point--to get inside the other guy's system. Infiltrate his system--both political and military--so they can understand what this system is up to, fragment it even more. Then disrupt the political and military organizations by rallies, demonstrations, that kind of stuff. The big idea again is to demonstrate the unfitness of the regime. Get more people over on their side and then of course use these tiny bands to slam against these lines of communication. It not only gains army supplies but also can contribute to that disruption, by denying communications, coordination, and so on. When they are faced with a strong force, disappear into the weeds. Employ these methods in order to expand control and develop base areas. The things that we are talking about here, encourage the government to indiscriminately take harsh antipopulation measures, reprisal measures, once again to get the people on their side. Also some of their own so-called re-education measures. Finally, they get to a level where they have larger groups. They can start harassing major government concentrations, not just going strength against strength, but front, flank, and rear, and, of course, when they face the heavy assault, disappear. Finally they reach a stage where they can take them on under their own terms and fragment the whole organization. The idea is to defeat an existing regime politically by undermining their ability or right to govern. Whether they have a piece of paper or not, if the people do not believe it, it does not take. The right and ability to govern and play these other games and cause the whole thing to come unglued. We do not seem to really get into the key to their success too much. We always start out where we are going to beat them militarily, but we do not pick at some of the heavy factors which we will get into later on. Anyway, try to alienate the government

from the people. Use their environmental background, the fast tempo, at least in their sense, so we can slam that concentration against weakness. It is first in the face of strength and Mao is always talking about shifting that effort which is analogous to the blitz. That is what he is trying to do. Retain the initiative. Shift the effort in order to retain initiative. And then of course in support of the population in base areas and expand those in order to expand their efforts. In any case, that is their theme whether you are talking about the blitz or the guerrillas. Their essence is that they just keep pounding on, with surprise and shock followed by surprise and shock over and over again.

The idea is to avoid battle. How many battles do you hear about in France? You talk about the Battle of France. It was a rush through. You do not hear about battles until you get to Russia. I will comment about that later on. In any case disrupt connections, centers, and activities to provide that cohesion, whether it be lines of communication, command facilities, or supply centers. Once again, I am talking about clipping the blood vessels of the organism or the tendons or the nerves. Collapse them into jelly. If you do that, you just roll up the isolated resistance. What is the intent? Is it to kill? No. Here is the intent--to shatter cohesion, produce paralysis, and bring about adversary collapse by generating confusion, disorder, panic, and chaos. That is the intent. Here is an example. The Israelis concentrated on disrupting connections and centers in 1949. Yadin said that in order to exploit the principles of war, you want to cut your enemy's lines of communication and thus paralyze his physical buildup. Seal off his lines of communication thus undermining his will and destroying his morale. Hit his centers of administration and disrupt his communications thus severing the links between the brain and the limbs.

As for the blitz, I do want to point out the unsuccessful. The successes went from Poland through the advance through France, Patton's advance through France, the Russians in Manchuria, the Middle East when the Israelis got their act together back in 1973. Unsuccessful--Russia winter of 1941-1942. Of course we recognize that they lost their mobility, were not ready for the winter war. So it shut down their operations. Without mobility there is no blitz. If you cannot move, you cannot blitz. Russia--fall and winter 1942 and 1943. They changed the game. I am referring to Stalingrad and the Caucasus. Their Schwerpunkt was not directed to the Caucasus, it was directed against Stalingrad. So instead

of playing this strength against weakness game, they denied their own philosophy and went strength against strength. People use Stalingrad as the basis for saying blitz, schmitz, or words to that effect. I challenge that. They went against their own philosophy there. Then if we go to North Africa of 1942, of course many of you people have read some of these things that have come out, plus the fact that the British greatly outnumbered Rommel and he did very well except they just finally drove him right into the ground. They would go through reading his mail in some cases before he did and they were able to cut the lines of communication and things that he depended upon in order to be effective. In spite of it, though, he was very successful. Russia in December of 1943, this is the famous Battle of Kursk, the tank battle, at least up to that time the largest tank battle in the world. Interestingly, we find that when the Germans attacked the Kursk salient, depending upon whose accounts you believe, they had between 750,000 and 900,000 troops. The Russians somewhere on the order of between 1.3 and 1.5 million. So now we find that instead of going strength against weakness they were going weakness against strength, so they violated their principles even more.

Of course, that brings in some comments: Why did that happen? How did that come about? We will give you a couple of reasons. One, if you go back to Poland in 1939, we find that Hitler really did not get down to the operational or tactical level. He gave them pretty much what he wanted to do and they carried it out according to the way they thought best. So they had a lot of freedom. When he went into France initially the German army did not want to invade France. The general staff wanted to take a defensive posture. Hitler insisted. Kept putting the pressure on and Manstein delivered his plan. Hitler started undermining the structure. As a result we find that the so-called decentralized

control became more and more centralized. You see orders and instructions given from on high down to lower level units. Not enough so as to lose the battle, but we begin to see it. In Russia, Hitler interfered more and more with that so-called freedom of the lower level commander. We see hardening of the arteries of the blitz system. They denied their own success. Of course, in our bureaucies we do not do that. Ardennes in 1944-1945 was initially very successful. This brings in another notion of Hitler's tremendously centralized control which at least in

some sense permitted it to happen but then he imp sed them down to lower levels. For example, you had the 6th Panzer Army up in the northern sector commanded by Sepp Dietrich in the southern sector you have the 5th Panzer Army commanded by Manteuffel was having some success where in earlier years they did that kind of thing. As a matter of fact if you look back in accounts by Guderian and others, they would make bridgeheads across rivers or streams that were difficult and if they got stopped they would pull out over night and ram that bridgehead somewhere so that they could have that strength against weakness. The Allies did not really show that kind of flexibility. We would stay there and just pound it out bridgehead by bridgehead. The Germans would pull out, and go somewhere else and then go forward. Not unusual. In the Ardennes it was recognized that the Schwerpunkt had to be shifted from the northern to southern sector. It was not done. So they just wasted away their people. Even so, we never did cut it off. With all our troops, all our artillery. They backed out.

Guerrilla campaigns or guerrilla results. I do not want to spend too much time on it except to bring out the point that here, I have a British friend here too, we fought the British in 1775. They were the Redcoats. We were the guerrillas. You go all the way through the same thing. We find out we behaved like the Redcoats and fought the guerrillas here in the Ardennes.