

MILITARY EDUCATION AND TRAINING IN CHINA

中國軍事教育與軍事訓練

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每册售價法幣三百元

國際出版社印行

本館出版書目

中國軍事教育

本社出版書目

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A541 212 0019 29068

國際出版社印行

現代陸軍軍事教育之趨勢

——白副總長對陸軍大學教職學員講演詞——

徐教育長，各位官長，各位學員！近半年來屢承陳代校長，徐教育長相約來校和各位講話，今天得此機會和大家見面，感覺非常高興！

今天想和各位講的題目是：現代陸軍軍事教育之趨勢。軍訓部是民國二十七年於武漢成立的，這幾年的過程中，恰當戰爭時期，我們是一面抗戰，一面實施戰時教育。我們國軍不僅是裝備居於劣勢，而教育也比較落後，本席自兼掌部務以來，深感職責艱鉅，非常惶恐，明知我們以劣勢裝備訓練未精的軍隊，來抗拒近代裝備頑強的敵人，而一切政治經濟文化的條件也不完備，在這種情形之下，使得我們不能不從教育訓練上加倍努力。更隨時就第二次世界大戰的教訓，盡量搜集同盟國或軸心國兩方面有關軍事教育的材料藉資借鏡。更就國軍的實際情形，歸納若干個人的意見，以備採擇，這些資料和意見，本席曾於抗戰八年中乘校閱或視察各戰區野戰軍及各軍事學校的機會，向部隊官兵及學校官長員生講演，明瞭現代進步國家軍事教育的趨勢。『他山之石，可以攻玉』，果能取他人之所長，補我們之所短，用他人的經驗，增我們之不足，學術是超國界的，在此次世界大戰中，無論同盟國友邦或軸心國敵人兩方面，舉凡軍事學術與技術的優點，應該衡酌損益，分別取舍，來作我們軍事教育改進的參考。此次世界大戰經過長期的鏖戰苦鬥，我們同盟國軍隊，終於獲得最後勝利。瞻念今後建軍的前途，欲建設現代的陸軍，必須從軍事教育上奠定基石。本席特將幾年以來，關於軍事教育

上所講演內容及搜集若干資料，歸納整理，手訂現代陸軍軍事教育之趨勢小冊，俾供各袍澤研討，以爲我陸軍軍事教育改進之一助。不過今天因限於時間的關係，不能詳述，只能擇要說明幾點意思。

我們知道教育是戰爭的準備，戰爭乃教育的實施，故以軍隊教育之優劣即可判斷其戰鬥力之強弱，這是絲毫不爽的鐵則。現在的世界是科學的世界，現代的戰爭是科學的戰爭，因社會的進化，科學的進步，而一切軍事學術也在不斷進步。拿破崙曾說：「戰術十年而一變」，這種說法在當時也許是實在的，但現在人類的進化，在時間上是加速度的，並不是等速度的。試將有史以來五千多年的歷史和近代科學思想發達以來三百多年的歷史加以比較，就可以看到近代科學的突進，再把三百年來的科學發達史和最近五十年來的技術發達史加以比較，就可知技術的發展，尤其是突進的。在拿破崙時代戰術十年而一變，但第一次世界大戰四年期間，其戰法的演變，由運動戰而變爲陣地戰，由平面戰而變爲立體戰。至於第二次世界大戰中，有所謂滲透戰，叢林戰，閃電戰的產生。這些演變，都是技術進步，戰術亦隨之進步。充分證明科學戰爭的真象，其演變之速，非意想所及，簡直可說日日在變，時時在變。

一切事物因爲變，所以有新有舊，有進步，有落伍。新的進步的，必然克服舊的和落伍的，在軍事上何嘗不然，如果用兵的目的在求勝，必然要求進步，以新的和進步的來克服舊的和落伍的，兵法上誠然有許多不變的原則，但實施這些原則時所用的手段和方法，則經常在變，並且感到現代演變愈速。必先把握「變」，纔能運用不變的原則。例如戰史上講集中，拿破崙的集中和毛奇，季特爾的集中，却是各不相同的。毛奇有鐵道可以利用，而拿破崙沒有；季特爾可以利用野行的車輜，但毛奇和拿破崙則都不能。魏剛，甘末林所用攻勢防禦的原則，和霞飛，福煦所用的原則，豈不正是相同的變

？但假使造成了瑪倫河的奇蹟，福煦完成了協約國的勝利，而甘末林和魏剛不能挽回法國悲慘的命運。

生產工具決定戰鬥工具，生產技術決定戰鬥技術，隨着軍事技術和一般技術科學的進展，戰術確在不斷改變，許多新兵種不斷加入到軍隊裏來，使原有的兵器兵種或為之廢棄，或為之減色。自普法戰爭以至此次世界大戰，因技術而發生的戰術變遷，不勝枚舉，電學和光學上的發明，蒸汽機和內燃機的使用，使時間和空間縮短了幾十幾百，甚至幾千萬倍。火器的威力和射程，使乘馬騎兵的效力減少。築城技術與火器的配合，使輕裝步兵難於立功。戰車使小口徑的火器失去威力，而空軍之重量炸彈和降落傘部隊的使用，更使要塞的價值為之減色。現在時代是科學的時代，現代戰爭是科學的戰爭，整個的軍隊幾乎已經完全技術化了。

我們深切地認識應該採用列強進步的裝備，應當學習其新穎的戰術。尤其在這技術日新，戰術日變的時代，我們決不能輕於放鬆，必須迎頭趕上，隨着時代前進，可是我們儘管有最新的裝備，知道了新穎的戰術，如果沒有適合這新裝備與新戰術的教育，則裝備不能發揮其威力，戰術也不過是紙上談兵而已。

隨着技術與戰術的演變革新，關於軍事教育我們應取法於世界進步國家的，一定很多，唯能如此，我們的技術和戰術，才能達到現代化。

我們更須知道現代戰爭是整個國力的總決鬥！所謂全體性的戰爭，僅是軍事的力量，是不足爭取勝利的。必須政治、經濟、文化等各方面全體總動員才能解決戰爭。軍事教育乃是軍事的中心問題，那麼軍事教育的先決條件也就是政治、經濟、文化等部門的密切配合。

(一) 政治的條件

政治與軍事相配合，政略和戰略的一致，是一個不變的原則。孫子在兩千多年以前說過：「道者，令民與上同意，可與之生，可與之死，而民不畏危。」克勞則維慈在一百多年以前也說過：「戰爭是政治的繼續。」但政治條件對於軍事教育的影響，却在近代更表現得明顯。蘇聯在帝俄沙皇統治時代，人民完全是奴役，談不上政治意識，帝俄的軍隊在第一次世界大戰中終遭失敗，迨十月革命列寧掌握政權，將政治制度，軍事教育制度，軍隊訓練澈底改革，政治與軍事能够配合，所以紅軍的建設得到成功。德日兩國的建軍，雖其政治組織和蘇聯不同，但其政治組織與軍事相配合是無二致。美國有一萬萬兩千七百餘萬的人口，縱然他有崇高偉大的政治家羅斯福總統所領導，假使美國全民的政治意識不充分，此次大戰中美國的參戰，議會首先便不會通過以龐大的人力財力，大量動員陸海空軍分佈於世界各戰場參加戰鬥，更以無數的物資來支援同盟國。美國平時是最講自由的，不是征兵制的國家，第一次世界大戰時，常備兵不過二十萬人，但動員到四百萬人，此次大戰前常備兵也不到一百萬人，自太平洋戰爭爆發，美國在最短期間陸海空軍能迅速動員一千一百五十萬人，如果政治條件不夠，政治與軍事不相配合，決難達到目的。是徵政治應和軍事配合的原則，乃是十分正確的。

(二) 經濟的條件

所謂經濟的條件，是指技術水準和生產能力而言。經濟條件對於軍事教育的關係，非常重要。近代戰爭，是科學的戰爭，也可說是經濟的戰爭。一切工業基礎，科學技術都以經濟為轉移。那一個國

家的科學技術高，生產力量大，便能操勝利的左券。現代戰爭不僅是精兵主義，還須多兵主義，所以要總動員，動員一切人力物力，發揮其綜合力量。兵員上固須量多質精，尤須配合高度的生產技術，強大的生產力量。此次世界大戰初期，德國以強大機械化部隊使用閃電戰術，真不可一世，全世界之震驚。德蘇戰爭中以爲德軍憑優勢機械化部隊，可以攻下莫斯科，結果不然。因爲蘇聯也有近代的裝備，而且得英美的協助，飛機的生產和陸軍機械化裝備的生產量德國遠不及英美蘇強大，所以德國的飛機和機械化部隊也由劣勢而被壓倒，蘇聯終能在史達林格勒完成殲滅戰的戰果。至於海軍，德國更較英美居絕對劣勢。此次德國的戰敗，自己承認是生產力量不及同盟國。科學兵器技術不及美國優良。又太平洋戰爭初期，日寇襲擊珍珠港新加坡被倖勝以後，美國兵器產量增加，空軍飛機激增，便能制服日寇，爭取制空權確保制海權，海空軍密切配合，陸軍裝備又較日寇佔絕對優勢，陸海空聯合作戰發揮絕大威力。日寇終遭潰敗。本來日寇的陸軍，並不在德國之下，更加以武士道的精神，作戰有肯死敢死的精神，在阿圖島，硫磺島，琉球島諸戰役中，有整聯隊整師團，全體戰死，空軍中有「神風隊」，決死隊，如此壯烈犧牲仍不能挽回其必敗的悲慘命運，所謂精神勝物質，在今天科學戰爭中，是有相當條件，絕不是無條件的。肉彈主義早成過去了，今天是火力主義的時代。自從原子彈發明，更是證生產技術決定戰鬥技術。我國尙屬於農業經濟時代，一切工業基礎尙在萌芽時期，生產技術也遠不如進步的國家，我國要提高技術水準，充實生產力量，改進國軍裝備，經濟確是一個必要條件。

(三) 文化的條件

文化的條件即民族歷史的傳統，民族精神的寄託，國民生活的方式，國民教育的基礎等。我國有

五千年文明歷史，民族一貫的傳統精神，自 國父領導革命，推翻滿清專制，建立民國，賴有三民主義和革命精神，所以能够抵抗侵略，支持八年的長期抗戰。然而在文化上，我們國民教育的基礎，實在太不普遍，以美國為例，美國空軍戰鬥員百分之百是大学生，射擊 和通信士也都是曾受高中教育的，海陸軍中曾受高等教育的也佔相當比例數，陸軍中約為百分之二十五。至於蘇聯十月革命成功時便積極從事於新文化的建設，終能建立強大的紅軍，與帝俄時代軍隊的戰鬥力相比較，實屬天淵之別。此次德蘇戰爭中，德軍以為三個月便可攻佔莫斯科，實在是估量一大錯誤。我們和美蘇兩同盟國比較，殊感望塵莫及，由於政治組織，教育設施，民衆組訓種種條件不具備，國民文化水準低落，政治意識不夠，都影響到軍事教育。就戰時人的動員說，實行徵兵以來，絕少自覺自動服兵役義務的，徵集壯丁尚有用繩索束縛以防逃匿的，所謂「不教民戰，是謂棄之」，「不教民而用民，謂之殃民」，這本窮源，是國民 教育沒有達到水準，所以兵的素質上勝兵役的多是愚而無知，目不識丁的階級。

以此來使用科學的兵器，遂行戰鬥，焉能使兵器發揮其威力？因此我們的新兵教育必須從識字教育開始，普通教育乃是軍事教育的基礎，因為普通教育不普及，國民教育本能達到相當水準，影響軍事教育的建立，軍校的養成教育便是實際的反映。武漢會戰後，南嶽會議時，據軍令軍政兩部統計，為適應幹部傷亡補充率，每年需養成初級幹部四萬五千人，遂成人數激增，限於招生困難，取錄標準隨之降低，為高中肄業或初中畢業。為適應戰時需要，復將學期三年畢業縮短為一年或半年畢業。各分校相繼增設，教育期間既很短促，更限於武器器材缺乏，教育雖期精練，無論養成教育、召集教育都有同感，部隊中所有的裝備，軍事學校反而沒有，教育內容不免失於空疏，在幹部決定一切的口號下，幹部教育，軍官養成教育，十分重要。基於國民普通教育的不健全，影響到軍校養成教育的素質

，由於武器器材的不足，使教育難臻精練，這種情形之下，實施戰時教育的困難，匪言可喻。自前年起為謀養成教育素質提高，期符貴精重質之旨，毅然將原有三十二個總隊縮減為十五個總隊，並將學期延長為兩年，今後我們的建軍一面是要把國民教育水準普遍提高，使與軍事教育互相配合，同時的軍事教育上是要盡量設法充實教育設備，武器器材，以收加強教育效果，來提高幹部素質。

至於講到軍事教育制度問題，目前國軍的裝備多係採用美式，教育制度和方法需要採用美國的，這種趨勢是毫無疑義，不過有一個很重要的先決條件，就是無論採取任何一種的制度，決不可生吞活剝的整個的抄襲來，必須有獨立自主的精神。過去袁世凱於小站練自強軍時代，適當普法戰爭，德國戰勝了，於是採用德國的操典，托左肩槍，後來日俄戰爭時，日本戰勝了，又改用日本操典，托右肩槍；至於第一次歐戰時，德國初期戰勝了，又恢復左肩槍，完全是無意識的盲從，殊不知人家戰勝的因素決不是這種左肩槍和右肩槍的形式。我國在民國二十四年以前頒行的各兵科操典多半是抄襲德國和日本為主，到二十四年會由各兵科學校加以修正，最近軍訓部又將各種典範令教程詳密檢討，本着抗戰的經驗，將我們固有的優點發揚光大，一方面將美國操典中的優點慎重抉擇虛心採納，不僅是友邦的優點我們應效法，即敵人的長處，也要學習。因學術乃是無國界的，他山之石，可以攻玉。典範令經過這次修訂，在軍學上比較是適合國情，有創造和獨立性的。前年本席率同軍訓部次長及各主管兵 各軍校主管到昆明視察幹訓團，據本部同人觀察美式教育優點，富有自覺自治和刻苦耐勞的精神，無論天候晴雨學術科實施不稍懈怠。教育方法分準備、講解、示範、實習、測驗、檢討幾個步驟，更有充分的武器器材彈藥，因此能採用輪迴式的教育。極短期間可以訓練多數官兵，極適合戰時需要，這種教育方法，我們是應當採用，可是決不可忽略了教育設備，武器器材彈藥的條件。參觀

以後，史迪威將軍約本席講評，當時曾提出幾點意見：（一）認為近代戰爭在戰場上是必須各兵種密切協同，發揮其綜合力量才可以勝利。對於昆明附近的空軍基地，應適時利用實施陸空協同演習，其在印度的訓練亦須如此。（二）當時參觀他們砲兵射擊，對目標距離下令喊「六零零零」，平時教練如此，戰時處於槍林彈雨音響嘈雜環境中，假使將口令誤聽漏一「零」字，將六千變為六百，致距離減少，必致危害友軍，所以建議應照我國度量衡標準，以公尺換算施行，都經美方採納。此不過舉一例，總之我們研究軍學的態度，既不可妄自尊大，妄自菲薄，更不能妄自尊大，妄自菲薄，便喪失信心，妄自尊大，沒有謙虛心，故步自封，必致阻礙進步。這兩種心理都是不正確的。

其次，將今後養成教育學制的改革，與建立非職業軍官制度，職業軍士制度，概略說明幾點：

（一）養成教育學制改革問題

最近軍訓部會召集各校教育負責主管開會研討，決定軍官養成教育學制改收雙級單軌制，將陸軍預備學校學期延長為三年畢業，加深其普通科學。軍事訓練的要求，使養成軍人精神、紀律、生活、習慣，完成新兵教育。畢業學生按其志願及兵科需要分兵科至部隊入伍半年完成軍士教育，然後升學入軍校受各兵科的綜合教育，不分兵科，凡是步、騎、砲、工、輜重、通信、戰車兵科都應輪流學習，同時軍校教育設備武器器材力求充實，使教育更臻實在，畢業後按兵科分發部隊，見習期滿後即任少尉排長，在軍隊服務至相當時間，再令入兵科學校補習深造，或升考陸軍大學期能養成完全兵科將校。近代戰爭在戰場上是要發揮各兵種的綜合力量，一定要各兵種密切協同，現在為加強教育，已決定將軍校修業期間暫定延長為兩年半或三年，施以各兵科綜合教育，其主要着眼即使密切協同容易，

轉移兵科便利，實施具體方案，正在研討中。關於陸軍預備學校，有的意見尚認為不需設立，不過在非職業軍官制度未確立及健全以前，過渡期間仍感需要。我們看日寇各種兵科都普設有幼年學校，此次大戰後蘇聯更設有蘇瓦洛夫幼年陸軍學校，招收十四歲學生施以七年長期養成教育，預計一九五〇年以後才能養成，他們認為這才是蘇聯紅軍真正現代的幹部。

(二) 建立非職業軍官制度

即預備幹部，我們的期望是高中畢業學生養成預備軍士，專科以上學校畢業學生養成預備軍官。美國在第一次世界大戰時，能迅速的動員四百萬志願兵，以二百萬由潘興將軍率領開赴歐洲增援協約國，以二百萬人在後方訓練。此次大戰中美國陸海空軍動員達一千一百五十萬人，所需百萬以上的大量的幹部，多係平時由普通學校實施嚴格軍訓儲備的預備軍官，戰時召集施以短期教育，調派服役。美國全國人口計一萬萬二千七百餘萬人，戰時能動員如此強大的兵員，實在是平時普施軍訓的成效。我們有四萬萬五千萬人口，假使一旦要動員三千萬乃至四千萬人，其所需幹部以十分之一為比例，便需三百萬乃至四百萬人，這種幹部的來源全賴平時訓練儲備。因此建立非職業軍官制度異常重要！本席於民國二十年曾提出口號是要達到「寓將於學」，近幾年來軍訓業務因為制度、權責、經費、設備種種條件未完全具備，未收顯著成效，今後為求加強實施，其具體方案，正由軍政軍訓教育三部商討中。

(三) 建立職業軍士制度

此於建軍也有密切關係，我國現在是實行徵兵制，兵的來源是無問題，軍官的來源除由正軍校養成外，還須培養預備軍官。惟在官與兵的中階級的軍士，特別重要，訓練優秀的職業軍士，其術科必能精練。日寇對軍士的養成設有許多軍士教導學校，畢業的軍士有術科博士之稱，軍士是軍隊中的重要基層，現代戰鬥方式已由散兵線變成散兵羣，當日俄戰爭時，火線上任射擊指揮的是連長，現在則為軍士，一個部隊中的軍士如照兵役法實行退役，則軍隊訓練基礎薄弱。教育訓練乃至作戰上均受影響。軍訓部為謀軍士的培養，曾早有幾次向軍委會建議設立軍士學校或軍士教導學校，養成精練的職業軍士，為軍隊中的骨幹。希望能夠促成此一理想的早日實現，使國軍武力增強，負起國防的責任。

MILITARY EDUCATION AND TRAINING IN CHINA
By General Pai Ts'ung Hsi, Vice-Chief of Staff and
Minister of Military Training.

1 Edition, April, 1946. UNC \$ 300.00. Abroad U.S. \$ 0.30.

EDITOR'S NOTE

This volume consists of a lecture on military education by General Pai Ts'ung-hsi, (usually romanized as Pai Chung-hsi) Vice-Chief of Staff and concurrently Minister of Military Training and will form one of the miniature monographs of the Chinese Government Organs and their working.

General Pai, whose courtesy name is Chien-sheng, is a native of Kuangsi. Graduated from Paoting Military Academy in 1916, he has been Commander, 13th Army. During the northern expedition, he, as the Advance Commander of the Eastern Route Army, was the first to arrive Shanghai and became the Garrison Commander of Shanghai-Woosung Area in 1927. Later in 1937, he was promoted to Vice Commander-in-Chief of the 5th Route Army. He has been Vice-Chief of Staff since 1937, and Minister of Military Training Board, National Military Council, since 1938. He is also a Member in the Central Executive Committee of Kuomintang.

Compiled and Published
INTERNATIONAL PUBLISHERS
220 Haroon Building, Nanking Road
Shanghai, China

TRENDS IN MODERN MILITARY EDUCATION

(Lecture delivered at the Military College)

by General Pui Ts'ung-hsi

Vice-Chief of the General Staff

During the past six months, I have been invited repeatedly by Acting President Chen and Dean Hsu to have a talk with you, and I feel greatly enthusiastic over this opportunity to meet you all.

The subject I propose to take up to-day is: Modern Tendencies in Army Education. The Military Training Board was established in Hankow in 1938. In the intervening years since then, this country was engaged in war. We have been fighting the war of resistance on one hand carrying out war time education on the other. Our Army is not only inferior in equipment, but in the matter of education, it is also backward. Since I assume in a concurrent capacity as Minister of the Military Training Board, I at once realised that my responsibilities were extraordinarily heavy, and I could not but feel a sense of anxiety. I was fully aware that with our Army badly equipped and inadequately trained pitched against a stubborn enemy with modern equipment, and at the same time with all political, economic, and cultural facilities not fully developed, we could not but redouble our efforts in the education and training of our troops under the circumstances.

At the same time, with the lessons learned from the progress of the Second World War, we began to collect extensively all relevant material relating to military education, from both our Allies and the Axis nations, to serve as reference for our own efforts. In addition, practical conditions existing in our own Army, as well as some of my personal views on the subject,

were also given due consideration in submitting my plans for for the adoption of the higher authorities.

During the course of the eight years of the war of resistance, I have utilised opportunities afforded by reviews of troops, inspection of various war zones and front line forces, and visits to various military academies, in talking to our officers and men, as well as the staffs and students of the academies, on the material and views to which I referred above, in order to enable them to understand modern tendencies in military education in the progressive nations of the world. The saying has it: "The may adopt the good points of another people to make good our defects, and to profit by the experiences of another people to augment our shortcomings. Knowledge exceeds the bounds of State considerations. The good points in military knowledge and technique exhibited in the course of the current world war, both by our own Allies and by our enemy, the Axis nations, must all be carefully weighed in the light of their intrinsic values, and selection made of them to serve as reference in the promotion of our own military education :

After a long period of tedious struggle, the troops of the Allied nations finally won victory in this war, As I look into the future of military reconstruction, I feel that the building of a strong Army must be based on military education. I have accordingly brought together, and undertaken the necessary revisions in, the contents of the numerous lectures on military education I have made in recent years, as well as other relevant material collected, and compiled therefrom a Handbook on the Modern Trends in Military Education, to serve as reference matter for my colleagues of all ranks, and to be of aid in the promotion of military education in this country. Owing to limitations of time, I am unable to go into the subject fully here today, and I can only refer to a few important points.

We all know that education is the preparation for war, while war is the application of education. The quality of the education of an army will thus determine the strength of its fighting power.

This is an immutable truth. The world today is a scientific world; modern warfare is scientific warfare. Because of the advancement of society and the progress in science, all military technique is also continuously being improved. Napoleon said: "Military strategy changes every ten years." This might be true in his time. But human progress is pursuing the course of geometrical, not arithmetical, progression. By a comparison of the first 5,000 years of world history with the history of modern scientific progress in the past three centuries, the extent of scientific advancement in modern times will be easily gauged. By a further comparison of the history of scientific development during the past three centuries with the technical progress registered during the last five decades, the extraordinary speed with which recent technical progress has been advancing will also be readily understood.

In Napoleon's time, military strategy changed once every ten years. But during the four years of the World War I, military tactics underwent changes from the battle of flanks to the battle of fronts, from fighting on horizontal levels to fighting in perpendicular dimensions. In World War II, furthermore, there have been evolved such strategies as "immersion battles", "forestry battles", and "blitzkriegs". All these evolutions indicate that with the progress of technical knowledge, military tactics also advanced, fully testifying to the real conditions of scientific warfare. The speed with which changes have been effected is sometimes beyond imagination. We may indeed say that changes are effected daily, effected momentarily.

Because everything undergoes change, we have the new and the old; the progressive and the backward. New and progressive things must win over old and backward one's. The principle necessarily holds true in military affairs. If the objective of fighting is to win victory, then progress must be sought, and the new and the progressive must be employed to defeat the old and the backward. There are of course certain immutable principles in strategy, but the methods and means for the application of such principles undergo changes constantly and more rapidly with the advent of

modern times. The ability to adapt ourselves to "changes" in methods is necessary for the successful application of the "unchanging" principles.

As an example, let us look into the famous "concentrations" in military history: Napoleons's concentration, Motke's concentration, and keitel's concentration, all of which were different in the methods employed. Motke could use railways, but Napoleon could not; Keitel could use vehicles on mountainous terrain, both Motke and Napoleon could not. Again, the principles of offensive defense employed by Weygand and Gamelin were identically the same as those employed by Joffre and Foch. But Joffre created the miracle of the Marne, and Foch accomplished the victory of the Allies, whereas Gamelin and Weygand could not save France from her tragic fate.

Implements of warfare are determined by tools of production, while fighting technique is determined by production technique. With the scientific progress of military and general technique, tactics is continuously undergoing changes and improvement. New weapons and new fighting branches continuously pour into the Armies, so that original weapons and branches are either abandoned or paled into insignificance. From the Prusso-French War to the current world war, changes in tactics arising out of technical progress have been innumerable. Inventions in the fields of electricity and light, and the use of the steam engine and the internal combustion engine, have shortened time and space by tens, hundreds, thousands and tens of thousands of times. The power and range of artillery fire have greatly diminished the effectiveness of the cavalry. The coordination of trench construction and artillery pieces have rendered difficult the successful attacks of light-armed infantrymen. The tank has robbed the small calibre field pieces of their prowess. The employment of heavy bombs and parachutists by the Air Force has minimised the value of fortresses. The present age is a scientific one. Modern warfare is scientific warfare. The whole army has been practically technicalised.

We fully realise that we must adopt the progressive equipment

of the Powers, and we must study their new tactics. Especially at a time like the present when technique improves each day, and military tactics changes each day, we cannot relax in our efforts, but keep up with the progress of the times. But even if we possess the newest of equipment and have studied the newest tactical methods, if we are not in possession of the necessary education that is in keeping with the new equipment and new tactics, then our equipment will not be able to manifest its prowess, and the tactics we have studied will only be armchair strategy.

In keeping with the evolution and reformation of technique and military tactics, we have also a lot to learn from the progressive countries in the matter of military education. Only by so doing may our technique and tactics be modernised.

We must moreover understand that modern warfare is a full-scale combat into which is to be thrown the nation's entire strength. In what is called total warfare, only military strength will not win victory. The complete mobilisation of a nation's political, economic and cultural resources will only settle a war. As military education is the central theme in military development, its successful undertaking must be preceded by its close coordination with the political, economic and cultural policies of the country.

POLITICAL CONDITIONS

That politics coordinates with military affairs and statesmanship is in line with military strategy, is an immutable principle. More than 200 years ago, the Chinese strategist Sun Pin said: "The rule of virtue implies the that there must be agreement between the Government and the people. The latter will then be prepared to live and to die with the State, and will not be afraid of any danger." A hundred years ago, Carlowitz also said "War is the continuation of politics." The effects of political conditions on military education have however, become all the more marked in recent times. In Tsarist Russia, all the people were treated as slaves, and they had no political consciousness to

speak of. Tsarist armies eventually met defeat in World War I. With the October Revolution and Lenin's ascendancy to power, the political system, military education, and military training were drastically reformed, and coordination achieved between political and military policies so that the building of the Red Army was successfully accomplished. With reference to military reconstruction in Germany and Japan, though the political organisation in these two countries were different from that of Russia, nevertheless the achievement of coordination between political and military policies was also effected in the same way.

The United States has a population of 127,000,000. Even with the leadership of the late President Roosevelt, lofty and farsighted political leader as he was, if the American people had not been fully imbued with a proper political consciousness, that country's participation in the present war would not have been so smoothly effected. Her Congress might not have approved the mobilisation of such huge manpower and economic resources, and the despatch of such large numbers of her men of the various Services to participate in the various battle fronts, and to give such large quantities of material aid to the Allies. The United States is a nation where freedom is most respected, and where conscription is not in force. During World War I, her normal Army was only 200,000 strong, but she mobilised a force of 4,000,000. During the current world war, her normal Army was also less than 1,000,000, but with the outbreak of the Pacific War, the United States mobilised within the shortest time possible, a force of 11,500,000. Had her political conditions been inadequate to cope with the situation, and had coordination been lacking between her political and military policies, she could not have achieved the objective. The principle of the coordination between political and military policies is thus a most correct one.

ECONOMIC CONDITIONS

In speaking of economic conditions, I refer to the technical standards and the production capacity of a nation. The bearing of economic conditions on military education is very great. Mo-

modern warfare is scientific warfare; it is also economic warfare. Upon economic conditions depend all industrial foundations and scientific technique. Whichever country that possesses a high standard of scientific technique and a great production capacity will be assured of victory. Modern warfare requires not only quality, but also quantity, in the Army. For this reason, there must be a General Mobilisation, all manpower and material resources must be fully mobilised to manifest their combined prowess. The fighting services must of course be numerous of high quality, but they must be supplemented by high-degree production technique and a large production capacity.

During the first stage of the current war, Germany with her strong and large mechanised forces engaged in "blitzkrieg" tactics, carried all before them and astounded the whole world. In the Germano-Russian engagements, it was thought that the German Army, with its superior mechanised forces, would capture Moscow. The result was otherwise, because Soviet Russia, too, possessed modern equipment, and obtained the assistance of the Anglo-Americans. In the production of airplanes and that of mechanical equipment for the land forces Germany could not rival Great Britain, the United States, and Soviet Russia put together, and as a result, Germany's air forces and mechanised forces were overwhelmed through inferiority. The Soviet forces eventually succeeded in the completion on their "annihilation" war at Stalingrad. As to the Navy, Germany occupied a position of absolute inferiority compared with Great Britain and the United States. Germany has now admitted her defeat to be due to the fact that her production capacity was inferior compared with the Allies, and that her scientific technique was inferior compared with the United States.

Again, in the first stage of the Pacific War the Japanese aggressors scored victories in their attacks on Pearl Harbour and Singapore. But immediately, United States arms production and airplane production increased greatly, and was able to subdue the Japanese, assume air superiority and maintain control over the seas. Close coordination was effected between the naval and

air forces, while the Army possessed equipment absolutely superior to the Japanese. The joint operation by America's land, sea and air forces manifested the greatest of prowess and brought about the collapse of the Japanese. As a matter of fact, Japan's Army was not inferior to that of Germany, and added to it was the Bushido spirit of its men who were prepared to die freely in battle. In the Atoll, Iwojima and Okinawa engagements, indeed, whole companies, regiments and divisions fought themselves to death, while in the Japanese Air Force there were the "Kamikaze" and "dare to die" units. But even such a heroic spirit of sacrifice could not save the Japanese from the tragic fate of certain defeat. In modern scientific warfare, the possibility of victory of spirit over matter is attended by conditions, and is not unconditional. The age of "human bullets" is past, now is a time for the manifestation of the prowess of "artillery fire". The invention of the atomic bomb has all the more confirmed the truth that production technique determines war technique.

China is still lingering at the stage of agricultural economy. All industrial foundations are still in the budding stage. Production technique is far behind that of advanced nations. If we are to elevate our technical standards, augment our production capacity, and to improve the equipment of our Army, the improvement of our economic situation is an indispensable condition.

CULTURAL CONDITIONS

By cultural conditions I refer to a people's historical traditions, its spiritual foundations, the modes of living of the people, and the foundations of its general education. China possesses a civilised history of 5,000 years, and an established traditional spirit. Since Dr. Sun Yat-sen, Father of the Republic, led the nation in the revolutionary movement to overthrow the Manchu dynasty to found the Republic, the Three People's Principles and the revolutionary spirit of the nation stood in its stead and enabled the nation to resist aggression and sustain the long war of resistance lasting eight years.

Culturally, however, the foundations of popular education of

the people are far from adequate. Taking the United States as an example, we find that combatants in the U.S. Air Force are a hundred per cent university men; riflemen and signalmen have at least gone through the high school; in the Army and Navy, a considerable percentage of the men have also received university education (in the Army, they constitute about 25 per cent). As to Soviet Russia, with the success of the October Revolution, attention was immediately paid to cultural reconstruction, and ultimately the strong Red Army was built up, with a fighting power far superior to that obtaining in the Tzarist troops. When the Germans thought they could capture Moscow in three months on the outbreak of the war, they had made a grave error in their estimation of the Soviet Army's strength.

Compared with our Allies, the United States and Soviet Russia, China's position culturally is far inferior. Because of the absence of favourable conditions in our political organisation, our education measures, and our mass organisation, the popular education of the Chinese people is at a low level, and there is a lack of proper political consciousness, all of which affects military educational provisions. Taking for example manpower mobilisation during the war, with the enforcement of conscription, there had been very few instances where people spontaneously offered themselves for military service. Even among the able-bodied men conscripted, sometimes it was necessary to have them closely guarded to prevent attempts at escape. I recall here the sayings "If the men are not taught the need to take up arms, they are being abandoned", and, "To drive a people to military service without first educating them in the need to do so is to bring suffering to them." When we trace the matter to its source, we cannot but admit that because popular education has not reached a suitable level, we find in looking into the quality of our men, that the majority seeing service are of the ignorant and illiterate class.

If such men are employed to use scientific weapons and to engage in combat, how can the weapons used be expected to manifest fully their prowess? Accordingly in our new policy for

the education of our servicemen, we must start with the wiping out of illiteracy. Popular education serves as the basis for military education. If popular education is not universally extended, the people's education standard does not reach its normal level, and the consolidation of military education will be affected. Conditions in the training of the Military Academy reflected the actual position. After the Battle of Wuhan, at the Nan-yo [Hengshan] Military Conference, the statistics of the Ministry of War and the Board of Military Operations were consulted, and in order to meet the need for the replacement of junior cadre members fallen in action, it was found that a junior cadre of 45,000 must be provided annually. The need for trained personnel thus increased greatly. Because of difficulties in obtaining adequate candidates, the standard of qualifications for admission was lowered to include those studying in senior middle schools for have graduated from junior middle schools. And because of the needs of war, the period of training was shortened from three years to one year or even half a year. Branch training centres were put up in different localities.

The period of training having been shortened, and limitations being also placed in the supply of arms, the training provided could not be expected to be efficient. This was felt by those both in charge of initial training and the subsequent training of those who have been called up. Sometimes, equipment available in the army units was not provided in the training centres, and the course studied tended to be impractical. Under the slogan that "the cadre determines everything", the education of cadre members and that of officers were most important. Because popular education was not well developed, the quality of the education provided for the training of officers was affected. Because of the lack of weapons and equipment, the education lost much of its practical value. Under these conditions, the difficulties attending the enforcement of military education in wartime may well be imagined.

Two years ago, with the objective of elevating the standard of education given to military trainees, in keeping with the policy

of attaching due importance to quality, it was drastically decided to reduce the number of principal training units from 32 to 15, and to extend the period of training to two years. Henceforth in our work of military reconstruction, we must on the one hand raise universally the standard of our popular education so that it may coordinate with efforts at military education. At the same time, in military education itself, we must take steps as far as possible to strengthen equipment and the provision of weapons and other material, so that the results obtained may be more practical, and the quality of our cadre elevated.

MILITARY EDUCATION SYSTEM

In speaking on the problem of the system of our military education, as at the moment the equipment of the Chinese Army is principally American, our educational system and methods must be that of the United States. This tendency cannot be doubted. There is, however, one most important pre-requisite: whatever system is adopted, it must not be swallowed up wholesale. A spirit of independence and self-determination must be upheld. In the past, when Yuan Shih-kai was training the "Self-Strengthening Army" in Tientsin, Hopei, the Prussians just won the war against France, and the German system of military drills was adopted, with the rifle carried over the left shoulder. Later, when Japan defeated the Russians, the Japanese drill system was adopted, and the rifle was carried over the right shoulder. Again later, during the first stages of World War I, when Germany was showing signs of victory, the left-shoulder system was restored. All such actions were blind imitations. Surely it must be understood that the factors contributing to victory did not merely consist of shouldering the rifle on the right or the left.

The drill exercise manuals issued in China before 1935 were mostly copied from German and Japanese models. In 1935, manuals were revised by the various military institutions. Recently, the Military Training Board undertook an extensive revision of all manuals and military textbooks. Based on the

experience of the resistance war, the traditional good points in Chinese military practice were being developed, while the good points obtaining in United States manuals were carefully selected and adopted with sincerity. Indeed, we must not only adopt the good points of our Ally, by even those of our enemy. After this revision, the manuals are comparatively more in keeping with Chinese conditions, possessing both creative and independent qualities.

Two years ago, accompanied by the Vice-Minister of Military Training, the various Military Inspectors, and the heads of military training institutions, I proceeded to Kunming for an inspection of the Cadre Training Centre. According to our observations, we found the good traits in the American system of military education to consist of the ability for self-consciousness, self-action, autonomy, perseverance and industry. Whatever the weather conditions there was no relaxation in studies in technical matters and in practical manoeuvres. The methods used in education consisted of preparations, instructions, demonstrations, practices, investigations and evolutions. There was moreover an ample supply of arms and ammunitions. Accordingly, the system of routine instructions could be employed and the training of a large number of officers and men possible within a short period of time, most suitable to meet wartime needs. Such methods of education must indeed be adopted by us. We must however not neglect the provision of educational facilities, conditions attending the supply of arms, equipment and ammunitions.

After our inspection, General Stilwell asked for my comments, I thereupon made a few suggestions. In the first place, I considered that in modern warfare, there must be close cooperation of all services in the battlefield so that their joint prowess might be manifested for victory. I suggested therefore that the Air Base at Kunming might be utilised as much as possible for joint exercises by the Army and the Air Force. The same should apply in the training centres in India.

In the second place, as I inspected their artillery fire practice, I found that in the adjustment of the range finders, the

order given was "6-0-0-0". It seemed all right in practices. But in case of actual fighting, when the men were under the heavy din of bullet fire and other noises, if in the receipt of the order, one "0" should be left out, then 6000 would become 600, and this shortening of the firing range would endanger friendly units, I suggested therefore that Chinese standard measures be adopted, and orders would be given in "meters".

Both my suggestions were subsequently adopted by the American authorities. I am of course giving here only an instance. Generally speaking, in our efforts at the study of military matters, we must neither belittle our own selves nor be self-boastful. If we belittle ourselves, we lose self-confidence. If we are guilty of self-arrogance, and lack the spirit of accepting guidance, we shall remain backward without making progress. Both these tendencies are improper.

I now propose to deal with reforms of the system of personnel training, and the establishment of a system of non-professional officers and that of professional servicemen.

EDUCATIONAL REFORMS

Recently, the Military Training Board called a meeting of officers responsible for military education in various institutions for discussions, and it was decided that the system for the training of officers be reformed into a single system consisting of two grades. The period of study in Army Preparatory Schools is to be extended to three years. Education in the ordinary subjects, as well as training in military subjects are to be intensified. A military spirit, discipline, military living and habits are to be cultivated in order to complete the rudiments of education for raw recruits. On graduation, students will be dealt with in accordance with their aspirations, and the need of the various branches of the services will be considered in allotting them to various services. The students will first be despatched to regular army units where for a period of half a year they will complete their education as privates. They will then be admitted to military academies and there receive composite training in all branches

of the services, receiving instruction in rotation in infantry, cavalry, artillery, engineering, supply, communications, and tank practices. At the same time the equipment in military academies is to be augmented so that the education given will be more practical.

Upon graduation from the academy, the students will be despatched to various branches of the services. On the completion of the period of probation, a graduate will receive his commission as lieutenant in charge of a platoon. After an adequate period of service, he will be ordered to further training in a Military School of specific branch for additional education, or else be admitted, after examination, to the Military College to be trained into a senior officer of the Army with ability to serve in all branches of the services.

In modern warfare, the combined prowess of all branches of the services must be exerted in the battlefield, and close cooperation among them is necessary. For the better education of officers, the period of study in a military school has been extended to two and half to three years, so that composite education in all branches of the services may be given with the objective of rendering inter-cooperation of these branches easy, and the switching off of an officer from one branch to another possible. Concrete plans for the enforcement of these decisions are being studied.

It is held by some that there is no need for the provision of the preparatory military school. Pending, however, the establishment and the consolidation of the system of non-professional officer, the need is still felt in the transitional period. We see for instance that in Japan, junior schools were provided for all branches of military service. After the present war, Soviet Russia has established a juvenile military school to admit students of the age of 4 to be given a long term training of seven years. The first batch will not be fully trained until 1950, and they will be considered the modern cadre of the Red Army.

SYSTEM OF NON-PROFESSIONAL OFFICERS

This system is a system for reserve cadre. It is our hope that the graduates of senior middle will have been so trained that they

will serve as general reserve, and graduates of technical schools and above will have been so trained that they serve as reserve officers. The United States in World War I could speedily mobilise 4,000,000 volunteers, half of whom were led by General Pershing to aid the Allies in Europe, and the other half were being trained in the rear. During this war, the United States mobilised a total of 11,500,000 men. The large number of cadre members required, more than 1,000,000, largely reserve officers who had undergone rigid military training in the normal schools of study, and were called together for short term military education during the war when they were sent out for service. The population of the United States is 127,000,000. That she was able to mobilise such a large force in war was the result of the universal application of military training in normal times.

China has a population of 450,000,000. If we have to mobilise, say, from 30,000,000 to 40,000,000 men, then the number of cadre members required, reckoned at 10 per cent, will be from 3,000,000 to 4,000,000. The supply of such a cadre is solely dependent on training and conservation in normal times. Accordingly, the establishment of the system of non-professional officers is most important. In 1931, I advanced the slogan of "incorporating the training of officers in normal studies". In recent years, because of the incomplete conditions with reference to system, authority, finance and equipment, the work of military training has not been attended with marked success. Henceforth, enforcement measures must be strengthened. The Ministry of War, the Military Training Board and the Ministry of Education are jointly discussing the issue.

SYSTEM OF PROFESSIONAL "SERGEANTS"

The system of professional soldiers has also great bearing on military reconstruction. As conscription is now in force, the supply of soldiers raises no question. As to the supply of officers, in addition to those from the military academies, the training of reserve officers must also be attended to.

Between the officer and the private, however, there is the

middle stratum of the "sergeantry", who occupies a most important position. The training of well qualified professional "sergeants" must be taken up with education in the various arts of war. The Japanese, in training their "sergeants", provided a number of special schools for the purpose, and graduates therefrom were even referred to as "doctors of military arts." The sergeants make up a basic stratum in the modern army. Modern methods of combat as passed from the stage of fighting with lines of detailed soldiers to the stage of fighting with detailed groups of soldiers. In the Russo-Japanese War, the Battalion Commander took charge of the firing at the battle-front, now the sergeant takes his place. If the sergeant in an army unit retires from service in accordance with the provisions of the Military Service Law, the foundations of military training will be considerably weakened, and military education, and even war operations will be affected. For the training of sergeants, the Military Training Board had made several recommendations to the Military Council for the provision of Schools or Training Centres for Sergeants, so as to train up a force of qualified professional sergeants, to serve as the backbone of the Army. It is to be hoped that this ideal will be realised at an early date so that the strength of the Army may be augmented to discharge adequately its duty of national defence.

中國軍事教育與軍事訓練

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上海图书馆藏书



A541 212 0019 2906B

With Chinese Text

INTERNATIONAL PUBLISHERS

CNC \$ 300.00.

Abroad U.S. \$ 0.30

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