

# Paradoxical Character of Contemporary Technology and Armed Forces

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## Setting

The conventional and general approach toward technology in national defense field has been the pursue without questioning on the socio-historical meaning of technology. This approach is named for the Technology Application Approach (Hereinafter, TAA)<sup>1)</sup>. This approach put the pursuit of technology for national defense on the following attitude, that is how effective technology should be utilized in terms of its research, development, production, and its practice. However, though this approach is necessary, pragmatic and convenient for all of military engineers, other military concerns and companies for military assets, continuing this approach will bring out some definite negative effects to the strategy and policy of national defense.

As some researchers who have critical concerns on this theme, the context between the contemporary character of technology and the national defense, recognize, another approach has to be proposed. In this paper, I would like to lunch another approach ; it is the conception of Technology as Socio-Historical existence in a given social and historical condition Approach (hereinafter, TSHA) as an useful conceptual tool for this theme.<sup>2)</sup> Furthermore, I'd like to prove how this approach based upon TSHA can possibly predict the future of national defense as my light motive.

## Discussion

All most of experts on this theme have known that the very reason toward the technology pursuit technology consists in achieving the realization and development of a complete national defense strategy and policy through utilizing rationally and effectively technology. There will be a large number of ways for this pursuit. What the best way should be chosen? It is too difficult for these concern experts to choice the best way. At first we have to change the conventional way of approach or thinking about technology ; Criticizing the conventional way of approach or thinking about technology. Namely, it is necessary for us to recognize that technology is not the realistic existence without socio-historical characters. we have to change TTA. Technology has given some socio-historical characters in a given social and historical condition .

What is the contemporary characters of technology? For to grasp this characters, I'd like to show a way of thinking. At the first place, we have to recognize the roll and positioning of the contemporary technology in the context of the modern states and the modern globalization. Putting this way of concern, we will find out the genuine socio-historical characters of contemporary technology, and will be able to grasp the genuine context of national defense strategy and policy and technology. The pursuit of technology by military forces such as developing, producing, practical using and improving the weapon systems and strategies for national defense are closely or vastly related with nation's total development policy in general sense, national defense forces needs to pay some considerations at the pursuit of technology for military needs. To be paid some con-

siderations by military forces are that the pursuit of technology is closely related with civil fields, namely the pursuit of technology for military use should be balanced with the inclusive national policy. The concrete issue for this recognition is how to devote this way of thinking on technology to the national development as totality. The Inclusive National Security Policy, such as Japanese National Security Policy launched in 1970's<sup>3)</sup>, aimed at not only to set the role of technology to improve nation's military conditions, but also to take suitable balance with other national policies for her development. Because, technology is the driving force of economic and industrial strategy, and the relationship of the world of technology and the world of industry are closely connective. Personal concerns who are working hard to build the best national defense strategy and policies must understand the genuine meaning of the way of thinking on technology .

Let us examine how have armed forces understand and treated on the meaning of the pursuit technology for national defense. Richard J. Samuels argues in his "The Rich Nation, Strong Army (Cornell University, 1944),"<sup>4)</sup> that the industrial/economic development and the development of military have always been linked while technology was affected by some historic conditions of modernization and industrialization of each country.<sup>5)</sup> His pointing out is true in a certain extent and valuable in the respect of understanding on technology as a part of whole national development. But the focus of his pointing out seems to be still restricted to the military side of technology. Samuels seems to pay little attention to the necessity of TSHA, and in his idea, the approach on technology is still put on the understanding of TAA. As above mentioned, however, the changing role of technology appeals to accept the way of TSHA

thinking. Technology should not be understood as in itself, but should be understood as a socio-historical existence. Depending on this way of thinking on technology, we could understand the genuine relationships between national defense and the role of technology. The real states of technology is a kind of natural reflection of the given historical and social states. It means that technology is an accumulated product of culture and civilization. Therefore, this way of thinking is the same as the culture and civilization study approach<sup>6)</sup> (Herein after, CSA). This approach will also devote to have good understandings on the relationships between the role of technology and the suitable national defense strategy and policy. If we can apply CSA for having good understandings on above mentioned relationships, what is the role of technology for national defense ?

We live in a global society where all the individuals as well as institutions are not at all equally assimilated and unified. We rather live in societies where human relations types of institutions are divided and stratified depending on classes and other unequal factors. The mechanism of this stratified society has two ambivalent sides : unification and separation or globalism or localism. In the case of this issue, we can observe two different directions, which causes the dilemma. One is the co-existence of military and non-military applications of technology and the other is the co-existence of national defense and international cooperation. I am convinced that these ambivalent characteristics of technology will have a crucial impact on the future of the air force as the study of technology accelerates. It will cause both the disappearance of the traditional form of the air force as an independent military system and foster the division of labor or specialization of the air force followed by an increasing demand of international cooperation.

## 1. The National Defense Duty of Armed Forces and Technology

### ( 1 ) The Pursuit of Technology and National Defense

As we all recognized, technology has played a significant role in warfare, especially in modern warfare : the Gulf War, ethnic cleansing in Yugoslavia and other modern wars in the world could be ended because of the complete complex utilization of technology by armed forces. Especially the air force applied the ultra modern technology for it's operations. And they got the complete victory. Of course, some controversies on the effectiveness of applying technology in those war proposed by experts. Though we have not the terminal conclusions, a large number of armed forces in the world have not doubted on the effectiveness of technology in warfare.

Technology also devotes to makes tremendous contributions as deterrent strategies in politics. The number of victims can be minimized and helps political negotiations. Prof. Shinji Tsuyoshi who teaches the study of aero-space defense science at Japanese Defense Academy states ultimate power of technology. He pointed out that "Each nation is totally depended upon its progress in technology. That can easily be proven in any modern warfare",<sup>7)</sup> However, as above mentioned, the meaning and the purpose of technology in terms of the national defense conducted by armed forces is not just designed for military purposes and effectiveness in actual time of warfare. The larger purposes of technology in the modern world are to establish theories and algorithms<sup>8)</sup>, which are holistically beneficial to the nation and its future development. If we think of expanding and diversifying the role of technology in our society, then further pursuit about the relation between technology

and national defense is urgent because it is almost impossible to effectively perform national defense duties without understanding the new meaning and significance of technology.

## ( 2 ) The Background of the Necessity of Conversion of the Approach on Technology by Armed Forces

What is the background of this necessity? This background consists in the concerning with operation of technology in contemporary globalization society and the defense duty of the air force. In the first place, what a kind of approach was the approach to technology of armed forces? Their approach to technology, generally speaking, was that how to effectively apply technology for the duty of the national defense. The attitude on the way of thinking of armed forces about technology was only the application of technology without questioning what is the characters of technology which they tried to use.

Though this approach of technology contributes to the industrial development of every country on the other hand, this approach would produced the expansion of the military expenditures, and tenacity of this approach also submits defrayal to political and financial sectors. And as the results of these negative consequences, this approach obstacle even to military application of technology. For example, it is an typical instance that when the air force set about the development and introduction of military technology for own country's industry and its defense, though they are conscious of the necessity, they are used to put the emphasis of their development policy on the military use. As the consequence of following such a policy guide line — the approach of technology — , this produce international and internal frictions. This attitude, moreover, produce the development of massacre weapons, the expansion of the military expenditures and international tensions.<sup>9)</sup> This

attitude produce the skepticism on technology pursuit. This presupposition or apprehension produce the conversion of a contemporary technology.

The characteristics of contemporary globalization<sup>10)</sup> society are as followings. Its characteristics are the closest relationship between every organization and individual. The communication of mutual effects extend to each others at a real time. Anything affairs occurred in anywhere in the all over the world extend also to all of the places at a real time. Electronics the centric of contemporary technology has realized the social control idea which is the fundamental technology idea in modern time. The technology and idea of social control developed the skill and art of human control. For instance, the intelligence 2and information technology which is the symbolic representation of contemporary technology has controlled the daily life of every human in the world in the field of international finance. The development of the space intelligence and information network devices and the precision guided munition played effectively in the Gulf War and the air raids on Yugoslavia has even realized the control of war by technology<sup>11)</sup>

The development of a close mutual relationship, a real time relationship and a control ability technology are just peculiar characteristics of contemporary technology. This characteristics and greatness in good or evil meanings have produced a surplus faith to contemporary technology.

### ( 3 ) TTA and TSHA/CSA as the Way of Thinking on Technology

The contemporary technology is the leading role creating the present age as a historical existence along the intention of the contemporary globalization. The contemporary technology, however, is getting out of control from the intention of humank-

ind on technology, and put various evils on humankind. The switch of the approach of technology pursuit of armed forces is demanded in this condition. Building the way of thinking on technology as one of alternativeness in this demands is demanded in this situation. And the new approach for this demand should be examined. In other words, as the contemporary technology has been put the center of the contemporary globalization, technology pursuit of armed forces is tied up with this situation. TTA approach could not find out this contexture of relationship of technology and the history. To vanish the various calamities come from technology and to use it effectively for armed force's duty, the algorithm on technology as a socio-historical product =TSHA/CSA is demanded. This approach tries to cognize the society synthetically, the appropriate approach for it is TSHA/CSA. This is why this approach could grasp the synthesis of the society. This approach is a kind of a frame of reference to analyze the civilized phenomena at the phase of the mutual fusion of civilization and culture.<sup>12)</sup> The important points are to grasp phenomena synthetically. It is the analytical method to analyze the specified objects in the context of the characteristics of the given history and the issues. The historical characteristics of the contemporary society is the globalization. Technology pursuit of the air force are restricted by the given condition from the synthesis of the characteristics of the given history and the given characteristic of technology by the given history.

## 2. The Characteristics of Technology — It's Paradoxical Characteristics and Armed Forces

### ( 1 ) The Contemporary Globalization

At the first place , it is very important to understand the con-



temporary society as the all member of this society have not been integrated homogenously. The all of members of this society has been integrated under the phase of the U.S.A.'s hegemony in the field of politic and economy<sup>11)</sup>. They are, moreover, closely tied with each others in the all over the world. We can understand the contents of this society as the global direction and the local direction are concurring under the hierarchically tied situation. The hierarchically tied situation/society means that the contemporary globalized society is constructed by the many kind of international agreements around the U.S.A. in the political and military fields. This given condition, in the virtual economy, not the real economy, means the ruled word by the U.S.A. in economy field. For example, the ruled international finance and the stocks by the U.S.A. and the ruled many kinds of international standards by her are shown the substance of this society.

We have to realize this situation—the hierarchically tied society—is maintained and developed by the contemporary technology, especially electronic technology<sup>12)</sup>/devices and intelligence and information technology, and the world is connected tightly and real timely.

The competitive situation with the global direction and the local direction means always that this society is the hierarchical society, and the combative one. The dynamics of the secession and integration from this hierarchical order have exited in this combative society.

This situation in the political and military field means the existence of two ambivalent dynamics, one is the dynamic of the maximum direction of national autonomy, the another is the dynamic of the minimum direction of national autonomy around the U.S.A. The any countries without U.S. could not subjective-

ly choose the each of these dynamics. This is the very paradox. As for nations without U.S., the dilemma is a absolute restriction condition. It is necessary for the maximum direction of national autonomy (the localism direction) to solicitude the minimum direction of national autonomy. The very contrary is the case. The contemporary technology has also the same dynamics.

Then what kind of the paradoxical characteristics of technology effect on the technology pursuit of armed forces ? The first effect is the necessity of the coincident choice of the collective convergence toward military sector and the same convergence toward non-military sector.<sup>13)</sup> The second is the necessity of the coincident choice of the collective convergence toward national defense and the same convergence toward international joint work for national defense. These are the representation of the paradoxical characteristics of technology which is constructed by the contemporary globalization. What a kind of paradoxical issue come out ?

## ( 2 ) The First Technology Paradox

It is needless to say repeatedly that the fields of national defense in the present age is not limited to military sectors. The political slogan "Rich Nation, Strong Soldier "<sup>14)</sup> shows the evidence of the rightness of this cognition. This political slogan, namely, shows the necessity of the mutual linkage with the national defense and the development of nation. The contemporary defense policy has stressed this point more than the past defense policy. The some nation's defense policy represented, depending on circumstances, definitely the relationships of the playing roll of the armed forces. The comprehensive national defense policy is the evidence. The technology pursuit of the air force has to be done according with this real

situation. such a necessity is because HT has been put in the center of the economic strategy and the industrial one of nations in the comprehensive defense policy.

We could find out, for example, the typical type of the concern and the way of making issues on the aims of this new national defense policy through analyzing on the joint development issue of Japan and the U.S. FSX = F2 development quare proposed in 1980s. Japanese Self Defense Air Force Col. SHINJI Tsuyoshi (Professor of Japanese Defense Academy) explained and analyzed in detail on this issue.<sup>15)</sup>

These kinds of issues have occurred in the domestic of Japan too. Japanese government authorities have preceded the non-military sector after her defeat of the second world war, and however, according to change Japanese security environment, Japan can not help avoiding the re-examination to make the best balance of the military sector and non-military sector in various fields. In this contextual relationship between the generalization of the comprehensive national defense policy and technology paradox, armed forces' concerns related to the technology pursuit have to build a way of thinking on technology than its application.

### (3) The Second Paradox

To defend one's own nation is the very aim of all of armed forces in the world. It is the one of universal principle that the necessities of the nation come before all of the international necessities. It is also needless to say that the contemporary technology has some decisive effects on the national defense of the air force. The dilemma as the characteristic of the contemporary technology, however, let armed forces to cope directly with this contradictive situation. If armed forces tried to defend one's nation, it must pay maximum international con-

siderations more than the international ones. In other words, The paradox of the contemporary technology appears in front of them. The room where technology nationalism acts on is not large. It becomes, accordingly, a critical matter for effective defense to widen the range of its autonomy. The contemporary armed forces have to realize this characteristics of the contemporary technology. The armed forces authorities have to grope for a method to utilize this limited conditions profitably.

The paradoxical characteristics of the contemporary technology produced the necessity of the international joint work in various fields. It extends to every study, development, production and practical use of the fruits of technology. This paradoxical characteristics of technology, however, will inevitably act on armed forces in all phases of the international joint work. Armed forces authorities have to cope with this difficult choices how to take the best balance for one' nation. Two following respects are show such a paradox figuratively.

The first is the paradox to come out of the context with the national defense and its basic economy and industrial infrastructure.<sup>16)</sup> Though the necessity of the increase of home made ratio and the keep the autonomy in this field are a crucial policy, that is not free from the international contexture in study development, production and practical use of technology. The international transfer of technology and the patent for the study, development production, the acquisition of the international licenses for manufacturing weapons and the dispatching for foreign country's experiment institutions for the training of the missile launching, the anti-submarine operation and the ground attack by the fighters are equal to a Achilles' tendon for the autonomous national defense<sup>17)</sup>. To construct the way of thinking of contemporary technology is necessary for the effec-

tive national defense policy.

The second is the paradox to come out of the context of the autonomous development of the national defense and the dependence toward international joint work. The raise of close mutual relation and the proceed of real time are one of fruits technology has produced. These two the raise and the proceed have put the inevitable joining of international joint works on armed forces. In this situation, armed forces will be forced to build the new approach on technology .

### 3. Technology Paradox and The Future of Armed Forces —— Conclusion

I pointed out that the contemporary technology gives some paradoxical influences to accomplish the national defense duty of armed forces. The approach toward the technology pursuit of armed forces was TAA. The main concerns are concentrated upon the field of military. It was an authentic and traditional approach for the military experts. In the writing of these military experts we can find out some experts who have recognized the necessity of TSHA/CSA. As far as the real situation on this issue, however, TSHA/CSA has been supported by many epigones.

Finally as my conclusion, I will try to predict what kind of transfiguration is brought from a view point of TSHA/CSA. This prediction is the proof of the effectiveness of this approach.

The first prediction is that the Development of technology pursuit will produce the specialization of armed forces. The second prediction is that this development will produce the change of roll and function of armed forces.

(1) I have already pointed out that the development of

technology pursuit by armed forces will produce the international joint works. There will be some complex unknown factors to realize joint work. In addition, there are some real necessities as follows, namely, armed forces have been demanded to cope with various type international conflicts in the shift from the total war to the police actions, because the governments have been demanded to observe “the principle of the minimization of victims and the principle of the effective realization of political purposes”<sup>18)</sup> as the political principle on the use of arms in the various international conflicts. Such a nature and reality are the proof of the impossibility of coping with every operations by a nation. Armed forces have to make the specification for accomplish effectively national defense. This special ability and specification of a nation’s armed forces will be used effectively for the international joint works. This is a powerful opportunity to develop armed forces.

(2) The specialization of armed forces will open the new way to armed forces. Through gaining this high grade technology, they will develop their capabilities and will change their the functions. They grew up their new functions beyond the traditional national defense functions. It is a kind of omnipotent organization as what is called “a professional and almighty group/organization”. For example, several nation’s armed forces have operated some activities in space and on some celestial bodies. They operated various kinds of activities. There are a large number of scientific and non military activities. And all most of these activities are dangerous. Only those who have a special and professional abilities can carry out these activities. The great space powers have demand their armed forces to carry out these activities. Therefore, the missions of armed forces have expanded from their traditional

military affairs to the civil affairs. It is a decisive trend for armed forces.

The rise of importance of the pursuit technology for national defense is without questions. The superiority of the technology pursuit is also definite trend. Therefore, armed forces have to adopt a new way of thinking on technology pursuit——TSHA/CSA——for their national defense. Armed forces must have the socio-historical concerns on the pursuit technology.

### References

- 1) Some scientists of science history denied the distinction of the science and technology. The contemporary scientists have grasped these concepts sameness. In this sense, the distinction of the concept of the HT is also vague.
- 2) This concepts means the traditional approach on the technology pursuit. For example Matsumura Masahiro, *The military alliance Japan and U.S. and Military Technology* (Tokyo, 1999) [in Japanese], and this concept means the necessary of the building new approach on technology. See, in particular on this point is YOHIOKA Hitoshi, *The technology reckless in modern civilization* (Tokyo ,1991) [in Japanese].
- 3) KAMIYA Matake, "The concept of National Security," in The Society of Defense Study, in ed., *The Introduction of National Security* (Tokyo, 1998) [in Japanese].
- 4) Richard J. Samuels, *Rich Nation, Strong Army-National Security and the Technological Transformation of Japan* (1994, Cornell University).
- 5) Ibid., especially chapters 6, 7 and 8.
- 6) This concept means the new approach come out of the results of contextual grasping all of the human and natural affairs synthetically. Cf. HAMA-GUCHI Eshun, "Japanese Civilization and Japanese Culture," *The Comparative study of Civilization* 1 (Tokyo 1985) , pp. 179-192. [in Japanese].
- 7) See, in particular, James Adams, *The Next War* (London 1998), George & Meredith Friedmann, *The future of the War* (Crown Publisher 1996).
- 8) The concept of Algorithms means a process or set of rules used for calculation etc.
- 9) Because the followig of this approach will lead to the swelling of the war

expenditure.

- 10) Alfred Valladao, *Le XX1e. Siecle Sera Amercain* (Decourvert 1983) pp. 171-305, and John Gray, *False Dawn-The Delusios of Global Capitalism* (London 1998) pp. 77-108.
- 11) Richard P. Hallion *Storm Over Iraq-Air Power and the Gulf War* (Tokyo 1992) [in Japanese].
- 12) Ibid., 6, Hamaguchi Eshun, pp. 179-182.
- 13) Cf. ISHII Takemichi, *The Electronic Society* (Tokyo 1973).
- 14) Shinji Tsuyoshi, "A History of Air Power and Its Future" in The Defense Studies Society, National Defense Academy ed., *Defense Study* (Yokosuka 1996) pp. 108-125 [in Japanese].
- 15) Ibid., 5, Richard Samuels, especially chapter 9.
- 16) Ibid., 2, MATSUMURA, especially chapter 5 and 6.
- 17) Fujimura Mikio, "President J. Clinton's War" in The Foresight, No. 6, 1999 (Shinchosha 1999) pp. 10-11. [in Japanese], Edward N. Luttwak, "Give War a Chance" in *Foreign Affairs, July/August* 1999. pp 36-44. MICHAEL Mccgwire, "Why did we bomb Belgrade" *International Affairs, volume* 76, No. 1, 2000. pp 1-23.