COMMUNICATIONS

12 January 1949

CONTENTS

	Page
INTRODUCTION--Brigadier General J. L. Holman, USA, Deputy Commandant for Education, ICAF	1
SPEAKER--Mr. Robert A. Gantt, Vice President of International Telephone and Telegraph Agency	1
GENERAL DISCUSSION	9

Publication No. L49-68

THE INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

COMMUNICATIONS

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GENERAL HOLMAN: Gentlemen: Communications are vital to both economic progress and military effectiveness. In our studies of economic mobilization an understanding of the complexities and capabilities of communications systems cannot be overlooked for one instant. We are very fortunate this morning in having with us Mr. Robert A. Gantt, Vice President of the International Telephone and Telegraph Company. Mr. Gantt has been in the communications field for nearly 40 years and his experience is both managerial and technical. During the war Mr. Gantt was Vice President of the United States Commercial Corporation for communications; in this capacity he had extensive responsibilities for plans involving the joint operation of communications systems in the Western Hemisphere. Mr. Gantt appeared on this platform last year, and it is a great pleasure to welcome him back to the Industrial College of the Armed Forces.

MR. GANTT: General Vanaman, General Holman, ladies, and gentlemen: The importance of telecommunications in any defense program of the Western Hemisphere is too well known to you gentlemen for me to take up your time to do more than mention it. My text will be confined to the Latin American Republics and, in the time allocated, I cannot do more than submit a digest with a few highlight illustrations, point out some of the problems, and venture to suggest some ideas for action.

There is no need to urge the importance of electrical communications to a military audience. I am not even going to apologize for using the terminology of my profession, which limits the work "communication" to the electrical variety and uses "transportation" to cover the rest. But the widespread ignorance among our fellow-citizens regarding the importance of communications to "victory in war and prosperity in peace" is cause for mutual concern to us both. You meet this state of mind every time you ask for appropriations. We meet it every time we ask for support against competition backed by foreign governments. Even the State Department has met it in drawing up the Marshall Plan for saving democracy in Europe--observe how this plan attempts to solve problems of agriculture, industry, and transportation without once mentioning the denominator common to them all--"communications." The role of communications in war and peace must be emphasized, if plans for the defense of our hemisphere are to be effective.

It is encouraging to observe that the average American has aequired a hemispheric outlook upon transportation. The Battleship

Oregon's epic voyage around the Horn during the Spanish-American War prepared him for the Panama Canal. Frontier stories prepared him for transcontinental and Pan-American highways. World War II showed him the need for fundamental research and far-flung bases, if the United States is to have aerial supremacy. Perhaps a few examples of how commercial telegraph and telephone networks by wire and radio helped the Allies win two World Wars and expand the world economy during interludes of peace would gain the popular support necessary to a sound hemispheric policy on communications. Unfortunately, the outstanding illustration from recent U. S. History, in this regard, is one of failure. I refer, of course, to Pearl Harbor.

When General Marshall, in Washington, tried to get his message of the sixth of December through to General Short, in Honolulu, the Army radio failed to make contact. Only at the last minute was recourse had to commercial services--Western Union and Commercial Pacific Cables were asked to clear a line to Honolulu. This was done. The message was then submitted for transmission--about two hours before the attack which it was warning against. Even at that late date, routine secrecy-requirements were maintained. The message had to be repeated from San Francisco--all in time-consuming code. Army and Navy headquarters in Honolulu were both considerably removed from the city, and no commercial cable company had ever been allowed to install printers locally. Consequently, the message was given to a boy on a bicycle. The lad was almost to Fort Shafter when the first bomb fell, and spent the rest of the time, before delivering the message, in a ditch.

The Army awoke to the value of commercial facilities sooner than the Navy did. This is illustrated by the story of the Puerto Rican cables. When the German submarine campaign was active in the Carribean, the prompt exchange of weather reports among the various American bases there became essential. These were compiled in Puerto Rico and sent out over the All America Cables system to Cuba, Panama, Trinidad, etc. The old cable between Cape Haitien and San Juan needed repair, and a naval escort for the cable ship Jeremac was requested so that this repair, and others between Puerto Rico and Venezuela, might be made. The Navy refused, saying that radio could easily handle any problem, and that there were plenty of radio circuits. About six weeks later, a second cable between Cuba and Puerto Rico went out, making it necessary to send the weather reports over the British cable from Puerto Rico to southern Cuba by way of Jamaica, and from southern Cuba by landline to Havana, where All America Cables picked up the messages and sent them along. This took a minimum of two hours--often much longer--as compared with six minutes when the All America Cables route was in working order. Nevertheless, Army, Navy, and Air were now insisting upon cable transmission.

After two days of inordinate delay over the British route, the Navy offered to escort the Jeremac. By this time, however, the repair ship was in New York. The job which could have been done in a few hours, originally, ultimately required two weeks.

This sort of thing does not happen only in the United States. The Brazilian Expeditionary Force to Italy had been long and carefully planned. But, not until the troops were actually embarked, did the Brazilian Government discover that the radio station which it had been building for the purpose of communicating with them, was not completed. The U. S. Commercial Company operating in Rio, made the necessary circuits immediately available.

These illustrations could be piled sky-high. But the moral is already clear: Commercial communications companies offer facilities which the Armed Forces should plan to use in any emergency--but the plans should be made before the emergency arises, and should include every kind of existing communications--submarine, radio, and landline. Even if the governments of all the nations in this hemisphere were to construct their own facilities to parallel those which are privately operated, the latter would still offer a valuable second line of defense. In the absence of such all-inclusive governmental systems, the private networks are basic to any rational plan of military action. The arrangement has many positive advantages. Commerce is a good indication of strategic importance, and private lines always go to the commercially important localities. Commerce pays for the installation and upkeep of requisite facilities, and for the research necessary to improve them. With this inclusive service to fall back upon in emergency, the Armed Forces can afford to maintain a minimum plant in peacetime, thereby reducing loss through obsolescence and permitting resources to be husbanded for such time as they are most needed.

What applies to private communications networks applies to the factories which supply them. Private enterprise, maintained by the needs of commerce in peacetime, is a pillar of strength in wartime--but one in which full capacity can never be employed until plans and policies are worked out with the Armed Forces before the crises arise.

It is the purpose of the various seminars to consider in detail the nature, extent, and ownership of existing communications systems and factories within our hemisphere. My purpose is to sketch the major problems as I see them, and to suggest a policy and plan of action for their solution.

The magnitude and complexity of the communications problem south of the Rio Grande is difficult to comprehend. Such factors as

great distance, difficult climate, sparse population, poverty, political instability, and illiteracy are all beyond the province of our immediate investigation, although they should be borne constantly in mind as the setting for it. The principal consequence of this background, for us, is the substandard communications networks which characterize every part of South and Central America and the West Indies, except where United States, British, or Swedish companies operate. To these exceptions we may add Argentina, where the national telephone service was only recently taken over by the government from an American company. Another important consequence of the generally backward economic and technological development of our southern neighbors is the fact that, among them all, only Argentina, Brazil, and Mexico have developed manufacturing to the point where, in an emergency, they might be more of a help than a hindrance to us, with regard to the supply of finished products. Even with regard to these three countries, it would be unwise to indulge in optimism over conditions as they now are. Let us look at Mexico, with approximately 1,550 miles of border on the United States.

There are in Mexico, today, two telephone operating companies, one of which is United States, the other Swedish-owned. The Mexican Government operates a fairly extensive interior telegraph system and a limited interior radiotelephone system. The government telegraph connects with U. S. submarine cables at Tampico and Vera Cruz, with U; S. landlines at Galveston, Texas, and with a U. S. submarine cable service to Central and South America and the West Indies at Salina Cruz. There is a landline owned by U. S. cable companies across the Isthmus of Tehuantepec, connecting the above-mentioned service to Latin America with the Atlantic cable which terminates near Puerto Mexico.

I shall not dwell upon the technical inadequacies of the Mexican Government's communication facilities, because a more interesting problem is posed by the Swedish-owned telephone system operating in Mexico City and generally throughout the country, in competition with the American-owned network which largely parallels it. Control of the Swedish company was recently sold to Axel Wenner-Gren, a Swedish national who, it will be remembered, was on the Allied black-list during World War II because of his dealings with the Axis. Mr. Wenner-Gren is already seeking to expand his Mexican holding by buying control of the American company which also operates there. Meanwhile, Sweden is actively engaged in establishing and expanding its trade-relations with Soviet Russia--so much so that a recent map in the "New York Times" had Sweden shaded in as part of the Russian sphere of influence.

No great imagination is required to see the possibilities of expionage inherent in this situation, where an important and comprehensive communication system along our southern border actually interconnects with our domestic telephone network. The development of radio being what it is, neither can we ignore other Swedish telephone

properties in Arequipa and Mollendo, Peru; in the provinces of Mendoza, San Juan, La Rioja, Catamarca, Tusunan, Jujuy, and Entre Rios, Argentina; and in the city of Manaus, Brazil. The use which Germany made of its minority interest in the "Consortium" during World War II will illustrate the possibilities.

The Cohsortium is a holding company owned, in practically equal parts, by the British Cables & Wireless Ltd., the French Government, the former German Government, and the Radio Corporation of America. The Consortium controls the radiotelephone and radiotelegraph circuits operated by "Radiobras" from Rio de Janeiro to other parts of South America, to the United States, and to principal European capitals; it also owns Trans-Radio Argentina at Buenos Aires, and Trans-Radio Chile at Santiago, with similarly extensive international coverage. During the entire period of the war, Trans-Radio Argentina was in continuous communication with Rome and Berlin, and innumerable subversive communications were relayed from the United States through this station to those points, notwithstanding the censorship maintained by our Armed Forces. By means of a German-owned submarine cable a substantial number of telephone subscribers in Montevideo had direct connections to Trans-Radio, which enabled them to communicate at will directly with Berlin and Rome.

The same problem arises in the manufacture and installation of communication equipment. Telephone communications in Montevideo are owned by the Uruguayan Government. However, they were manufactured and installed by the Siemens-Halske firm of Berlin, and the majority of the technicians who operated and maintained the property throughout the war were supplied from Germany. Inasmuch as Montevideo is the focal point for Uruguay's national and international communications, the enemy was well equipped for espionage.

Certainly, unless the international situation becomes much worse than it is, the purchase of European equipment by Western nations should not be banned. However, the governments of this hemisphere would do well to require, as a condition of purchase, that their own nationals be trained to take over full operation within a limited period of time, or at least in time of emergency. Some provision must be made for maintenance of this European equipment, should another war cut off the original source of supply.

You are fully aware of the importance of common standards for military purposes and know very well how important this becomes in the supply of arms and munitions to allies in time of war. It is indeed just as important to realize the importance of common standards in communications equipment, materials, terms and electrical standards of operation.

Of course, the ideal solution would be to standardize communications equipment, just as you are trying to standardize weapons. The importance of standardization in this field was amply illustrated by World War II. Let me recall to you a single example involving a very small and simple piece of equipment, "a lamp socket." When United States armies took possession of the German communications-hub of Aachen, the enemy did not destroy his repeater-stations because he hoped to regain the city. Instead, he rendered them useless to ourselves by simply removing their tubes. No American tube would fit in the socket because of difference in size and pitch, and no American factory could make them without costly delay and this was exactly what was done. As a consequence, our armies had to rely wholly upon their mobile equipment. Were we called upon to fight in defense of Uruguay tomorrow, sabotage by enemy agents could be equally effective. Quite apart from agents, passing time would sabotage us by wastage of parts in European-made equipment which no factory in the hemisphere could replace. If we cannot agree upon common standards, then, at least, we can anticipate these problems and prepare for them.

Generally speaking, European equipment is built to metric standards, while United States and British equipment is built to standards which are inches, feet, and yards.. The only important European companies presently engaged in the manufacture of communications equipment in Latin America are as follows: The Italian firm of Pirelli, with wire and cable factories in Sao Paulo, Brazil, and Buenos Aires, Argentina; and the Dutch firm of Phillips which has a general appliance factory also in Buenos Aires. The formerly German-owned Siemens-Schuckert factory in the same city is now the property of the Argentine Government. However, neither these factories nor others, operated by American companies in Latin America, can provide for the maintenance of existing installations there.

Telephone central office equipment will illustrate the point. There are four major types of this equipment in Latin American today: Step-by-Step, Rotary, Pancake, and Manual. Step-by-Step equipment is either United States, British, or German by origin. Although basically of the same design, the German is built to metric standards, while differences of screw-thread pitch prevent interchange of parts between the British and United States products. Rotary equipment, on the other hand, is built to metric standards, whether it comes from Belgium or the United States. However, the normal peacetime products of these two countries are not wholly interchangeable, although United States factories were able to supply parts for Belgian installations during World War II. The Pancake system is Swedish-built and can be supplied only from Sweden. Manual systems are of all types and varieties, none of which are interchangeable. In Mexico City, where we have the American and Swedish types of equipment, work has been completed to bring about interconnection between

the two systems. The engineering, manufacturing, and installation have required about two years and the cost will be on the order of $500,000. I consider this a graphic illustration of the importance of common standards in our communications systems in the Western Hemisphere.

I have said enough, I believe, to indicate the complexities and magnitude of the communications problem south of the border. Development has been extremely uneven. Wherever United States, British, or Swedish interests have been in charge, communications has more often led than fallen behind other forms of economic development. But there are large areas in which local operation has been ruinous or inadequate. There are other areas in which foreign control is dangerous. Installations built to metric standards coexist with others built to British and United States standards. Finally, there are several vital military areas, such as the islands off the coast of Ecuador, Cape Horn and the Straits of Magellan, and the hump of Brazil, which are of such little importance, economically, that their communications are either rudimentary or nonexistent.

It would be carrying coals to Newcastle for me, a civilian, to attempt to say which ultimate solution of these problems will best serve your military needs and satisfy the policies of the State Department. As I understand it, the policy of our Government is to maintain and improve its political, economic, and cultural relations with its neighbors, both as objectives, which are good in themselves, and as the essential foundation of any national plan for hemispheric defense.

Most of the countries in Central and South America and the West Indies lack the financial resources needed to build a sound and self-sustaining economic structure. It is axiomatic that this lack of economic stability is reflected in frequent political instability. Both shortcomings imperil military security.

World War II demonstrated that our Government, in emergency, is willing to contribute whatever is necessary by way of direct financial aid to achieve its ends. However, in constructing a peacetime plan for military preparedness, a democracy finds it necessary to shift as much of the burden as possible to agencies which are self-supporting. It is fortunate that, with respect to communications--vital alike to economic progress, political stability, and military security--this goal can be largely attained by the following program of action, which I suggest for your consideration.

1. Merger of U. S. companies offering communications facilities overseas. This will permit integration and consolidation which, by eliminating costly duplication, will make it easier

and more economical for private enterprise to improve and extend its service to new areas without government financial aid. The military importance of this improved service need not be stressed.

2. Acquisition by hemisphere interests of all communications systems now owned, either directly or indirectly, by non-hemisphere interests wherever those interests are or seem apt to become hostile to us. Not only will this eliminate dangerous listening posts, but also, it will facilitate integration of operations and standardization of equipment and operating practices.

3. Provision of direct circuits between the United States and each Latin American country. If investigation should reveal that normal trade will not support direct circuits between the United States and any Latin American republic, then such circuits could either be installed directly by the Government, or, with the help of a subsidy, by private enterprise. In some fashion they should be provided.

4. Prompt establishment of communications facilities between the United States and all strategically important regions of which the economic importance has not warranted development. This, again, could be done directly or indirectly by our Government.

5. Integration and consolidation of existing telephone facilities in Latin America, wherever such consolidation and integration will diminish the requirements for materials and equipment, or release equipment by the elimination of duplicate facilities, or improve service.

6. Standardization of operating techniques and manufacturing specifications. If this cannot be arranged, at present, then require that equipment manufactured outside the hemisphere be purchased only:

(a) If nationals are trained to operate it within a fixed minimum period of time; and

(b) If provision is made within this hemisphere for replacement parts.

7. In order that United States equipment may compete with European equipment, which is often of equal quality and frequently cheaper, our Government should match the policies of European governments which make this differnetial possible. For example, Great Britain, Belgium, and Sweden all discount contracts obtained by their manufacturers, paying cash for them and accepting all the hazards involved in this age of manipulated currencies, blocked funds, moratoriums, and outright defaults.

8. The Department of State and Federal Communications Commission should intensify their efforts to improve the rate structure offered by hemisphere communications companies, so that they compare favorably with those of European companies which, like European manufacturers, enjoy governmental subsidies in one form or another, in addition to lighter taxation.

9. Loyalty to the ideals of hemispheric solidarity must be required of management and personnel of communications systems and factories.

Now in summary, this is my argument:

1. Private communications systems and factories should be built into every plan for defense which our Armed Forces consider. They provide, in peacetime, for installation, maintenance, improvement, and expansion of vast communications networks, and for the research and factories which supply them with up-to-date equipment. In wartime, they provide a cushion to take up the initial shock and, thereafter, an auxiliary communications network, factories to produce equipment of the latest design, and laboratories to create new devices and techniques.

2. Private enterprise can expand and improve commercial communications networks, and standardize equipment, without financial aid if it receives government approval for (a) the merger of United States overseas communication facilities, and (b) the purchase of facilities owned by non-hemispheric interests, where those interests are hostile or potentially hostile towards us.

3. Government assistance of a financial, as distinguished from a diplomatic, nature will be necessary only (a) to match the various devices whereby foreign governments supply or subsidize their communications systems and factories, and (b) to install equipment in regions militarily vital but economically unimportant.

4. Finally, I reiterate once more the need for a stitch in time. Whether the program which I have outlined, or some other, is adopted and carried out, the important thing is to act before the next crisis arises.

Thank you, gentlemen.

QUESTION: In the case of the Argentine Telephone Company, where the government is now the owner and operator--and I believe the American company still maintains and supplies the equipment--do you think that the Argentine company over a period of years will maintain the same standards that the American company maintained when it was there?

MR. GANTT: No, I don't think it will, and the reason I say that is because so far as I know that has been the history of government-owned communications, that they have not kept pace with privately owned communications. There is no communications system in the world that has made the progress in the field of communications that our privately owned American Telephone and Telegraph Company has.

QUESTION: In the case of parallel telephone lines, who decides which line will be used on a long-distance call, and is it monitored? By that I mean, in Mexico, or any other country where you have a Swedish telephone line paralleling an American telephone line, on calls made from Washington or New York, are they monitored, and who decides which line is used?

MR. GANTT: Prior to the interconnection which took place about a year ago in Mexico, the customer could elect the company lines over which he wanted his message to go. Now they are interconnected in Mexico so that if a subscriber of the Mexican Telephone Company originates a call and it is going to a point not reached by the Mexican Telephone Company but reached by the competitor, it is carried as far as possible on the lines of the Mexican Telephone Company and then transferred to the competing company. Does that answer your question?

QUESTIONER: Yes, that answers part of it, but I would like to know if these calls are monitored in peacetime.

MR. GANTT: In peacetime calls are not monitored.

QUESTION: Relative to your program, what chance do you think there would be for acceptance within the Latin American countries of such a program, and has anything ever been brought up relative to the program at the Inter-American Defense Board?

MR. GANTT: That is really putting two questions. So far as success of the recommendations that I made is concerned, I believe they are practical, feasible, and capable of solution. So far as whether or not any of these recommendations that I have made have been presented to the Inter-American Defense Board, I don't know.

QUESTION: You mentioned the utilization of communications during an emergency. Just how much government control would you visualize would be necessary to officially use your communications during war. The second question is relative to stockpiling equipment for an emergency, as to what is the plan, if there are any plans for doing that right now, how far can we get through toward meeting our wartime requirements, and how far are we behind now in communications equipment from the manufacturing points?

MR. GANTT: May I have the first part of your question.

QUESTIONER: Dealing with wartime controls, government control which is necessary.

MR. GANTT: During World War I the Government took over the communications in the United States, and as you know, during World War II the Government did not take over the communications in the United States. In my opinion, the Government got better service in World War II from the privately owned systems than it did in World War I.

Now, so far as stockpiling is concerned, there is this little interesting development in domestic communications, that since the termination of hostilities there has been an enormous development in the telephone industry and other communications channels in this country. As a result, if we were to meet an emergency at this moment, we would be potentially better equipped than we have ever been in the history of this country, because we have available more facilities than ever before. Insofar as actually piling up a stock pile against an emergency, there is no such activity. However, I believe that, in collaboration with the National Security Resources Board, estimates are being made of the requirements and an appraisal is being made of the machinery and equipment so that, should an emergency strike, we would be able to discontinue all nonessential production and devote the entire coordinated production to war needs.

QUESTION: Mr. Gantt, from the viewpoint of national security, the program which you have outlined certainly seems to be sound, that is a program for a consolidated communications system of the Western Hemisphere, but from the viewpoint of good business, without regard to national security, do you consider that it is sound to let the Government enter the communications field in any way, shape, or form, having in mind past history, because onee the Government enters the field, it is very difficult to keep it from expanding, as it is doing in power, and some day trying through a system of bureaucracy to displace the private companies?

MR. GANTT: You raise, of course, a very important and very difficult question, but I am afraid that my answer has to be that, in my best and most considered judgment, whatever means is necessary for the proper defense of the country must be taken. If that means government support, then we must have government support.

QUESTION: Have you any estimate of the annual cost of such a program in subsidies?

MR. GANTT: No, I don't have an estimate of this program. I would be disposed to feel--which may be perhaps paradoxical--that the cost would be relatively small and diminishing because of the utilization of standards and the elimination of duplication of manufacture, materials, supplies, personnel, management, and all other things that go into duplicated, parallel operation.

QUESTION: Will you give your opinion as to what you think the future of submarine cable as a commercially economic proposition is likely to be?

MR. GANTT: The submarine cable is a rather large field, as you know. There is still a good deal of development going on in the field of submarine cable. At the present time a cable is being manufactured to be laid between Key West and Havana which will have submarine repeaters, the first cable of its kind ever made, a very advanced development in the field of submarine cable. That cable is being manufactured now and will be laid early next year. A great deal of work has been done in the development of a trans-Atlantic telephone cable which would employ these repeaters that are being designed and in the course of manufacture now. There is an important future for submarine cables.

QUESTION: Sir, could you tell us something of the actual mechanics of monitoring during the last war, how extensive it was, whether it was by spot check or a more comprehensive method?

MR. GANTT: I am afraid I can't give you a very good answer on that because to the best of my knowledge there is no standardized method for monitoring telephone communications, radio or wire. Of course, as you know, all the outgoing cables were funneled through a centralized censor bureau. But monitoring on radio and wire communications to the best of my knowledge was not standardized into any particular form and I doubt whether it could be very well because of the variety of conditions under which it would have to be done. It may interest you to know that I was in Rumania when this last war came on and our company operated the telephone system in Rumania. The military came immediately into our office, and we set up almost immediately a bridge on every toll circuit down to a monitoring room and they monitored every single in and out call on that board within a very short time. They really did a pretty good job.

MR. HILL: I think what the Captain had in mind was the old-fashioned submarine signal cable, without regard to the voice feature; that is, the new submarine cable will have the transformers in it which will allow voice transmission for long distances. I wonder if the Captain had in mind the economics of the old-fashioned cable for signal transmission? Would you tell him whether that would be

economic in view of the cheaper radio transmission, of course bearing in mind that radio transmission has its limitations from the viewpoint of interference?

MR. GANTT: Mr. Hill, this cable that I speak of which is now being manufactured and for which repeaters are being developed will also have telegraph channels. I don't believe that there will ever again be an old-fashioned submarine cable laid only for telegraph. I think the development of the art has gone beyond that.

QUESTION: Mr. Gantt, leaving out for a moment any military operations and consideration, do you feel that the communications system as it now exists in the Western Hemisphere is sufficient for economic activities similar to those that were carried out during World War II without any major alterations or additions?

MR. GANTT: I will restate that to you and see if I understood you correctly: If the communications systems in the Western Hemisphere, as they now exist, are adequate for present day peacetime needs?

QUESTIONER: Present day needs plus stepped up economic activity which would be necessary in a future emergency, similar to that conducted during the war?

MR. GANTT: Yes. I believe that our communications system as they exist at the present time are meeting our peacetime needs reasonably well. I believe that, in the event of an emergency, our present communications facilities will serve an emergency much better than they did at the beginning of World War II because, as I mentioned a while ago, since the cessation of hostilities, there has been such an extensive development and expansion of these facilities and of the manufacturing plants to produce them. If we were to have an emergency, we would immediately stop all nonessential work and have many more manufacturing plants and communications plans available for an emergency than we did in World War II.

COLONEL HORNOR: Mr. Gantt, I know we have imposed on you for a long time and I wish to thank you in the name of the College for your very interesting and instructive lecture. I also wish to thank you for the help which your company has given the College in putting on this course.

(8 February 1949--450)S