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172 Generalarzt Dr. Schroeder

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MEDICAL AND HEALTH SERVICES IN THE GERMAN AIR FORCE

Compiled from an Elaboration by

Generaloberstabsarzt Professor Dr. Schroeder

Assisted by

Professor Dr. Rose

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I. THE COMMISSIONER GENERAL OF THE FUEHRER FOR MEDICAL AND HEALTH AFFAIRS; THE REICH COMMISSIONER FOR MEDICAL AND HEALTH AFFAIRS.

In pre-World War II Germany civilian and military medical and health affairs were directed by two separate authorities. The two organizations under these two authorities were required to render each other mutual support. The long duration of the war and the consequent mounting difficulties in the fields of personnel and materiel created the necessity for close and uniformly directed cooperation between the two authorities.

It was for the above reasons that the office of aCommissioner General of the Fuehrer for Medical and Health Affairs (Generalkommisser des Fuehrers fuer das Sanitaets- und Gesundheitswesen) was established in 1942 under Professor Karl Brandt, personal physician to Hitler. The primary mission of the new office was to keep Hitler, as Head of the State, currently informed on national health affairs. With its growing responsibilities, the office was expended to form the Office of the Reich Commissioner for Medical and Health

Affairs (Reichskommissar fuer das Sanitaets- und Gesundheitswesen) as the highest national health authority.

The mission of the Commissioner General and Reich Commissioner was to consolidate all medical and health services of the Reich and to provide them with uniform directives. In the execution of his mission the Commissioner General avoided the creation of new offices and other agencies whenever possible, making use primarily of the existing establishments of the civilian and military health services.

Two new sections were established, namely,

a. The Science and Research Section (Gruppe Wissenschaft und Forschung) under Generalarzt (Brigadier General--Medical Corps) Professor Rostock, Professor for Surgery at the University of Berlin, appointed to represent th Commissioner, and

b. The Industry and Planning Section (Wirtschaft und Planung) under Admiraloberstabsarzt (Surgeon General--Navy) Professor Fikentscher.

The section under Professor Rostock handled the affairs of the medical faculty at universities, the appointment of faculty personnel, the assignment of training and instruction missions in agreement with the Reich Ministry for Education, and the centralized direction of scientific research in the field of medicine in order to avoid any

duplication of effort and any expenditure of effort on projects which were not important for the conduct of the war.

The section under Professor Fikentscher was responsible for supervision of the medico-chemical industry, and the industries producing bandaging materials and medical instruments, in order to insure a uniform allocation of raw materials and finished products, and to keep overall production within the limits of wartime requirements.

All other problems of civilian and military health affairs were dealt with personally by the Commissioner General in consultation with the appropriate administrative chiefs, Councillor of State (Staatsrat) Dr. Conti, as the responsible Under Secretary in the Ministry of the Interior, and the Armed Forces Surgeon General (Chef des Wehrmacht-Sanitaetswesens) Generaloberstabsarzt Professor Dr. Handloser.

The chain of command in the control of medical affairs is given in Appendix 1.

II. THE ARMED FORCES SURGEON GENERAL (CHEF DES WEHRMACHT-SANITAETSWESENS)

Simultaneously with the establishment of the post of a Commissioner General, a uniform top level control of the medical services in all three branches of the military was established in August 1942 through creation of the post of an Armed Forces Surgeon General. In the past the Chief of the Army Medical Inspectorate (Heeres-Sanitaetsinspekteur), as the senior of the medical officers in the three military services, had represented the interests of the medical branches of the Army, the Navy, and the Air Force at the Wehrmacht High Command. The decree issued in August 1942 formalized the existing arrangement and gave it a properly recognizable status.

After his formal appointment as Armed Forces Surgeon General in addition to his position as Chief of the Army Medical Inspectorate , the Surgeon General established a small staff, separate from his staff at the Army Medical Inspectorate, and comprising medical officers from all three military services.

As time passed the handling of a number of subjects, such as personnel and medical supplies management, medical care of prisoners of war, medical statistics, etc., was carried out centrally under the Wehrmacht High Command instead

3 of separately by the respective medical inspectorates of the Army, the Navy, and the Air Force. This necessitated the assignment of a separate officer as the Armed Forces Surgeon General, a post which could now no longer be handled simultaneously with that of the Chief of the Army Medical Inspectorate. This division of responsibilities took place in 1944; from then on Dr. Handloser was exclusively the Armed Forces Surgeon General, while Major General (Medical Corps) Dr. Walter took over his other responsibilities as the new Chief of the Army Medical Inspectorate.

The Armed Forces Surgenn General was assigned directly under the Chief of the Wehrmacht High Command and was authorized to issued directives in functional matters to the Chiefs of the Army, Navy, and Air Force Medical Inspectorates who were assigned tactically under the Surgeons General of their respective services.

The Armed Forces Surgeon General had the following missions:

4 1. To insure a properly balanced allocation of medical officer, noncommissioned officer, and enlisted personnel, military pharmacists, etc., among the three military services;

2. To issue directives governing the training of medical students, and advanced training for medical

4 officer and enlisted personnel, etc.;

3. To control voluntary nursing activities (see also Section III, below);

4. To issue directives concerning organizational measures for the medical services, and concerning the coordination of the tables of organization for the medical units of the three military services;

5. To prepare and issue field manuals and bulletins for the medical services; assemble and analyze wartime medical experience and disseminate the findings to the medical branches of the three military services; and to arrange medico-scientific conferences for consultant medical officers of all three military services to report on wartime experience in the medical field;

6. To handle all medical and hygienic problems of equal interest to all three military services; to establish uniform innoculation and vaccination deadlines and methods, and uniform action in all matters of the prevention of diseases;

7. To compile health and sickness stastics insofar as necessary and desireable for the entire Armed Forces;

8. To deal with all medical matters in the supply services;

4 9. To handle all medical problems connected with prisoner of war affairs;

10. To control all raw materials and manufactured products (medical supplies, bandaging materials, medical instruments, etc.) allocated by the Commissioner General and regulate their allocation among the military services

III. THE COMMISSIONER FOR VOLUNTARY MEDICAL AID ORGANIZATIONS.

a. Office of the Commissioner.

b. The German Red Cross Association.

c. Other Medical Aid Associations.

d. Nurses in the German Military Forces.

a. Office of the Commissioner for Voluntary Medical Aid Activities. (Dienststelle des Kommissars der freiwilligen Krankenpflege). The registration, care, and allocation of female nurses, technical and diet specialist personnel, as well as physical culture (medical) specialists, etc., to the medical branches of the three military services was a responsibility of the Commissioner. During peace his office was assigned under the Ministry of the Interior, and the Commissioner received from the Armed Forces instructions and statements of what was needed for preparations to fulfill the requirements which would result in the event of a mobilization. He was required to procure and train the necessary personnel for such purposes.

In the execution of his above missions the Commissioner relied primarily on support from

The German Red Cross Society

and in a lesser degree on

The Caritas Society with the various Roman Catholic nursing nun orders;

5 The Diakonissen Society with the evangelic nursing orders;

The National Socialist Reich Society of German Nurses, as the organization of female nurses controlled by the National Socialist Party;

The vocational unions of the various technical and other assistant personnel.

Whereas the responsibilities of the Commissioner during peace were primarily in the civilian fields of endeavor, emphasis shifted during war to the military field. Continuous and speedily functioning cooperation with the medical agencies of the military services was essential to insure proper control of all female nurses, assistant nurses, and auxiliaries, etc., in the military services, to meet requirements for the activation of new nursing units, and to regulate the ~~return to service~~ evacuation of sick, wounded or otherwise disabled personnel and their replacement.

In order to facilitate the execution of the functions enumerated above, the Commissioner at the outbreak of war was transferred from control by the Reich Ministry for the Interior to control by the Reich War Ministry, where he was assigned under the Army Medical Inspectorate. Later he was transferred under the newly established Chief of the Armed Forces Recruiting and Replacement Administration.

The post of Commissioner for Voluntary Medical Aid Activities was held by Staff Surgeon General (Generalstabsarzt)

6 Professor Dr. Napp, who resigned in 1944, just before reaching the age of 70, and was succeeded by Generalarzt (Brigadier General--Medical Corps) Dr. Kleiber.

b. The German Red Cross Society. The German Red Cross Society was the major association on which the German armed forces relied primarily for the procurement of female nursing personnel. Only nurses and assistant nurses of the German Red Cross Society were assigned to medical installations of the field forces, and the Society also furnished most such personnel required in military medical installations in the zone of interior. Technical personnel, dieting specialists, physical culture and other female personnel were called up through the German Red Cross Society for service in military medical establishments.

The number of nurses available in the German Red Cross Society during peace was not adequate for wartime requirements, so that it became necessary to accept additional categories of personnel. Besides fully qualified nurses from the Red Cross Provincial or State Centers, nursing homes, assistant nurses, meaning personnel who at some time had received full training but had then left the nursing profession for various reasons such as marriage or a change of profession, were now also accepted. Furthermore, the Red Cross Society arranged brief courses to give married and unmarried women practical and theoretical training as

6 assistant nurses , and these trainees were also accepted in the services.

During peace, all nurses who are members of the German Red Cross Society are stationed in centers (Mutterheuser), one or more of which exist in each province or federal state according to the size of the population. Each such center is under a Sister Superior(Oberin). At each center the Sister Superior, or Matron, is responnsible in all administrative and personal matters for the nurses stationed at the center under her supervision, and is also responsible for the training and general education of junior members at her center. The nurses in turn regard their matron more or less in the light of a mother responsible for their general wellbeing.

The call-up of numerous Red Cross nurses for service with the armed forces and their consequent transfer to areas where theycould not be easily supervised by their respective matrons or could not be supervised at all, necessitated new arrangements. For this purpose the post of Field Matron (Feldoberin) was created at each field army and air fleet headquarters. The Field Matron was a member of what was called theDirecting Medical Staff at each such headquarters, and handled all matters concerning female nurses, dieting and physical culture assistants, and technical and nurse assistant personnel. Each Field Matron visited the hospitals within the command area

of the headquarters to which she was assigned in order to contact the female nurses and attend to their complaints or desires and in order themselves to obtain an on the spot impression of the performances and attitudes and behavior of the nurses. If necessary, they submitted recommendations to the appropriate chief medical officer concerning different assignments for specific personnel.

The Red Cross nurses regarded their superior Field Matron as their confidential representative, whom they could consult on all their needs and worries; the appropriate directing medical officers ~~xhxy~~ considered ~~yyxxxxxx~~ the field matrons as their reliable assistants who had expert knowledge in all female nurse personnel matters. All Sisters Superior or Matrons and all Field Matrons of the German Red Cross Society were responsible to the Matron General of the German Red Cross Society, a member of the Presiding Council of the German Red Cross Society, to which post Luise von Oertzen was appointed in 1935.

Matron General Luise von Oertzen had gone through many years of training in the nursing profession and from service as Sister Superior or Matron of a Center had wide experience in the supervision and management of nurse personnel. With her outstanding abilities in her profession she combined highly

7 idealistic views of the nursingprofession. Her forceful personality and her idealism and human qualities in general made her a model generally revered by all Red Cross nurse personnel. Throughout the war she was tirelessly active, visiting the various centers at which nurses were employed by the military services in the various theaters of operations, advising them, and supporting their enthusiasm. The tireless and yet unostentatious efforts of this exemplary worker deserve the highest praise.

President General of the German Red Cross Society was Carl Eduard Herzog (Duke) von Coburg; Directing President was SS Obergruppenfuehrer (General) Professor Grawitz, who was assisted by Chief of Staff Professor Stahl.

c. Other Nursing and Medical Aid Associations. The ~~othe~~ other organizations mentioned at the opening of this chapter on the subject of the Commissioner for Voluntary Medical Aid Organizations (p. 8, above), namely, the Caritas (Roman Catholic) Society, the Diakonissen (Protestant) Society, and the National Socialist Society of German Nurses, during the war continued primarily to fulfill their peace time missions ~~during the war~~. Almost the only exceptions were those cases in which hospitals or other installations which were the property of any one of these organizations were requisitioned for military purposes. In such cases it would have been unwise to remove the old

8 personnel from the localities and premises with which they were so familiar and replace them by personnel moved in from outside areas. This applied particularly to personnel of the religious orders, who were in general highly respected as well-trained, widely experienced, and mature nursing personnel. Nurses who were members of these organization were only very rarely employed by the military outside of their own specific establishments, and practically never outside the zone of interior.

The Caritas Society was under the presidency of Prelate Kreuz, Freiburg, Baden; the Diakonissen Society under Pastor Frink, Bremen; the National Socialist Society of German Nurses under ~~under~~ SS Gruppenfuehrer (Lieutenant General) Hilgenfeld.

d. Female Nurses in the German Armed Forces. In the era of the 100 000-man army only small numbers of female nurses were required for military hospitals. The nurses employed in the various military post or garrison hospitals were members of local nursing societies with which local agreements existed, or were not organized and were employed under personal contracts. This system had certain disadvantages: the personnel were not uniform in standards--members of religious orders, members of the Red Cross Society and unorganized personnel worked side by side.

With the new build up of the armed forces a fundamental

9 change took place. All female nursing personnel for military hospitals from then on were to be furnished primarily by the

German Red Cross Society. This at the same time gave the Red Cross Society the mission of training replacement nurse personnel primarily for the military forces (see also Section III,b), initially to meet peacetime requirements but then over and beyond this more particularly for possible wartime requirements.

The new arrangement intentionally refrained from establishing a specific military nursing organization.

Nurses employed in the armed forces had no specific military rank; they belonged quite generally within the category of armed forces employees (Wehrmachtsgefolge). Similarly to all military personnel they were thus subject to military law, military regulations, etc. Their position within the military rank sequence found expression in the manner of their integration in the code for military discipline punishment. Nurses still in training were treated as officer candidates, trained nurses, matrons and field matrons were treated in accordance with the regulations governing the treatment of officers. This arrangement proved sound in every respect. It was not found necessary to award nurses specific ranks, and their position was judged exclusively on the basis of their abilities and behavior.

During peace main emphasis in the activities of female nurse personnel in military hospitals was on care of serious cases. In addition to female nurses, the hospitals also

9 employed large numbers of male nurse personnel, since they had the mission of training such personnel for assignment to field medical units. This meant that during peace there was usually a large cadre of male assistant personnel employed at each military hospital, a situation which changed during the war. Then, male medical personnel from the rearward medical installations were required on a steadily increasing scale for transfer to medical units with the troops in the field, and more and more female nurses had to take the places of medical non-commissioned officer personnel thus transferred to the front.

Permanently located military hospitals retained only a large enough number of medical non-commissioned officer and enlisted personnel to insure the maintenance of military discipline and order and to carry out duties which women could not perform. For the same reasons, femanl nurse and other personnel also replaced military personnel in field hospitals; where such hospitals were operating in near front areas, the employment of female nurses was subject to local conditions.

One fact which must be mentioned here is that the integration of female nurse personnel in the hospital services in near f ont areas proved a very sound arrangement. The mature female nurse who is experienced in her profession is--and this applies to war-endangered zones as well as to the homeland--the most reliable and conscientious helpmate a physician could

desire, a sympathetic and circumspect attendant exercising a calming and comforting influence over the wounded, the sick, and the dying. She will do much in difficult circumstances, even in ramshackle shelters threatened by enemy fire, to alleviate the lot of the sick and the wounded.

The hazards to which the employment of female nurses under such circumstances exposes them must be accepted as an inescapable risk. Air warfare in our present age carries these hazards to the homeland, where life and limb of women and children are also endangered.

11 IV. THE MEDICAL SERVICES IN THE GERMAN AIR FORCE.

a. Development of the German Air Force Medical Services.

b. Chains of Command, Disciplinary Controls, Tables of Organization.

a. Development. In the first two years of the build up of German air power, 1934-1935, the few units initially established and which were primarily schools for land-based and naval air units, relied for medical assistance on the closest medical units of the Army or Navy. In cases where air bases or schools were in isolated localities, the Army or the Navy detailed medical officer and non-commissioned personnel for the purpose. Air Force personnel requiring hospitalization were admitted to the nearest Army or Navy hospitals. Medical equipment, bandages and other medical supplies and instruments were furnished by the medical services of the Army and the Navy.

The German Air Force at that time had no medical branch of its own. Research on medical problems of aviation was conducted by physicians who had aviation experience on their own initiative, some of whom had been aviators in World War I, some of them interested in the subject because of their connections with aviation in glider sport activities, and who had found possibilities for their medical research work in existing

11 scientific institutions. There was no uniformly directed program of scientific research in this field.

In the autumn of 1935 a medical branch was established in the Reich Air Minstry under Colonel (Medical Corps) Professor Hippke, later Staff Surgeon General of the German Air Force. The branch was under administrative control by the Chief of Staff, Reich Air Ministry, and under functional control by the Chief of the Army Medical Inspectorate. The establishment of this Medical Branch in the Reich Air Ministry initiated the development of a medical branch organic to the German Air Force, very closely allied for some time with the medical services of the Army.

The first mission which developed for the Air Force Medical Service was to train a corps of medical officers familiar with the needs of aviators. For this purpose young medical officers experienced in the military service were transferred from the Army and the Navy to the Air Force. Here, they received training in aviation, were familiarized with the scientific problems of medical activities in an air force, and assigned then as unit medical officers to the various flying units.

The second and just as important mission was to coordinate under uniform direction all reasearch in the field of

12 aeronautical medicine. The fact merits special recognition that Professor Dr. Hippke, Inspector of Medical Services of the Air Force at the time, fully appreciated the importance of this goal and achieved it. As previously mentioned, medical problems connected with aviation had in the past been under research independently in various institutions.

Two important establishments which existed at the time were

In Berlin: The Medical Research Institute of the Reich Air Ministry (Luftfahrtmedizinisches Institute des Reichluftfahrtministeriums, under development, headed by Professor Strughold;

In Berlin-Adlershof: The Medical Department of the German Research Institute for Aviation (Aerztliche Abteilung der Deutschen Versuchsanstalt fuer Luftfahrtforschung), under Dr. Ruff.

Research activities were in progress

At Goettingen: By Professor Rein at the Physiological Institute, under his direction, of the University of Goettingen;

At Mauheim : By Professor Eberhard Koch in the Kerkhoff Institute;

IN Munich : By Professors Broemser and Weltz at the Physiological Institute of the University of Munich;

In Hamburg : By Professor Lottig at the clinic of the Eppendorf Hospital.

Aeronautical medicine was treated as a subject of instruc-

12 instruction at a number of universities.

The most important requirement here was to unite all these separate and independently conducted research efforts under uniform direction, a problem which was solved after some initial difficulties. In each case the heads of the institutes concerned were assigned research missions consonant with the capabilities and the general activities of their institutes. General conferences and meetings, with the various heads of institutes and their assistants participating, served to establish programs allocating the various subjects to the various institutes, and to exchange experience and the results obtained

13 in past research work. Very especial value was placed on the maintenance of close and continuous contact, and during the war much was done to foster this cooperation between the various scientists.

In order to secure uniformity in all research efforts within the Air Force and adapt all such activities to the requirements of war, a Research Control Center of the Reich Air Ministry (Forschungsfuehrung des Reichsluftfahrtministerministeriums). was established. This center directed all technical research activities, assigned all research missions, allocated all funds made available for research purposes, and received reports on all results obtained through research. The

13 Luftwaffe High Command thus at all times was currently posted on all aspects of the overall endeavor in the various fields of technical research for aviation purposes.

Professor Georgii headed the Research Control Center, and was assisted by Geheimrat Professor Prandl, Professor Sewald(of the Deutsche Versuchsanstalt fuer Luftfahrt--German Experimental Institute for Aviation, Berlin-Adlershof), and Ministerialdirigent Baeumker (Chancellor of the German Academy for Aviation Research--Deutsche Akademie fuer Luftfahrtforschung), all of whom were members of the Research Control Center. In 1945 the head of the Air Force medical services, Staff Surgeon General Professor Schroeder, was elected as a member of the center, so that the medical field was now also integrated.

The Research Control Center maintained a large staff of experts on all the various specialized subjects concerned. This uniform direction of all research work in the fields of technology and medicine created the possibility to make all medical findings speedily accessible to the technical authorities and at the same time to give due consideration to technical requirements in all medical research work.

In addition to its mission of research activities, the Medical Research Institute of the Reich Air Ministry had to familiarize medical officers with the specific problems of aviation medicine. For this purpose the Institute organized

13 lecture programs or organized the detailing of medical officers for assignments of varying duration to the various research institutes.

14 Developments in the field of medical research for aviation, and the training given to young medical officers, had established a foundation for the creation of a medical corps of officers fully familiar with the specific features of an air force. For the further development of this officers corps and the Air Force Medical Services it was possible to adopt the pattern of organization of the Army Medical Services. So far as medical service requirements were concerned there was no real difference between the ground service units of the Air Force, the Antiaircraft Artillery, and the Air Signal Corps on the one hand and the various arms and services of the Army on the other hand. Medical battalions and squadrons were therefore setablished in accordance with the Army pattern, and a plan for the establishment of hospitals was worked out together with the Army.

For the time being officer replacements for the Air Force Medical Corps received their training together with Army medical officers at the Army Academy for Military Medical Officers (Militaeraerztliche Akademie des Heeres), the only difference being that the candidates for the Air Force received their basic ~~mixxtary~~ and advanced military training

14 in the service and athletic schools or special courses of the Air Force.

In time the continued expansion of the military forces naturally also required a larger training program for the increasing number of medical officer candidates, so that the training academy had to be sub-divided. This division took place in 1940 and from then on all medical officer candidates for the Air Force were trained at the Medical Academy of the Air Force (Aerztliche Akademie der Luftwaffe), Berlin-Wittenau. Medical noncommissioned officer personnel received their specialized training at the various medical service schools (see Section V, below).

The growth of the Air Force medical services created increasing responsibilities for the directing agency, the Medical Branch. Originally this branch had functioned satisfactorily with a very small staff comprising a branch chief, three medical officers, one Armed Forces official for the pharmacy services, one administrative official, and a few clerical personnel. Functional control by the Army Medical Inspectorate ceased at the end of 1936, at which time the Medical Branch was reorganized as the Air Force Medical Inspectorate or Air Force Inspectorate 14, since all arms and services inspectorates of the Air Force were numbered consecutively. The table of distribution for the new

15 inspectorate will be found in Appendix 3.

During the war it became necessary to expand the staff of the inspectorate. As a first measure the size of the staff was increased by direct order, later a revised table of organization provided for regular assignments of personnel.

Appendix 3 to the present study is a copy of the table of organization issued in 1943. It shows the inspectorate at its largest size during the war, and give a complete presentation of all functions found necessary and desireable. Later in the war considerable cuts in personnel had to be made, the full scope of which is shown impressively by the last table of organization issued, offered here as Appendix 4. This last table of organization (and distribution) no longer provides for various staff functions, such as medical report and statistical services; work accumulating in such fields was to be stored for processing after the war. Other functions were curtailed, since they had in part been taken over by the Armed Forces Surgeon General Division, and in part had become less voluminous because of the changed military situation. Personnel cuts were also achieved by having one medical officer handle two functions, for example, a section chief handled his own routine work of his section. In the reduced table of organization no provision is made for the six consulting medical specialists, who were now included

in the Science and Research Section of the Medical Academy of the Air Force together with other medical specialists.

Following the change of all other Air Force inspectorates to offices of chiefs of arms and services, the Air Force Medical Inspectorate (Inspectorate 14) on 1 April 1944 was given the changed status of "Office of the Chief of Air Force Medical Services!"

b. Chains of Command; Disciplinary Authority; Tables of Organization.

1. Tactical Channels.

2. Functional Channels.

Matters of a military nature should always be handled through official military channels, those of a strictly medical nature through the channels of the medical services. The superior medical officer can be at one and the same time the unit commander and the functional superior, as would be the case with the commander of a medical company, the commander of a medical detachment, the chief surgeon of a military hospital, the commander of a medical battalion, or the medical staff officer at air district command headquarters; or he could be only the functional superior, as would be the case if he has no unit under his command, for example, the chief medical officer at air fleet headquarters level if he has no assigned medical unit or units.

16 The channel to be used in each case would be determined by the nature of the matter requiring a decision. For example, a matter involving medical care would be strictly a medical matter, as would be the case with a medical opinion, or requests for medical supplies or equipment. In all such matters, if the local medical authority can not make the decision, a decision would be requested from the air district command medical officer, the air fleet medical officer, or the Surgeon General. All matters involving exclusively military interests, such as guard services, garrison problems, reports on items of general military equipment, vehicles, etc, would be referred by the commanding officer of the medical unit to the next superior troop command. This officer could in some circumstances at the same time be the functional superior, for example if it is the air district command medical officer and if he should have under his command the parent unit of the sub-unit requesting a decision. If he cannot make the decision he would pass the matter on to the next higher level of military command, for example to the air district command headquarters.

As the two examples just given show, a medical officer is under dual controls, a military and a functional control. In some circumstances both controls can be centered in one

and the same person, but this is not necessarily the case.

A unit medical officer is responsible in all military matters to his unit commander, in all medical matters to his next superior medical officer, for example to the appropriate divisional or corps medical officer.

At higher levels of command--corps, air district command, air fleet headquarters, etc.--, each chief medical officer is r sponsible in all military matters to the respective military superior, namely, the corps, ai district command, air fleet commander, etc., in all medical matters to his next superior medical officer--the air district command or air fleet medical officer, or the Surgeon General.

As mentioned previously, the Chief of the Air Force Medical Branch was assigned tactically under the Chief of the Luftwaffe General Staff, functionally under the Chief of the Army Medical Inspectorate.

After establishment of the Air Force Medical Inspectorate, the chief of that inspectorate was independent of all functional controls in Air Force matters of a medical nature and was the final authority in such matters. For military control he was assigned under the newly established Office of the Inspector General of the Air Force (Dienststelle des Generalinspekteurs der Luftwaffe). This arrangement changed during the war when some responsibilities of the Inspector

17 General passed to the Chief of Administrative and Supply Services of the Air Ministry, who assumed control over the Chief of the Air Force Medical Inspectorate. This arrangement was again changed when the medical inspectorate was given the status of an Office of the Chief of Air Force Medical Services, in that this office was now placed under the Chief of Air Force ~~XXXIMISXRATIONXXXX~~ Supply and Administration (General-quartiermesister), Office of the Chief of the Air Force General Staff. This secured the close contact with the military command which was essential during war.

In a manner similar to that in which the medical officer was under dual controls, his disciplinary authority could be of a dual nature. If a medical officer was in command of a medical unit, he had functional and military disciplinary control over those assigned under him. If he was only the functional superior he had disciplinary authority only in medical matters and in matters involving the reputation of the medical corps.

The matter of disciplinary authority was regulated by the Disciplinary Penal Code contained in Air Field Manual L. Dv. 3, i.

In matters of the exercise of disciplinary authority, medical officers in the positions listed in the deft column

18 hereunder had the status of the military unit commanders listed in the opposite right column:

Medical Officer Commanding Dispensary	Exercised Disciplinary Authority equal to that of a Company commander
Medical Detachment) Local Hospitals)	Battalion commander
Corps & divisional medical staff officers, Medical battalion commanders, Medical officer commanding Air Force hospitals	Brigade commander
Air fleet medical staff officer; Commander of a medical academy	Divisional commander
Surgeon General of the Air Force	Corps commander.

The table of organization and chains of command are shown in Appendix 5. In all cases the chain of command by which a medical post or medical unit was controlled was of a dual nature, military and functional. Both controls could be centered in one and the same superior officer , but this was not essentially the case, as will be seen from the appendix.

In the table of organization only those medical units most frequently encountered in the Air Force are shown in their position within the chain of command. Units and establishments not mentioned, such as field type laboratories, X-Ray operating platoons, other special photographic units, research stations for altitude effects, ambulance cars and truckeplatoons, etc.,

were assigned or attached temporarily from case to case where-
ever they were required. Such assignments were handled by
the Office of the Chief of Air Force Medical Services. As the
table of organization reveals, various units, such as medical
detachments, could be assigned as the situation required to
air fleet, air district command, or corps medical officers.

The medical officers, noncommissioned officers, and enlisted personnel required for assignment with field units were organized in medical battalions, one of which was assigned as a rule to each airport area command under a medical officer with the rank of major or colonel. Each such medical battalion established medical sub-units at the various military posts and garrisons within the command area, each sub-unit under a medical officer with the rank of captain or major, who was responsible for all medical services within his subarea. According to the size of his sub-area, and the number of military personnel involved, this medical officer established a number of medical detachments, each under a medical officer, to attend to the medical needs of the individual military units and sub-units stationed within the post or garrison area.

c. Passive Air Defense Medical Services. The Chief of Air Force Medical Services issued general directives regulating the medical services forming part of the passive air defense system. In all matters connected with passive air

19 defense, operations of the medical services were controlled by the appropriate police authorities.

Within towns and cities the responsible Chief of Police (Polizeipraesident) established Local Passive Air Defense Chiefs. In each case the staff of the Local Passive Air Defense Chief includedaChief Passive Air Defense Medical Officer. As a rule, this post was held in Category I Passive Air Defense Localities by the local chief police surgeon, in localities without any such officer, the post was held by the local chief of police or by a physician, such as a former military medical officer or an official from the health services, who had experience in administrative affairs. The person thus appointed as the local Chief Passive Air Defense Medical Officer was responsible for the direction of the passive air defense medical services within his area; he established first aid and other medical aid posts, arranged for their occupation by physicians and assistant personnel, and for their equipment with the necessary instruments, supplies, etc.

The local Chief Passive Air Defense Medical Officer was also responsible for the training of auxiliary male and female personnel for the various medical aid stations and for the establishment of first aid facilities in private and public air raid shelters. He was also responsible for the implementation of adequate passive air defense measures in all

19 hospitals, and issued the requisite directives for this purpose in agreement with the installation passive air defense chief at each such establishment. If the inadequacy of locally available facilities or the nature of the existing buildings precluded any possibility of implementing the passive air defense measures essential for protection of the lives of patients admitted to a hospital, it was his responsibility to report such circumstances to the next higher authority in order to secure the necessary materials and labor to carry out the required measures, or in order to obtain authorization to close down the establishment and transfer it to a more suitable locality.

In the Office of the Chief of the Air Force Medical Services, an independently operating group, Section 3, under a staff officer for passive air defense, had the mission of supervising the implementation of all passive air defense measures in the passive air dxfense medical services. For this purpose the section chief and/or his assistants convinced themselves on the spot by means of inspections that all appropriate measures were properly implemented, and by means of discussions with the various responsible authorities and the negotiation of suitable contracts and agreements cleared up controversial problems.

Much experience was accumulated in the course of years.

All such material was properly processed by the Office of the Chief of the Air Force Medical Services and disseminated among military and civilian authorities in the form of pamphlets entitled Medical Experience in Passive Air Defense (Aerztliche Erfahrungen im Luftschutz).

d. National Socialist Aviation Corps (Nationalsozialistisches Fliegerkorps). This was an affiliate organization of the National Socialist Party. Its main mission was to give pre-military and preliminary aviation training to the youth in order to furnish young replacements for the Air Force, and to provide opportunities for trained airmen to maintain through practice their aviation accomplishments.

Up to the beginning of the war Professor Lottig directed the medical services of the Aviation Corps. At the beginning of the war he was drafted for active service in the Air Force, and Professor Pickhan took his place. Dr. Lottig was later killed in action during the 1941 airborne operation against Crete.

The primary mission of the medical services within the National Socialist Aviation Corps was to provide medical attendance at the glider schools and other pre-military aviation training establishments and to generally supervise the health of the youtzful trainees.

Before candidates were admitted for glider training they underwent medical tests at the medical examination stations of the Air Force to ascertain their suitability for aviation. The National Socialist Aviation Corps was not permitted to establish its own medical examination stations for this purpose, because the Air Force could not under any circumstances allow anything but uniformly controlled medical examinations. What played a particularly prohibitive role here was the fact that the medical services of the National Socialist Aviation Corps were not under control by the Chief of the Air Force Medical Services.

If injuries incurred in the services of the National Socialist Aviation Corps required hospitalization of the injured person, the patients were admitted for treatment in public hospitals at the expense of the corps.

21 V. INITIAL AND ADVANCED TRAINING FOR MEDICAL OFFICER AND NONCOMMISSIONED PERSONNEL.

a. Medical Officer Candidate Training.

1. Regular Officer Personnel

2. Officer Personnel in Reserve Status.

b. Advanced Training for Medical Officers.

1. Regular Officer Personnel.

2. Officer Personnel in Reserve Status.

c. Initial and Advanced Training for Medical Noncommissioned Officer and Other Enlisted Personnel.

d. The Medical Officer and Medical Consultant Career.

a. Officer Candidate Training.

1. Regular Officer Personnel. The idea of establishing a medical school specifically for military medical officers in order to insure replacements with good medical and military training for the Army dates back to Frederick the Great of Prussia. He approved the plans drawn up by his Staff Surgeon General, Goerke, for such an establishment, but these plans were not implemented during his lifetime. It was only under his successor that the medical school was established, as the Pepiniere Medical School, in 1795, under the directorship of Goerke, in Berlin.

The name of the institute changed repeatedly, and on the occasion of the 100th Anniversary of its establishment, in 1895, it was given the name

21 in 1895, it was given the name "Kaiser Wilhelm Akademie."

The majority of all military medical officers who served in the Royal Prussian Army received their training in this academy, and their number included names generally known and famed in international medicine, such as Virchow, Helmholtz, von Leyd n, Ehrlich, Behring, Loeffler, Otto, Trautmann, Passow, and other well known scientists. When the University of Berlin was established in 1810 most of the members of its medical faculty came from the Kaiser Wilhelm Academy, and instruction at the Academy was consolidated with that by the new faculty.

The mission of the Academy was to furnish its students an adequate foundation of military knowledge, a thorough medical training, and instruction on subjects which were of particular importance for a military physician.

The curriculum at the Academy was thus in a continuous state of flux, since it had to be adapted always to current military requirements. Laboratories established at the Academy explored highly important problems for the military forces.

Establishments which developed at the Academy in the course of time included the

Institutes for Military Hygiene, Physiology, Pharmacy, and Pathology (Institut fuer Wehr-Hygiene, -Physiologie,

22 - Pharmakologie, -Pathologie); Tropical hygienics; Development and proving stations for medical equipment, etc.

The Academy was closed in 1920. With reestablishment of the German Armed Forces it reopened in 1934 and served for a time to train medical officer candidates for all three services of the Armed Forces, the Army, the Navy, and the Air Force. With the growth of the military establishment the number of students increased to such an extent that they exceeded the capabilities of the Academy, so that a subdivision became necessary. The Navy and the Air Force therefore established their own academies.

In the new Air Force medical academy the fundamental principles for training and education remained unchanged; the only difference was that in each of the three academies now in existence the training pattern was adapted to the specific requirements of the three separate military services.

The Air Force Medical Academy (~~Aerztliche Akademie der~~ Luftwaffe) commenced operations at Berlin-Wittenau in 1940. The exigencies of war made it necessary to commence work in temporary type structures. The clever outlay and well-devised furnishing and equipment of the living rooms, sleeping quarters, dining rooms, libraries, and clubs transformed the temporary type structures into comfortable premises

22 admirably suited for serious study. Owing to the large number of students involved, the total being roughly 1 000, it was not possible to accommodate all age-classes at the University in Berlin, particularly so since the Army also sent a considerable number of students to Berlin. In order to relieve pressure on the medical faculty at Berlin, two additional classes were organized, one at the University of Prague and one at the University of Wuerzburg. The allocation of the students among these three universities was arranged in accordance with the capabilities of the three medical faculties.

23 The new Air Force Medical Academy was organized as follows:

1. The Commandant, to be held by a medical officer with the rank and status of a divisional commander;

2. The three student bodies, each under a class leader with the rank of a colonel or brigadier general and the status of a regimental commander:

Student Group Berlin
Student Group Wuerzburg
Student Group Prague;

3. The Science and Research Instruction Group under a group leader with the rank of a colonel or brigadier general and the status of a regimental commander, stationed at Berlin. This group comprised the consultants (medical) with the Chief of the Air Force Medical Services, and other medical officers assigned research missions, etc.;

23 4. Institute for Military Hygiene, under an officer with the rank of colonel or brigadier general and the status of a regimental commander, at Pfeffenrode, near Muehlhausen, Thuringia.

The final plan was to develop the Academy to include all medical research institutes of the Air Force, such as the Institute for Aviation Medicine (Institut fuer Luftfahrtmedizin); the Institute for Aviation-Medical Pathology (Institut fuer luftfahrtmedizinische Pathologie); and the Academy's Experimental and Instruction Branch, in order to consolidate in it all medical training, instructional, and research activities.

The conditions governing admission as a medical officer candidate and the education and training of the students had to correspond to the requirements stated in national regulations (Reichsvorschriften) for the study of medicine. Prior to their last year at a high school applicants submitted an application for admission through the medical stafff officer at the air district command responsible for their specific areas. The application was accompanied by a life history, the final school certificate, and the addresses of three persons able to vouch for the integrity of the studxnt's family.

The air district command medical staff officer arranged

for the prescribed two medical examinations of the applicant and, if the results of both examinations were positive, and after he had personally convinced himself of the suitability of the applicant , forwarded the application together with his comments to the Student Admission Office for Medical Officer Candidates (Annahmestelle fuer Sanitaetsoffizier-Anwaerter) of the Medical Academy. Here the selection of suitable candidates was based on the same principles as the selection of officer candidates in general, with the only exception that more attention was paid to the applicant's abilities to study. Final acceptance of the candidate was effected by the Commandant of the Me ical Academy in agreement with the Chief of the Air Force Me ical Services.

After passing his matriculation examination, which entitled him to study at a university, and which during peace took place on 1 April of each year, the applicant was drafted for six months service in the Reich Labor Service; this was followed by six months in a military training unit (during peace in an air training regiment), where the applicant received basic military training. During the war this basic training was given in a shorter space of time in a medical replacement and training battalion.

Following satisfactory conclusion of the above training

and if the candidate was considered suitable he was promoted to private 1st Class and given the status of an officer candidate of the Medical Corps. The officer candidate now was transferred to the Medical Academy and commenced his studies at the University. During holidays the students were attached to troop units for training courses, or were detailed to service schools, athletic and/or glider training courses, etc., to improve their military training. During the war holiday periods were spent with troops at the front, particularly as temporary members of antiaircraft or paratrooper units.

At the Academy the individual classes were organized in companies, each company headed by a young medical officer. The company commander and his officers, all medical officers in the ranks of lieutenant or captain, were responsible for the military discipline of their units and supervised their students in their studies, arranged repeat courses, discussion hours, and similar media to support the studies of their students.

In addition to lectures and lessons on purely medical subjects, students at the Academy were required to attend lectures on such subjects as aviation medicine, military hygiene, activities as expert advisor in the Armed Forces,

24 me dicines and drugs--with particular emphasis on those furnished in the Armed Forces, field manuals concerning the medical services, military correspondence, and so forth. These lectures were delivered by medical consultants or experienced medical officers.

The Academy Commandant or the class-company commanders arranged evening lectures for students of all age classes on political, cultural, ideological, or economic subjects, [illegible] of current interest, for which purpose lecturers were invited from the Government se vices, from the National Socialist Party organizations, or from industria circles.

No political indoctrination classes were held at the Academy. Great importance was attached to the study of music. In addition to evening given by an orchester formed by the studxnts themselves, regular concerts were given by a musical college.

After the student had passed theState Medical Examination he participated in a special course for military physicians which lasted between six and eight weeks, and which was arranged with special emphasis on the requirements of a unit medical officer. All subjects were dealt with here from the viewpoint of the unit medical officer in order to

teach the student what action to take in the field against various ailments and to familiarize him with the remedies normally available to him under field conditions. A particularly popular feature of these courses were the lectures by dental surgeons on the first steps to be taken for dental treatment in the field and on other dental problems which were important for the military physician. After completing this course, the young physician, by now promoted to medical assistant, was transferred to an Air Force hospital to serve his obligatory term as assistant, and was then assigned with troops.

The Medical Academy of the Air Force and the academies of the Army and Navy were not medical faculties at which the medical officer scandidate could study medicine. They were military-medical educational institutes which, in close cooperation with the Universities, gave the student the additional knowledge he would require as a medical officer, and which by means of uniform education provided a foundation for the development of a uniform medical officer corps.

A point to be noted here is that the student himself had to pay for the costs of his study of medicine, namely, for such items as the university fees for lectures, seminars, etc.. whereas he could attend the lectures and so forth arranged by the Academy free of charge.

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2. Medical Officers in Reserve Status. Candidates in this category during peacetime completed their studies in the normal manner as civilians. The Armed Forces exercised no influence whatever on the course of their studies.

During the war it was necessary to insure an adequate influx of new medical officers, and this necessitated changed methods. Students of medicine were now drafted into military service and after receiving normal military training were detailed to continue their studies. Within the universities they were organized in student-companies under reserve medical officers--usually chief surgeons or assistants at the universities and later disabled medical officers.

During university holidays, and when the military situation made this necessary also during semesters, the students were sent on temporary assignments to the front. The mission of the student-company commander was to advise the students in his company and to supervise their studies. Students who showed unsatisfactory progress or who were inadequately diligent were required to cease their studies and were transferred to the troops.

As time passed efforts became noticeable by the National Student Guidance Corporation (XXXXXXXXReichsstudentenfuehrung), a corporation established by law on 6 July 1938, to interfere

26 in this purely military program of student control. With very few exceptions, namely those who were medically unfit , all students of medicine by virtue of the exigencies of the state of war were members of the Armed Forces; as such, existing military regulations p rohibited their participation in political activities. This, in turn, removed them from control by the National Student Guidance Corporation. The Corporation consid red this as an infringement of its rights, since it claimed the right to give all students political training and guidance. The Armed Forces refused to accede to this train of thought; for the military the students were and remained nothing but military personnel detailed to study, and as such were subject exclusively to military laws, discipline, and orders.

For the above reasons it was considered impossible for the military to agree that the education of soldiers completing their studies should be taken over by the National Student Guidance Corporation. In a conference at Salzburg in December 1944 between the Armed Forces Surgeon General and the Surgeons General of the Army, Navy, and Air Force on the one hand, and representatives of the National Student Guidance Corporation on the other hand, the National Student Guidance Corporation recognized the validity of the military claims. The only concession made was that the National

Student Guidance Corporation was to be consulted in advance in each case on the political suitability of medical officers intended for appointment as student-company commanders.

b. Advanced Training for Medical Officers.

1. Regular Officer Personnel. Advanced training was given in two directions: (a) general advanced training in the medical field to refresh and increase the knowledge of the young physician without emphasis on any one special subject; (b) advanced training to develop specialists in certain specific fields.

Arrangements existed at the various universities for between forty and fifty students to attend refresher courses lasting three weeks twice annually. Lectures in these courses dealt with all fields of medical science, with due consideration to problems of importance for the military medical officer. As a rule, each medical officer attended such courses once every four years. Lecture series at the Research Institute for Aviation Medicine dealt with matters in the specific field of aviation medicine. These lecture series or courses lasted two weeks and provided a general review of the latest experience and developments in the field of aviation medicine.

In order to give young medical officers wider experience

28 in general fields of medicine, each such officer during the first years of his service with troops was detailed at intervals for three months to serve at polyclics, or in the gynaecological, childs, dermatological, and other branches of large hospitals. The sole purpose of these detachments was to give the officer general medical training designed to equip him to serve better as a military or family physician, or general practitioner.

Young medical officers who had served satisfactorily in assignments with troop units and who in the opinion of their superiors and according to their own inclinations appeared suitable for specialized training, were detached for periods of several years at university clinics or other suitable medical installations to receive such specialized training. The duration of such detachments depended on the time required to obtain the appropriate certificates in the medical field involved. During such detachments it was considered of particular importance that the officer should not concentrate exclusively on acquiring the specialized knowledge in his specific branch of the medical science, but that he should at the same time devote himself to other scientific work, for example that he should endeavor to obtain his doctor's degree or a professorship.

All costs resulting from such detachments, such as the lecture fees, costs of travel, and the costs of living--per diem allowances if the officer detailed was away from his home, were paid by the Armed Forces.

2. Officer Personnel in Reserve Status. During the war medical officers in reserve status participated in refresher and advanced courses. These courses were conducted by the appropriate chief medical officers, for example air fleet medical staff officers, for their areas of jurisdiction, or by more central authorities, or, in the case of specialized subjects, by the appropriate specialist organizations. Later in the war efforts were made to detail young physicians who had commenced study in some specialized field for service in the appropriate branches of hospitals in order to complete their studies. After approval by the Medical Society (Aerzte-Kammer) the appropriate air fleet medical staff officer issued the certificate acknowledging completion of specialized training.

c. Advanced Training for Medical Noncommissioned Officers and Enlisted Men. On induction, men subject to the draft and who evinced an interest in medicine or who by reason of their civilian profession were in any way connected with the medical and allied profession, such as male nurse, disinfecting, and laboratory assistant personnel, were

29 assigned primarily to the medical services. Requirements in excess of the number of such draftees were met by the allocation of other draftees.

A good elementary school education, good handwriting, and the ability to think independently were the required qualities, and artisans, clerical, and other offic personnel were gladly accepted.

During peace, the draftees first received basic military training lasting six months in an Air Force training regiment, after which they were transferred to a medical school at one of the Air Force hospitals. There they received instruction in all subjects, theoretical and practical, involved in the medical services. A specially compiled instruction book, Field Manual L. DV. 59, for Medical Noncommissioned Officer and enlisted Personnel, served as the basis for all instruction.

After completion of the above training each trainee was tested, and, if he proved satisfactory, was transferred to the medical services. The visible sign of membership in the medical service was the Caduceus worn on the left forsleeve of the tunic or blouse. From then on until the end of their tour of military service such personnel were employed in military hospitals and other medical installations.

During the war basic military training was combined with the necessary medical training in a medical replacement and training battalion, and the whole period of training was reduced, medical training being restricted to theoretical instruction in the training battalion. Practical training had to be given then in the units or hospital to which the draftee was assigned.

In addition to the basic medical training required for all noncommissioned ranks in the medical services, persoonel could receive specialized training consonant with their inclinations and aptitudes. Regulations provided for the following specialist careers:

Surgical Assistant
X-Ray Operator Assistant
Pharmacist Assistant
Laboratory Assistant
Dissection Assistant
Dental Assistant
Dental Technician Assistant (this was open only to persons who had received such training in their civilian profession)
Medicinal Bath Supervisor and Masseur
Medical Equipment Administrator
Accountant.

Training for specialist careers was given at the hospitals or at the Institutes for Aviation Medicine, and completed training was marked in the trainees service record book to insure

that the training thus received would be given due consideration in future assignments.

Regular noncommissioned officer medical personnel received advanced training in advanced courses. These courses served primarily to give instruction in specific branches which concerned all grades in the medical service, such as familiarity with and the proper handling of field medical equipment, aspects of aviation medicine which were important for medical noncommissioned officers, military correspondence--with particular emphasis on the compilation of sick reports, etc.

d. The Medical Officer Career (Regular). Training procedures for regular medical officer personnel, and the procedures for advanced training, have been dealt with in Sections 1 and 2, of this chapter. The intention now is to present a general outline of the career open to a regular medical officer.

Candidates for enrollment as regular officers in the Air Force medical services had only brief contact, lasting a few months or only weeks, with troops until they completed their studies. In contrast with training for officer candidates for the other military branches, arms, and services, main emphasis in the training of candidates for the medical officer corps is on activities outside of troop units, namely, on studies

at universities. Since so much has to be learned in the five years of study, it is not possible to take up any of this time for other purposes and no attempts should be made to do so. Apart f om the period spent in b-sic military training prior to commencement of his studies, the medical officer candidate therefore has little time available for advanced military training. The only opportunities he has are during the University holidays, and even then he has not much time, since he is required by regulations to devote some of his holiday ~~time~~ time to ce-tain activities, such as attending to sick and assisting university professors.

In spite of the above circumstances the medical officer cannot do without thorough military training. He is at one and the same time physician and soldier, and must be thorough in both. Excellent medical abilities must go hand in hand with a soldierly devotion to duty. If he is to comprehend the feelings and ways of thought of soldiers, the future physician must have lived among them as one of their number. Later as a unit medical officer, he will then understand the language, cares, and worries, of soldiers.

Prior to commencement of his studies, the future medical officer receives basic military training. Here he will become f miliar not only with the necessary military subjects but also

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with the life a soldier spends, he will live among soldiers as one of them. In the years which follow the future medical officer will have opportunities repeatedly, while serving as an officer candidate NCO in the Medical Corps, to improve his knowledge of military affairs. At service schools and in athletic and other courses he again has opportunities to acquire in broad outline the knowledge needed by a future officer. While serving details in hospitals and other medical establishments , the future medical officer has the opportunity of learning f om personal experience the working and living conditions of his future subordinates, the noncommissioned personnel of the medical services. With completion of his state examination the young physician left all that behind, that phase of his training was over, and he now entere the forces as a medical officer.

True to their old traditions, medical officers in the German Armed forces retained their old rank designations, which had developed through the two centuries in which an Army Medical Corps had existed, as follows:

Rank Designation	Equivalent	Time in Rank
Assistentarzt	2d Lieutenant	3 years
Oberarzt	1st "	
Stabsarzt	Captain	5-6 years
Oberstabsarzt	Major	4-5 years
Oberfeldarzt	Lt. Colonel	3-4 years

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Rank Designation	Equivalent	Time in Rank
Oberstarzt	Colonel	4 years
Generalarzt	Brigadier General	2-3 years
Generalstabsarzt	Major General	
Generaloberstabsarzt	Lieutenant General	

32 The following table shows the rank of medical officers assigned in the principle positions:

Rank Designation	Equivalent	Position
Assistent-, Ober-, Stabsarzt	2d & 1st Lt, Captain	Assistant Medical Officer in unit or hospital
Stabs- and Oberstabsarzt	Captain Major	Field unit, air port Medical officer, chief of medical detachment
Oberstabs-, and Oberarzt	Major Colonel	Air Port Area Comd Medical Officer; CO, Med Bn; CO, Department in a hospital; Chief, AF Physical Exam. Station; Div. Med. Officer; Sec. & Sub-Sec. Chief in Office, Ch. of AF Med. Serv.
Oberstarzt	Colonel	AAA or Air Corps Medical Off.; Branch Chief in Office, Ch. of AF Med Serv.
Oberst-, and Generalarzt	Colonel Brigadier General	Ch. Med. Off. in AF Hospitals; Air Dist. Comd Med Off.; CCFS, Ch. of AF Med. Serv.
Generalstabsarzt	Major General	Air Fleet Medical Officer
Generaloberstabsarzt	Lieutenant General	Chief, AF Medical Serv.

32 The formative years spent by the young medical officer in hospitals and in units as assistant medical officer were the most important phase of his career, and decided his future. Three courses were open to the young officer, namely,

(1) General medical plus administrative activities;

(2) Flight training and training in specialized aviation medicine;

(3) Specialized medical training.

Aptitude and ability, a keen sense of duty, and actual performances in the initial years of service were the factors which determined the officers future career. It was the duty of each medical officer to advise and observe his younger comrades under his control, and in the annual rating to report without prejudice on their abilities and general qualities.

Officers coming within Category (1) above received advanced training through repeated details lasting each three months if satisfactory they were then assigned as adjutants or section chiefs on higher echelon staffs, and later as chief medical officers at various levels.

Officers coming within Category (2) above received flight training; then they were detached for between two and three years for assignment to physiological, aviation medicine, general medicine, and other institutes and clinics, in order

33 then to be employed as chief medical officers in the flying forces.

Officers coming within Category (3) above received specialized training in their specific subjects in order to take over the direction of special wards and branc es in the Air Force hospitals.

It is only natural that officers from all three categories listed above were to be found at the higher levels, namely, as air district command or air fleet medical officers.

In the case of field unit medical officers and of medical officers assigned to head the special departments of Air Force hospitals, great importance was attached to long tenure of office; where the medical officer comes into close contact with troops or members of their families it is essential to develop an atmosphere of mutual confidence, and this can only be done in time. Unfortunately, the rapid build-up of the military forces complicated matters seriously in this respect

During the war the directing medical echelons were assigned medical consultants. Each air fleet medical officer had a consultant on hygiene, one on surgery, and one on internal medicine. The Chief of Air Force Medical Services had a staff of consultant specialists for all subjects available in the Science and Research Group (Gruppe Wissenschaft und Forschung) at the Air Force Medical Academy.

33 The mission of these medical consultants was to advise the chief medical officers on their various specialized fields and to submit recommendations for the medical care of sick and wounded and for measures of hygiene to be introduced within the command area. Furthermore, and this applied particularly to clinical consultants, as the most important part of their mission, they were to supervise the hospitals within the command area by means of regular visits to insure appropriate care of the sick and wounded. This was a highly responsible mission, since the conditions of war had made it necessary in many cases to assign young and inexeprienced specialist physicians in independent posts. Such personnel needed guidance and regularly recurring visits and advise by experienced experts.

The usual procedure of the consultant medical officers was to visit the hospitals within the command area at regular intervals and whenever necessary to stay a few days at each hospital. Together with the department or ward medical officers they examined patients , if necessary carried out surgery or had the responsible local medical officer carry out surgical operationsunder their supervision. This procedure served a dual purpose: it insured professionally sound tr atment of the sick and wounded and at the same time served to advance the training of young specialists

34 through collaboration with elderly and experienced authorities in their fields of medicine.

Posts as medical consultants were filled by university faculty members or by the chiefs of large hospitals; experienced medical officials from the public health services were also appointed as consulatants on hygiene. Because of the nature of their activities they received more favorable treatment in the matter of promotion than medical officers in general. They were advanced as speedily as possible to field grade level, while consultants in the older age classes were given general officer rank. No financial inducements were offered.

The intention existed to establish peacetime posts as consulting medical officers to be recruited from among the regular officers of the medical officer corps. The reasons for this intention to retain the consultant positions during peacetime were the same as those which led to their establishment during war, namely, to insure a centralized control and supervision of medical specialists in the various hospitals.

35 VI. MEDICAL CARE OF MILITARY PERSONNEL:

a. Regulations Governing Medical Care

b. Dispensaries

c. Medical Stations of the German Air Force

d. Air Force Hospitals

e. Aur Force Rest and Convalescent Hospitals.

a. Regulations Governing Medical Care. In terms of the Defense Law (Wehrgesetz)all military personnel, from the rank of ordinary private to the rank of general officer, were entitled to medical care free of charge. The type and scope of medical care to be given was specified in the Armed Forces Medical Regulations (Wehrmacht-Sanitaetsvorschrift), Part 2: Regulations Governing Medical Care (Teil 2: Heilfuersorgebestimmungen), AF Field Manual L. Dv. 93, Part 2.

According to regulations medical care was to include medical treatment, this to include the necessary medicaments, bandages, etc., hospitalization, rest cures, everything necessary for convalescence, artificial limbs, etc., insofar as was necessary for maintenance of or restoration to a state of health enabling a person to perform his duties. If a person was injured in the execution of his duty, he was entitled to rest cures, artificial limbs, artificial teeth, etc.,

even if these were not necessary to restore him to a condition in which he was fit for duty. In addition, regular military personnel, officers and noncommissioned officers, were entitled to medical care, free of cost, for their families namely their wives and children.

Family members were treated by the locallyresponsible medical officer as a part of his normal duty. In special cases of urgency it was permissible to visit a civilian physician or to call in a civilian specialist for consultation, the costs to be borne by the State.

Armed Forces officials were entitled to free medical treatment only for such ailments, etc., which were due to or which were aggravated by the circumstances of the military service.

In the case of hospitalization during peace time, all personnel not entitled to free meals, such as officer personnel, were required to pay for their own meals in hospital . Such meals were charged at cost price, which was approximately RM. 1.50 daily. Women and children admitted to hospital were also required to pay for their meals in addition to costs for housekeeping services, making a daily total of RM. 3.00. No fees were charged for medical attendance, surgical treatment, nursing., etc.

36 The installations available for the medical care of military personnel were as follows:

Unit dispensaries

Air Force Medical Stations

Air Force hospitals, garrison and post hospitals of the Army, Naval hospitals

Air Force and Army rest and convalescent hospitals and homes.

b. Unit Dispensaries. All dispensaries were intended to serve the purpose of providing medical care for the troops.

The Air Force differentiated between three types of dispensaries:

(1) Small dispensaries
(2) Medium dispensaries
(3) Large dispensaries.

The Army had only Categories (1) and (2) dispensaries, designated as "Dispensary (einfaches Krankenrevier)" and "Extended Dispensary (erweitertes Krankenrevier)" respectively

With the exception of the Category (1) "Small dispensary" which had only ten beds, a special building, separate from billets for troops, was provided in all newly constructed casernes.

The development program provided for the establishment of

Large dispensaries at all isolated air ports, troop training and maneuver areas, etc.;

Small dispensaries with all troop units stationed at

a military post or garrison where a hospital was located, and with all units smaller than battalion size;

Medium dispensaries with all other units.

The size of each dispensary was calculated on the basis of the numerical strength of the unit or units it was to serve. Small dispensaries were built to accommodate 1.5 percent, medium dispensaries 3 percent, and large dispensaries 3 percent of the personnel strength--in noncommissioned officer and other enlisted personnel--of the units they were to serve.

Small dispensaries comprised

a reception room
a labaratory
a surgery,

and had between 20 and 25 beds in two- four- and six-bed wards, plus quarters for the necessary noncommissioned and enlisted medical personnel and an equipment and storage room.

Medium dispensaries had

1 or 2 surgeries
1 laboratory
1 bandage and sterilizing room
1 X-ray room
1 light-ray treatment room
1 small laboratory
1 medicine and bandage storage room
1 reception room
1 small kitchen

37 1 waiting room

1 surgery for non-military persons (family members)

Billets for unmarried medical ~~XXXX~~ officers

Billets for medical NCOs and men

Billets for 1 or 2 nurses

Storage space for medical equipment

Lumber room

Air raid shelter cellar with equipment for emergency surgical operations

Baths

Washrooms

Toilets.

Large dispensaries had, inaddition to the above:

1 Surgical operating theater plus

1 Preparatory room.

Air Force hospitals had no cooking facilities. Meals for patients were furnished from the general troop unit kitchen, where simple dietary fare could be prepared on request.

All dispensaries were open to give medical treatment Sundays and weekdays. Minor cases were handled in the small dispensaries. Treatment approximateing that given in hospitals could be given at medium and large dispensaries. As mentioned above, the large dispensaries had surgical operating theaters.

n The determining factor for the size and equipment of

38 dispensaries was the situation of the air port or training areas served in relation to existing military or civilian

38 hospitals. If existing hospitals were not easily accessible large dispensaries were established to permit treatment of serious cases or patients who could not be moved until they were so far restored that they could be moved to hospitals.

In addition to treatment given to military personnel, special surgeryl hours were set aside for women and children entitled to medical care.

c. Medical Stations of the Air Force. In a few of the larger posts and garrisons special medical stations were established at points favorably located for traffic. These stations were staffed with specialists to treat various ailments (surgical operations, internal ailments, skin and venereal diseases, eye, throat, nose,and ear troubles, gynaekological and childrens' ailments). They also had equipment for medical examinations and for the treatment of ambulant patients, such as X-ray apparatus, laboratories, instruments for physical therapy.

Unit medical officers as a rule transferred military personnel and family members entitled to medical care who required examination by a specialist or who required tr atment as ambulant patients to the special midical stations.

d. Air Force Hospitals. For the first few years after its establishment the German Air Force had no hospitals

38 of its own, which was considered a serious disadvantage for various reasons. First of all, there was no possibility, in the matter of hospital treatment, to give due consideration to the special requirements of the Air Force, a matter which later became a mission of the medical observation or examination centers (Sichtungsstellen). Then, the Air Force had no opportunities to give its medical personnel--officers and others--training under its own control.

The above reasons may not appear fully convincing to the unprejudiced reader, who might think that the services under discussion, namely, medical treatment, are not a matter dependent on any particular arm or branch of the military establishment but subject to entirely different laws. To some extent this view would be quite correct, but it would fail to take into consideration the factor which is so direly important for success in the Armed Forces, the factor known as "pride of arm." To create an atmosphere of real and complete confidence, people must have the feeling of belonging together. The military and the medical personnel of a branch of the Armed Forces must grow together in the units of their own branch, and must be thoroughly conversant with the services, daily life, routine, and usages of that branch. A medical service needs its own schools. As long as it re-

39 remains dependent on the installations of another branch of the Armed Forces it will always remain there a foreign element, no matter how smooth cooperation might be.

Therefore, if the plan to establish a hospital system was to be given serious consideration, organic to the Armed Forces, the above tangible and intangible reasons made it essential to allocate a proportionate number of positions as medical officer and other personnel to the Air Force and create a system of hospitals organic to the Air Force, within the whole Armed Forces hospital system. The problem of an Armed Forces hospital system has been discussed in greater or lesser detail by numerous authorities and for sound reasons has always been postponed to some future date because of the difficulties quoted above.

Serious planning for the development of an Air Force hospital system commenced for the first time in 1936. During planning for new development of the Armed Forces, the Army Medical Inspectorate in 1935 had established a program for an Army hospital system covering the whole of Germany. Practically everything in this program was to be handled by the Army, since an agreement could easily be reached concerning the share of the Navy in the whole plan.

Only a few of the pre-World War I military hospitals were still in existence at the time. Of these the post-

World War I 100 000-man Army had forty with a total bed capacity of 3 800. Approximately 50 percent of the hospitals had less than 100 beds each, the balance had between 100 and 200 beds each, and only four or five were larger than 200 beds.

Most of the other military hospitals had been converted for other purposes, and only a very few could be returned to the Armed Forces. It was therefore necessary to rely largely on the construction of new hospitals.

Here it became inescapably necessary to depart from the requirements of former regulations, which now had to be considered outdated. These former regulations provided for the establishment of a military hospital in practically every garrison town, even if the number of troops stationed in a town was so small as to justifyonly 40 or 50 beds. In former times, when transportation was not so readuly available and was not so fast, the establishment of small hospitals of this type was a sound practice, but in the days of motor transportation they were unjustifiable. The standards required in a modern hospital were too severe to be met in hospitals of such small size.

Due to the above considerations, the new plans provided for a distribution of hospitals which would justify a minimum capacity of 200 beds each, when normally occupied.

40 The following factors were established for the computatio of the size of hospitals in each case:

(1) The number of military personnel in all units of all three branches of the Armed Forces stationed within the post command area concerned was to be determined, and the hospital was to have a number of beds equivalent to 4 percent of this total number;

(2) Each other nearby post favorably situated for transportation to such central post within a radius of 45-60 miles was to have a hospital with standard bed space equivalent to 2 percent of the total number of military personnel of all branches of the Armed Forces stationed within the post command area.

Working in close agreement and in line with the above principles the controlling medical echelons of all three branches of the Armed Forces established a uniform hospital development plan for the Armed Forces. Under this plan that branch was to have a hospital in a post area in which it had numerical preponderance by reason of its field units, schools, staffs, or other installations stationed there. Thus, the Navy would have hospitals in coastal towns and the Air Force,for example, in Halle. Every effort was made to avoid having hospitals of more than one branch within one and the same post command area except in cases where the size of the towns concerned made this necessary, as was the case in Berlin, Koenigsberg/Eastern Prussia, and Munich. Military personnel were to be admitted to all military hospitals

regardless of whether they came from the Army, the Navy, or the Air Force. The main requirement in all cases was to be that the patient should receive speedy and good medical care.

Each hospital was placed under a Chief Medical Officer, with colonel or general rank according to the size of the installation concerned; during the war it became necessary at times to assign medical officers in lower ranks to these posts. The Chief Medical Officer had the disciplinary authority of a regimental commander. He was the superior of all officer and other military personnel, and of all civilian personnel, employed at his hospital.

He also had disciplinary authority over all officer personnel under treatment in his installation, provided they were junior to him in rank, and over all other military personnel admitted to his hospital.

In the performance of his duties the Chief Medical Officer at each military hospital was supported by the following:

(1) An officer "for special missions (zur besonderen Verwendung)," in the rank of captain or major, who was to relieve the Chief Medical Officer of all non-medical functions, such as garrison matters, personnel wellfare work, transportation problems, and so forth;

(2) An Administration Branch under a Special Service Troops (truppensonderdienst) officer supported by a varying number of other Special Service Troops officers according to the size of the installation.

The administration was organized in three main

41 sections, the size of which depended on the size of the installation, handling the separate functions of: funds administration; accommodations; and rations.

At all times the medical services held the view that each hospital must be an economically self-contained unit independent of all troops in its housekeeping functions and arranged exclusively to serve the requirements of medical care for the sick and wounded, and this view was accepted by all concerned;

(3) A Matron or Senior Matron, who was the superior of all female nurses, assistant nurses, technical assistants, auxiliaries, and all other female personnel employed at the hos hospital. On behalf of the Chief Medical Officer the Matron handled all matters connected with such personnel, and r commended their assignments, their rotation, and so forth In agreement with the Chief Medical Officer she reported to the Field Matron on the staff of the superior air fleet medical staff officer.

Standard d signations were established for the various departments in all military hospitals as follows:

Department or Ward I: For internal ailments
II: For surgical treatment
III: For skin and venereal diseases
IV: For Eye troubles
V: For throat, nose, and ear troubles
VI: For nerve disorders and psychological cases
VII: For Dental, mouth, and jawbone ailments
VIII: Medical Examination of flight personnel
IX: Gynaekological department.

42 Each department was under a department or ward officer in the rank of colonel or lieutenant colonel, each independently responsible for his professional activities within his department or ward, but subordinate to the Chief Medical Officer in all other matters.

The size of the various departments depended on the total number of beds available in the hospital concerned, but the minimum size was 75 or 50 beds. Larger departments sometimes had a multiple of this size. Each department was subdivided into wards or stations.

Each department officer was supported by

a branch supervisor, a sergeant of the Medical Corps, who handled such matters as military correspondence and the maintenance of military discipline and order;

female nurses and a number of assistant female nurses and auxiliaries depending on the size of the department.

Medical noncommissioned officers had no command authority over female nurses.

During peace the Air Force had Air Force hospitals and Air Force rest homes. During the war there were also special hospitals for specific ailments, and local hospitals of the various medical detachments. Within Germany the following Air Force hospitals were completed:

In permanent-type buildings: one each at Koenigsberg, Eastern Prussia; Greifswald; Wismar; Braunschweig;, Halle;

42 Frankfurt on Main.

In temporary-type structures: One each at Stopmuende; Posen;, Glatz; Nuremburg;, Munich-Oberfoehring; Wels; Wiener-Neustadt; Andernach in Rhineland (the installations at Nuremburg were destroyed by air attack).

The hospitals in temporary-type structures were established in 1938-1940, when the shortages in building materials necessitated the adoption of simplified construction processes. Further details on the subject of hospitals will be found in the appendixes.

During the war the necessity arose to increase considerably the number of hospitals in existence. In widely separated localities sanatoriums, schools, etc., were converted into hospitals and rest or convalescent homes. In addition to these, which were integrated into the hospital establishment plan, the need arose for special hospitals. Thus, reconstruction work at the climatically so favorably situated AAA casern in Gauting near Munich made it possible there to establish a sanatorium for lung patients with a capacity of 900 beds, while reconstruction work in the casernes of the General Goering Regiment made it possible at Berlin-Reinickendorf to establish a special hospital for patients with brain and spinal injuries. This hospital, which could accommodate 1 200 patients, was destroyed in an air raid and then transferred to Bad Ischl.

43 The German Air Force at an early stage took steps to insure systematic treatment of patients with brain and spinal cord injuries. This was due primarily to recommendations by General Professor Toenni, AF Medical Corps, The intention was to insure that all such wounded personnel would receive proper specialized medical treatment as speedily as possible. For this purpose special field hospitals or branches were established in which brain surgery could be carried out, and advantage was taken of all possibilities for quick transportation, including the use of light ambulance planes of the Storch type, to move patients requiring such treatment to there, f om where they were moved by air to Berlin, and later to Bad Ischl. The value of this procedure was that all injured personnel received into these hospitals remained under uniform treatment from the be inning, because the field installations were also under medical men studying under Professor Toennis and practising under his guidance.

The hospital at Berlin and later at Bad Ischl included a research institute in which all experience gained was scientifically p ocessed and exploited in cooperation with physiologists and pathologists (Professor Spatz).

e. Air Force Rest and Convalescent Hospitals or Homes.

Convalescent hospitals were built at Wildbad in the Black Forest, Oberschreiberau in the Riesengebirge mountains,

43 Rupprechtsteegen near Nuremburg, and Westerland on the Isle of Sylt. Another convalescent hospital was established at Baden near Vienna during the war.

In all Air Force convalescent hospitals medicinal baths were given in accordance with medical instructions. In cases where the Air Force had no suitable hospitals for treatment of specific ailments (for example stomach and heart ailments), patients requiring such treatment were sent to Army hospitals. Approval of all requests for treatment at medicinal baths was subject to a physicians prscription certifying the necessity for such treatment.

Not much use could be made of the convalescent hospital at Westerland from the beginning of the war on because the conditions brought about by the war made it unsuitable. During peace the establishment could give patients hot and cold seawater treatment and mud-pack baths.

In addition to the above, the Air Force in the early stag stages of the war rented hotels or sanatoriums in air health resorts in order to provide flying personnel who could not be restored to full service capability by a normal spell of leave with an opportunity to recuperate in a favorable climate These convalescent homes (Kitzbuehl, Berwang, and Bad Schachen were under medical control. The purpose here was to restore flying personnel to complete health by means of rest cures,

44 proper dieting, sports, massage treatment, and physical culture exercises. Particular emphasis here was placed on creating a free and easy atmosphere while at the same time giving due regard to all medical necessities. This was the reason why these establishments were called comvalescent homes and not convalescent hospitals. However, the designation as homes led to frequent confusion with leave and recuperation centers not under control by the medical service and thus not under medical control. For this reason the d signation "home" was discontinued in 1944, from when all such establishments were also officially designated convalescent hospitals.

44 VII. FIELD MEDICAL UNITS OF THE AIR FORCE.

The organization program provided for the following types of field units in the Air Force medical services:

a. Motorized Medical Detachments (Sanitaetsbereitschaften--motorisiert)

b. Motor ambulance platoons

c. Air Force medical companies

d. Air Force Hospitals

e. Air Force Motorized field laboratories

f. Air Force motorized X-ray screen platoons

g. Air Force medical platoons.

The units listed under c and d above, namely, medical companies and hospitals corresponded in size, equipment, and purposes to the same types of units in the Army. They were organized and employed exclusively at the paratrooper divisions committed in operations on the ground.

a. Motorized Medical Detachments. The Air Force created motorized medical detachments for its own specific purposes In preparations for the activation of medical units for the Air Force action was based on the assumption that it would be necessary primarily to insure medical care for the air units which would operate in combat from their home air bases. For this purpose plans provided for speedily mobile units capable of surgical treatment . These units were to be

44 committed wherever required, at points where numerous casualties occurred, and where they could function in proximity to existing dispensaries or hospitals at air ports or air fields. In accordance with these ideas each of these mobile detachments comprised the following:

2 surgeons
2 assistant physicians
2 dental surgeons
2 female nurses
12 medical NCOs
2 complete sets of surgical and dental instruments
1 X-ray apparatus
vehicles to meet transportation requirements in personnel and commodities.

A reexamination of these plans revealed the necessity to assign the units the necessary ambulance cars and trucks for the inward and outward movement of sick and wounded; the vehicles assigned included, in addition to those originally provided for, a number of vehicles for housekeeping purposes, a small field kitchen, and ten ambulance trucks; this increased the numerical strength of each such unit to 75.

After the outbreak of war in September 1939 one motorized medical detachment was organized for each air port command area and all facilities were explored in the vicinity of each air port to ascertain how they could support the operations of the medical units.

46 Commencement of the war of movement in the field brought a changed mission for the motorized medical detachments. They now left their permanently assigned areas to follow the troops committed in the eastern and western theaters of operations. This created the necessity to give them more equipment. The possibility ceasxd to exist to establish small hospitals or medical stations in existing military dispensaries and with support f om existing housekeeping installations, and in their new surroundings the detachments found themselves compelled to establish their own hospitals with the means available to them.

For the above reasons, each detachment now, in addition to its former equipment, received additional vehicles and all other items of equipment necessary for the establishment and maintenance of a hospital with a capacity of 200 beds. In its final form the table of organization as drawn up for these detachments and amended in the light of experience, provided for a personnel strength of 105 officers, enlisted personnel, and female nurses, as follows:

1 Commanding officer (Major or lieutenant colonel)
8 medical officers (1st Lts., Captains, and majors), including 2 surgeons, 1 specialist for internal disorders
2 dental surgeons, 3 assistant physicians

1 Special Service Troops officer to handle administration

8 female nurses, including two trained to assist at surgical operations

1 female technical assistant

Military medican NCO and enlisted personnel, including 1 sergt major, 3 section supervisors, 1 equipment administrator, 1 accountant, 1 mtr maint sergt, 4 surgery assistants, 1 pharmacist assistant, 2 dental technicians, 1 motor driver, cooks, artisans, etc.

Vehicles for transportation of personnel and materiel and for general housekeeping purposes, 2 field kitchens, 1 motor maintenance truck, 10 ambulance trucks, etc.

With this increased table of organization and equipment the motorized medical detachment became a self-supporting unit capable of coping with numerous and diversified missions, such as

Field Medical Clearing Station, at which the two surgeons could give first surgical treatment to wounded personnel. In such case the units own ambulance vehicles could transport the sick and wounded to and from the station. Personnel of the unit not currently needed for surgical treatment in the meanwhile performed other important tasks: they reconnoitered the next location for the station, regulated the movement of patients to and from the station, established dressing stations, moved forward food and medical supplies, etc.

As a local hospital with a capacity of 200 beds. For such purposes the detachment had adequate medical and nursing personnel to insure excellent hospital treatment.

Divided into two platoons, the detachment if necessary could serve both purposes, namely, could provide a Medical Clearing Station and a Local Hospital.

The Medical Detachment had the possibility at all times to adapt itself to the current military situation. It had adequate transportation to be able to follow

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transportation to be able to follow motorized tactical units, such as antiaircraft artillery divisions or corps at the necessary speed. It had adequate surgical and other medical and dental equipment to serve as a fully efficient hospital, and with its housekeeping facilities could handle 200 patients. If possibilities were available for support by some existing local installation, such as a local hospital, the number of patients could be increased to a multiple of this number. In such cases the next superior medical officer had to detail the necessary additional personnel.

In all theaters of war these motorized medical detachments rendered excellent services. So far as their composition and their organization were concerned they were something entirely new. It was the first case of units intended for commitments near the fighting fronts having a table of organization including female nurses as a regular feature. In the Army it was customary to attach female nurses to medical companies and field hospitals only from case to case if the tactical situation permitted, for which purpose the Army Medical Service maintained a reserve of female nurses at four of its hospitals. Inclusion of the female nurses in the permanent organization of the Air Force medical detachments had the important advantage that the nurses became an integral part of their units, that they were thoroughly conversant with the circumstances under which they

had to perform their services, and that each of them from the outset had her precisely prescribed place within the unit. The presence of these female nurses even in medical units very far forward introduced into the care of the sick and wounded that valuable element which only the presence of women can create. No matter how able and willing they may be, male nurses can never provide that touch which only women can give. In this, their mission of mercy, our nurses, rendered incomparable services whether they were committed in the Far North, in the Western Theater, in the icy wastes of the East, or under the pitiless sun of Africa.

Essential conditions for work of this type were to have only nurses who had good professional experience, who were fully mature, and had high human qualities. Started originally as an experiment, this use of female nurses proved excellent. With untiring energy, without regard for dangers, the female nurses shared all hardships and toil with their male colleagues. It is only natural that they were give the consideration due to women while on march, in bivouac, or when in more permanent quarters.

The Air Force Motorized Medical Detachment was a smaller unit that the medical company or hospital customary in the German Army. To make up for this it was more maneuverable, flexible, and could go into operation more speedily. It proved

48 sounder to have a larger number of such small units than to have a smaller number of larger units.

Initially the motorized medical detachments were under the command of the medical staff officers at the air port area commands where they were activated, and thus under the appropriate air district command medical staff officers. In many cases the circumstances of mobile warfare changed these conditions. Primarily, the medical staff officers at the air district commands were assigned responsibility for the detachments, since the air district commands were responsible for all types of ground service units of the Air Force. Furthermore, the necessity developed frequently to assign organic motorized medical detachments to Air Force units employed in ground combat, such as antiaircraft artillery corps and divisions, so as to make them independent of local exigencies. For the above reasons the following picture developed:

Most of the existing motorized medical detachments were committed by the medical staff officers at air district command headquarters. This was so because of the fact that the air district commands were responsible for development of the ground service organization and for its administrationaand operations, so that it was here primarily that an accumulation of sick and wounded personnel was to be expected.

49 Furthermore, air and antiaircraft artillery corps were stationed in varying numbers and for varying durations in the command areas of the air district commands . In order not to be completely dependent on local facilities, these corps were able to attend to their own requirements to at least some extent because of the availability of their own motorized medical detachments. For an air fleet medical staff officer, as the medical officer responsible for a large command area, it was advisable to have a number of medical detachments available under his personal and direct command for quick assignment in cases of emergency.

b. Ambulance Trucks and Cars. Whenever and wherever the situation required, local transport capabilities could be increased through the temporary assignment of additional ambulance trucks.

An ambulance platoon had ten ambulance trucks with a carrying capacity of 40 patients in prostrate position or 80 patients able to sit up.

c. Motorized Field Laboratories. The necessary details on this subject will be found in the section on Hygiene.

f. Motorized X-Ray Screen Platoons. These were organized during the war as medical field units because it had not been possible to secure with certainty X-ray photos of

49 all military personnel during training and because the long duration of the war made it appear desireable to repeat the X-ray examination of personnel in units committed at the fronts.

Each X-ray platoon had a number of trucks . A standard trade model AET X-ray photo screen apparatus was mounted on one of these trucks, while the others carried along the necessary equipment and apparatuses. In order to enable the platoons to operate at all times and all places, each platoon had an engine-driven generator to furnish electricity for the X-ray apparatus and a dressing tent.

g. Medical Platoons. Medical platoons were small medical units designed to serve as a personnel reserve available to medical staff officers at air district command and corps headquarters enabling them to quickly replace losses in their units from their own resources. In the last years of the war these platoons were no longer of any significance owing to the general shortage of man power.

50 VIII. THE MOVEMENT OF WOUNDED PERSONNEL DURING WAR.

For the movement of sick and wounded personnel during the war, the following were available:

1. The ambulance vehicles available to each unit
2. The ambulance vehicles of the medical units:
   a. Medical companies
   b. AF Motorized medical detachments
   c. Ambulance truck platoons.
3. Hospital trains
4. AF ambulance plane detachments.

The ambulance vehicles organic to each military unit were either power-driven or horse-drawn according to the type of equipment of the division concerned. Such vehicles were used to move sick or wounded personnelnot capable of proceeding on foot from the troops unit to the unit's nearest transportation center. From there personnel were moved to the medical clearing station established by a medical company or by an AF motorized medical detachment. Here the suitability of bandages wwas checked, and the patient was examined to ascertain whether he was fit for transportation, upon which vehicles of the medical company or of the motorized medical detachment moved the patients to the hospitals. If necessary these units could receive additional vehicles to increase thei carrying capavities. From the hospitals patients were moved by hospital train or by ambulance trucks to farther in the

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rear (see sketch in appendix).

A new means of transportation for the evacuation of wounded personnel was used in World War II for the first time in the form of air transportation. For such purposes the German Air Force had

1. AF ambulance plane detachments
2. AF air transport units.

The ambulance plane detachments were independently operating medical units of the Air Force, each under the command of a medical officer with flight training. The Chief of the AF Medical Services allocated these units to the various air fleet or air corps headquarters. The local operations of the units were then under general supervision and control by the medical staff officer at air fleet or air corps headquarters. The actual operations were directed by the detachment commander on his own responsibility.

These detachments depended in their operations on the current military situation; on servicing facilities at the air bases (the availability of hangars, billets, fuel supplies, take-off and landing possibilities); on the current weather conditions; on requests submitted by appropriate medical authorities, such as installation chiefs, etc., for air transportation.

All of the above conditions could only be determined on the spot

51 spot, and this made it necessary to allow the commanders of AF ambulance plane detachments a large measure of freedom of action. It was also due to these compelling reasons that medical officers, in spite of the acute shortage in such personnel, were assigned to command these detachments. They alone were able to meet all requirements and to grasp fully the duties of an officer in command of an ambulance plane detachment. Their aviation training and experience enabled them to adapt the operations of their aircraft to current situations; in agreement with the responsible installation chiefs or physicians they could make a proper selection of the patients to be moved by air and to decide where they were to be moved to, besides giving special treatment during flight to any patient requiring such treatment.

It was an indispensable requirement for the officer commanding an AF ambulance plane detachment to have a clear picture in his mind of the overall medical situation, to be familiar with the receiving capacities of the various hospitals and to know the location and size of the various special departments for brain and spinal injuries, jawbone injuries, etc. The highly valuable points in an AF ambulance plane detachment commander with medical experience were that he could grasp quickly the essential features in the condition of a patient and insure

51 that patient's movement to where he would receive the proper specialize treatment. During quiet spells at the fronts, when hospitals remained stationary at one and the same location for any considerable time, this was not so very difficult. Durin
During major/military operations, however, and during mobile military operations, it required complete familiarity with the situation an with the appropriate medical and military authorities.

52 Each AF medic l plane detachment had five Type Ju-52 ambulance planes, a number of light liaison Storch-type planes, and the requisite flying and ground service personnel. For fuel supplies and maintenance and small repairs the detachment had to rely on the air port at which it was stationed. Prior to every displacement it was necessary to ascertain whether the air port to which the detachment was displacing was able to assume responsibility for these services, since it was known that the resources of the various air bases were limited and since any failure in these services would impair the operability of the ambulance plane detachment.

The Ju-52 planes used for the purpose were taken from the series intended for transportation planes an were adapted for their special purpose. The necessary alterations included installation of a heatin g system (electrically operated) and of a lining for the outer walls to improve heating of the interior and to absorb noise.

52 Twelve type 37 litters were stored in packages of three each along the sides. The advantage in using the standard military litter was that there was no necessity to lift the patient from the litter when loading or unloading the plane; empty litters from the plane could be handed over in exchange for those received with patients. Each plane could carry, besides the crew and baggage, twelve prostrate patients and four or five sitting patients, according to the quantity of baggage taken along. The crew comprised 1 pilot, 1 mechanic, 1 radio operator, and 1 medical NCO.

The medical supplies carried included small quantities of bandaging material and small quantities of medicines, such as heart and blood circulation stimulants, soporifics, and anodynes. No facilities were available for surgical operations. An oxygen outlet was in position next to each litter. When flying over sea lifebelts were provided, one for each occupant of the plane, in addition to two pneumatic boats with emergency equipment.

The Storch type light planes used in the medical service could carry two patients on litters in addition to the pilot. No attendant was carried on the light planes, since they were used only for transportation over short distances.

One important requirement for successful operations by ambulance plane detachments was proper integration of the

53 in the use of the Ju-52 and the light Storch type planes. The latter were used as feeders. Flying to the special air-strips for light planes as close to the front lines as possible they picked up wounded personnel there for delivery to the Ju-52 planes at the air bases fartheer in the rear for transportation to their final dxstination, a system which functioned excellently. In Russia, for example, it was possible by this means to move brain and spinal injury cases f om the front to the proper specialist hospitals so speedily that they were under proper special medical treatment, includine mental surgery when necessary, in the rearward installations within two to three hours after having been injured.

Besides the regular movement of patients by the regular medical aircraft, the evacuation of sick and wounded personnel by ordinary transportation aircraft on their return flights from the front gained steadily in importance during the war. Aircraft thus used received makeshift equipment to fasten the litters. Patients were carried either in agreement with the commanding officers of ambulance plane detachments or in agreement with the air port area command medical staff officer concerned. Reports are available on this type of operations covering the period up to the end of 1944 and show that upward of 2 000 000 sick and wounded personnel were

53 evacuated from front areas by air under this arrangement.

At the beginning of the war the question of the hazards of air transportation for wounded personnel, particularly for those with brain and lung injuries and those seriously weakened by loss of blood, was a subject for frequent discussions. In the light of past experience it can now be said that the risks of any recurrence of bleeding or of a circulatory collapse are very small, particularly if the planes fly at moderate altitudes, as was the case with the German Ju-52 medical planes, which always flew at altitudes below 3 000 feet except when crossing the Alps, where weather conditions frequently made it necessary to climb as high as between 16 000 and 20 000 feet. However, during my assignment as air fleet medical officer in Italy not a single case of any incident was reported, even from planes flying at such high altitudes.

A question which came up for frequent discussion during the war was that of how medical planes should be painted. The Geneva Rules contained no specific instructions on this point. Initially, the German Ju-52 and other medical planes were given a coat of white paint with a red cross on either side as well as on the top and bottom. However, the conspicuous white compromised camouflage at air fields and caused frequent enemy attacks. Thereupon, the planes were painted

54 the same as standard transport planes and marked with the red cross on a white background. However, even this painting and marking were discarded in 1943 since they provided no protection for the ambulance planes; in spite of the markings numerous of the Ju-52 medical planes were attacked and shot down in the west and in the Mediterranean Theater. As stated above, they were given the normal coat of paint from 1943 on and mounted the same weapons as standard transport planes for self defense. Whenever possible they travelled with normal transport planes under fighter escort.

A special branch of air transportation in coastal areas was that of the rescue of air craft crews in distress at sea by units of the Air-Sea Rescue Service.

According to the extent of his command area, each officer commanding an Air-Sea Rescue Service post had one or a number of air-sea rescue squadrons. The squadrons were equipped with aircraft constructed especially for the purpose of rescuing persons in distress on the high seas. The aircraft type most f eqeuntly in use for these purposes was the Dornier-Wal.

Air-sea rescue squadrons were distributed all along the coastline and had excellent communications among themselves and with their superior headquarters by wire and radio. Each squadron had a specially trained medical officer and a medical NCO, also with special training for t is type of operations.

54 Each squadron had its own dispensary, and where these dispensaries were not within the zone of a military hospital, they had all necessary equipment for hot baths and for speedy and proper medication of patients. According to the distress message received the medical officer or the medical NCO accompanied the pilot on his rescue flights.

I am throughly conversant with circumstances in the Mediterranean theater and can state that there the German Air-Sea Rescue Service rendered excellent service to friend and foe. The fact deserves emphasis here that the air-sea rescue units on both sides not only respected each others inviolability but even supported each other, although the planes used had no red cross markings .

On the subject of medical treatment for persons suffering from excessive loss of body heat the point must be stressed here that results obtained with the traditional methods of slow warming were not satisfactory. The methods of rapid heating in hot baths (at temperatures around 104° F.), which were introduced later, produced far better results bot in restoring respiration and in supporting blood circulstion.

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IX. HYGIENIC AND SANITARY SERVICES IN THE GERMAN AIR FORCE.

By Generalarzt (Brigadier General--Medical Corps), Consultant to the Chief of AF Medical Services on Tropical and General Hygiene.

DEVELOPMENT OF THE HYGIENIC SERVICES

During peace the AF Medical Services had no hygienic or sanitary branch of its own. The attitude adopted was that these services on the whole were of a territorial nature and as such had to be taken care of by the appropriate Army agencies for the Air Force.

Mobilization plans provided for the appointment of consultants on the subjects of hygiene and sanitary problems, namely, on the staff of the AF Inspector of Medical Services (later Chief of AF Medical Services) and on the staffs of air fleet medical staff officers. For the appointment as consultant to the Inspector of AF Medical Services care was taken to select an expert who could serve simultaneously as a consultant on tropical hygiene.

The hard facts of war soon showed that from the moment on when military operations assumed larger proportions and German troops occupied enemy territories the peacetime arrangement, under which the hygienic and sanitary needs of the Air Force were taken care of as a territorial matter by the Army could no longer be applied in practice. The reasons were as follows:

56 (1) Air Force units frequently had to establish themselves in areas in which the Army had no troops at all or only very small units;

(2) It was found during the war that sanitary personnel of the Army were so overburdened that they could barely meet the requirements of their own (Army) units and could not devote sufficient time to the problems of the Air Force;

(3) The nature of air operations creates special cir-
57 cumstances. It creates problems specific to an air force, which necessitate that the personnel handling air forces hygienic and sanitary problems must be members of the air force and adequately familiar with the operating conditions and requirements of the air force.

Due to the above reasons the Air Force Hygienic and Sanitary Servic s expanded considerably during the war.

As was the case in the Army and the Navy, there was no separation in the ~~XXXX~~German Air Force between medical and hygienic and sanitary services. The unit medical officer is the practising physician, fully responsible for all health problems of his unit and at the same time the advisor to his military commander on all matters of hygienics, sanitation, and health in general. Specialists on the subjects of hygiene and

37 sanitation are available only on the staffs of high level commands.

In the Offic of the Inspector (later Chief) of the AF Medical Services matters of hygienics and sanitation were dealt with by the following:

(1) a technical expert on hygiene who handled all routine matters, orders, regulations, etc.;

(2) The Consultant on Tropical and General Hygiene. This officer was the scientific advisor to the Chief of the AF Medical Services on all matters of hygiene. On staff trips he was to ascertain how the various regulations and instructions issued on the subject were implemented, study hygienic and sanitary conditions and requirements in the operational zones and in the zone of interior, and on the basis of these finding was to submit recommendations for the improvement of the services and the removal of unsatisfactory conditions;

(3) A statistical expert, since he from his knowledge of the sick reports received from units in the field knew the general health condition within the entire Air Force, with the exception of individual reports possibly submitted directly to the Chief of AF Medical Services on any frequent incidence of diseases of an epidemic nature.

57 Posts as consultants on hygiene and sanitation were filled by scientists of known reoute, such as university professors, the heads of independently operating research institutes, or elderly medical officials of the civil service who held reserve officer status in the Air Force. The following persons were appointed to positions during the war:

(a) Professor Dr. Rose, as consultant to the Chief of AF Medical Services on tropical and general hygiene;

b. Professor Dr. Knorr Dr. Muhlert Professor Schnell	as Colonel (Oberstarzt), Reserve Status.
Professor Ruge	as Air Fleet Medical Officer (temporarily attached from the Navy).
Professor Peter University lecturer Dr. Gaertner Dr Drastik Dr. Drewes	With rank of Major, Reserve Status
Megay	With rank of Captain, Medical Corps.

During the war each air district command established a staff sub-section for hygiene and sanitation, headed whenever possible by a professional expert on the subject, usually an official from the official health services, an assistant from a university institute for hygiene, and occasionally, since experts in this field were not easily available,

58 physicians who had specialized on the treatment of internal disorders o r children and who had experience in the field of contagious diseases.

The necessity arose during the war to establish Air Force bacteriological research stations. These served on the one hand to complete the Army network of such stations and on the other hand to provide possibilities for the specialists on hygiene and sanitation at air fleets and air district commands to carry out research with their own facilities. Finally, the controllers of the stations were to support their colleagues at air fleet and other headquarters in the outside duties so far as their time permitted. Two forms were adopted for such stations, namely, the motorized field-type laboratory,

59 and the stationary research station. Eight of the motorized laboratories were activated during the war and committed in operations outside of Germany up to the final stages of the war. In addition, three stationary bacteriological research stations were established with support from Air Force hospitals.

The mission of the motorized field laboratories and/or the stationary bacteriological reserach stations involved all functions performed nurmally by a health research office. Specimens sent in for analysis and research came not only from Air Force sources, but also from the Army and the Navy.

59 Just as all Air Force hospitals admitted personnel from all three military services, the laboratories and stations were available and at the services of the Air Force, the Navy, and the Army and all affiliated organizations.

The needs of the Air Force were the primary factor in determining where the laberatories and stations were to be located. Commitment of these units was controlled by the air fleet medical staff officers, whose mission it was to in agreement with the appropriate army group medical officer insure an equal subdivision of the areas serviced by the laboratories and stations of the Air Force and the Army. In coastal areas like consideration was given to laboratories of the Navy.

The table of organization for a field laboratory provided for two medical officers, and for a young assistant from a university institute for hygiene as chief.

Another advantage accruing from the establishment of Air Fore bacteriological research laboratories was that it created the possibility to employ young bacteriological-Hygiene experts in accordance with their training, and to prepare them for later assignment as consultants on hygiene and as air district command staff officers for hygienics.

In "Wehrhygiene" Handloser-Hoffmann in a short article d scribes the equipment of the Ai r Force motorized laboratories. Initially the laboratories had the outfit furnished

by the firm of Lattenschlaeger, Munich, which gave them research capabilities far exceeding those of the Army laboratories. However, this equipment proved too unhandy for field conditions ; furthermore, for reasons of supply it was found necessary to standardize equipment for the Army and the Air Force. For these reasons all laboratories later in the war as a rule were given standard Army equipment (see Lehrbuch der Wehrhygiene).

For malaria infested areas the Air Force established a special Malaria Study Group, with the mission of instructing all military medical officers within an infested area on methodes to control Anopheles mosquitos and of disinfecting their breeding places, and of carrying out such operations itself if the areas involved were large. Furthermore, the group had the mission of testing new methods developed under instructions from the Chief of AF Medical Services and reporting on the results achieved in field tests. These activities were carried out under supervision by the consultant on tropical hygiene.

When war spread to the Mediterranean Theater the necessity arose to employ entomologists. Accordingly, the necessary posts were created, beginning in 1940. In the Air Force, entomologists initially were employed in the "assimilated officer rank" (Sonderfuehrer) status. After this officer ca-

60 category was discontinued they were given the status of retired civil servants recalled for duty.

During peace the extermination of vermin and the fumigation of billets were matters of the billets administration services, with advisory support from the medical department. The billets administration servic s had no equipment of their own for fumigating, but had such work done under contract by private firms. This arrangement proved inadequate when the war spread and German troops occupied foreign territories. Local military health offices therefore organized their own fumigating teams.

Owing to the important role personnel and materiel decontamination played in p evention of spotted typhus, this was made a responsibility of the military medical services. In order to familiarize medical officer and non-officer personnel with the functions of decontamination, which were becoming growingly difficult and growingly large, abd in order to make

61 known to them the most up-to-date means and methods employed, special courses were conducted for such personnel, particularly at the Institute for Hygiene of the University of Wuerzburg.

One branch of sanitary activities which remained specifically a r sponsibility of the Air Force because of its technical aspects, was that of spraying by aircraft to destroy the brood of anapholes mosquitos. The aviation part of this

61 mission was a responsibility of the Aviation Society for the Protection of Forests (Forstfliegerschutzverband), while the Air Force Medical Services made the necessary sanitary personnel and entomologists available for execution of the mission. The Air Force had no peacetime experience whatever in this field, so that the initial operations of this type were of a purely experimental nature.

During the war medical authorities not part of the Air Force or of the military establishment at all also evinced an interest in the use of aircraft for anti-malaria action; therefore regulations were formulated establishing

.....that all requests for aircraft action to destroy anapholes brood must be examined and approved by the Office of the Chief of AF Medical Services before execution by the Aviation Society for the Protection of Forests.

In 1942 the increasing intensity of enemy air attacks against the German population created a series of unexpected problems, the scientific investigation of which was turned over to the Consultant on Hygiene. Special medical groups were organized in the various air district commands to examine on the spot new problems as they developed and to speedily bring the constantly changing local situations under control. In the air district commands these groups were headed by pathological anatomists or court physicians, while specialists on

61 hygienics, clinical medicine, and toxicology acted in an advisory role. In the Office of the Chief of AF Medical Services the Chief of the Hygienics Section (hygienischer Referent), the consultant on hygiene, and the consultant toxicologist participated in the scientific processing of the reports received regularly from these groups, with occasional support from the consultants on surgery and internal diseases.

62 Prior to the war the Air Force enlisted the aid of civilian scientific institutes , and supported them with funds and personnel, to investigate scientific problems of interest to the Air Force Medical Services in the fields of hygiene and sanitation. This practice remained in force during the first few years of the war , but as time passed the necessity made itself felt that the Air Force should have an institute of its own to handle such problems. The initial plans for this purpose were drawn up in 1941 and effectuated in the establishment of the "Institute of the Air Force for Military Hygiene (Institute fuer Wehrhygiene der Luftwaffe)" The institute started with two of its planned four departments, namely with Departments 1 and 4. Department 1 (Fever Therapy Department) investigated the problems of Malaria prophylaxes, Malaria treatment, diagnostics, and parasitology; Department 4 (Department for Vermin Extinction and Medical Entomology) concentrated in the beginning primarily on experimental tests with DDT preparations

62 and the general ~~[illegible]~~ biological problems of the destruction of pests.

The decontamination and disinfection platoons activated as a precaution against the eventuality of the use of toxic gases by the enemy were so equipped and trained that, if no gas warfare developed, they could to some extent be used in other decontamination and disinfection missions, and they were occasionally employed in such missions.

INSTRUCTIONS AND REGULATIONS IN THE HYGIENIC SERVICES

The most important regulations governing the action to be taken by military medical officers to prevent and/or combat epidemics were contained in Field Manual H.Dv. 200: Compilation--Bulletin on Medical Services (Sammelheft, Merkblatt fuer den Sanitaetsdienst) and Field Manual H. Dv.416: Decontamination and Fumigating Regulations for the Armed Forces (Entseuchungs- und Entwesungsvorschriften fuer die Wehrmacht). These two field manuals were applicable for the Army, the Navy, and the Air Force. In the Army they were numbered H. Dv. 209 and 194, respectively; in the Navy M. Dv. 284 and 277, respectively.

Field Manual H. Dv. 200 was arranged as a loose-leaf folder for interchangeable bulletins. During the war it was revised and supplemented extensively. This work was done in cooperation with the Army and the Navy. After creation of the

63 post of a Chief of Armed Forces Medical Services, the incumbent of that post assumed responsibility for revision of the bulletins.

"Instructions for Medical Officers (Anweisungen fuer Truppenaerzte)"were issued at irregular intervals dealing with special problems on the Air Force Medical Services.

The Decontamination and Fumigating manual (Entseuchungs- und Entwesungsvorschrift) published during peace proved inadequate during the war, since it failed to take into consideration wartime raw material shortages and the important progress made in th techniques of decontamination and fumigating. The whole manual was therefore completely revised. The new edition, which was far more voluminous and took into consideration all wartime experience, was completed but not published prior to the end of the war.

A manual prepared in cooperation by the Army, the Navy, and the Air Force and entitled "The Physician in Warm Climates (Der Arzt in warmen Laendern)" served to inform medical officers on the conditions they would encounter in warm climates. This subject was also treated in brief pamphlets disseminated among the troops.

Measures of hygiene not disseminated among the lower level agencies as general instructions were published as special items in pamphlets issued from time to time as

required under the title "Medical Experience in Air Warfare (Aerztliche Erfahrungen im Luftkrieg)," which were compiled in the Office of the Chief of AF Medical Services.

Instruction books under the titles "Military Hygiene (Militaerhygiene)" published in 1936 by Waldmann and Hoffmann and "Military Hygiene (Wehrhygiene)" published in 1944 by Handloser-Hoffmann were considered as semi-official. The work by Handloser-Hoffmann was supplementary to and to some extent could be considered as a revision of that by Waldmann und Hoffmann. The main purpose of the new publication was to familiarize unit medical officers with the problems encountered in the field during the war and to disregard subjects of little importance in the field or which had remained practically unchanged since 1936.

The Handling of Individual Problems of Hygiene--Reporting:

The problem of the spreading of epidemics through air traffic was dealt with in an apropriate chapter in the work "Wehrhygiene" quoted above, to which the reader is referred.

The hygiene and sanitary agencies participated in the handling of basic problems connected with measures to prevent the spread of veneral diseases. Here, overall responsibility rested with the consulting medical specialist for

64 dermatology and venereal diseases.

Anti-tuberculosis action in the Armed Forces relied primarily on two main preventive measures:

(1) The rejection of draftees suffering from tuberculosis. This measure was applied with support from the civilian health offices, and during the war the Armed Forces made X-ray screen platoons available for the purpose;

(2) Repeated mass X-ray tests of all members of the Air Force in orixr to detect any incidence of lung tuberculosis during the inceptive stages.

Occupational health problems and problems involved in the prevention of occupational accidents were dealt with in cooperation with the appropriate vocational branches of the Reich Ministry for Labor and of the Reich Health Office.

As previously mentioned work on urgent scientific problems was expedited through the awarding of research contracts. Problems in the field of hygiene and sanitation handled in this way during the war with support from the Chief of AF Medical Services included the following:

(1) Vaccines against spotted fever and anti-spotted fever measures;

(2) Grippe and influenzapproblems, including the possibilities for preventive injections;

64 (3) Causes and spread of Hepatitis epidemica;

(4) The use of DDT preparations to prevent spread of insect-borne diseases;

(5) Malaria prophylactics, treatment, diagnosis, recidiv prevention;

(6) Surgical skin disinfection;

(7) ~~XXXXXXX~~ Phlebotomon biology;

(8) Pappataci fever prevention and remedy;

(9) De-lousing equipment and methods, gas method, Ventox-Tritox, hot-air equipment;

(10)Sulphanomides in the treatment of injuries;

(11) Water treating equipment, particularly the colorination method and de-clorination with vapor-absorbing coal.

To the greatest extent possible all preventive vaccination and injections were carried out in agreement with the Army. After establishment of the Office of the Chief of Armed Forces Medical Services, that Office ordered all such measures in order to insure uniformity in the timing and nature of the vaccination. All special circumstances were taken into consideration, such as the necessity to immunize personnel in paratrooper units against tetanus, the immunization of youthful auxiliaries against scarlet fever and Diphtheria, and the necessity to avoid reimmunization against smallpox in the case of persons immunized

65 within the past two or three years.

The following immunizations were mandatory for all military personnel:

(1) Smallpox upon induction and every six years;

(2) Typhus (Paratyphus A and B) upon induction to be repeated every nine or twelve years (during the final stages of the war every six months);

(3) Cholera when circumstances required (1941-1944 in Russia and Africa);

(4) Dysentery (this immunization was mandatory in the Army until 1944 when it was discontinued, having proved ineffective);

(5) Spotted fever for medical personnel and others particularly exposed to infection as well as for all persons above 35 years of age;

(6) Serum prophylaxes against tetanus when wounded.

In order to insure speedy exploitation of the experience gained by the consultant specialists on hygiene and sanitation at the air fleets and at the air district commands a special reporting system was established. Apart from the regular experience reports thus turned in, it was the duty of such consultants to submit special reports whenever necessary on any important problems encountered. In addition, all consultant medical specialists of the Armed Forces in the subjects of tropical and general hygiene met at an annual

66 conference to exchange experience and formulate general directives.

The heads of the Medical Research Groups attached to the air district command medical staff officers to investigate impaired health through air warfare were required to submit monthly reports.

67 subject to prior approval by the local air district command medical staff officer. The local chapter of the Sick Fund Practitioners Unionnominated a dental surgeon to act as advising expert to the air district command medical staff officer on dental matters and on the subjert of paradentosis.

2. During War. Whereas it was possible during peace to insure poper dental care by means of contractual agreements obligating local civilian dental surgeons, the exigencies of war necessitated a complete reorganization of dental services for military personnel. It now became necessary to include dental surgeons, together with their instruments, in the mobile field medical units and in the other medical services with troops.

68 At the beginning of the war no uniform plans ~~existed~~ existed at the controlling medical authorities for the integration of dental surgeons in the Armed Forces. The Army and the Navy planned to induct dental surgeon personnel and give them assimilated officer rank (Sonderfuehrer), while the Air Force planned to integrate them with the medical officer corps as medical officers. Since no agreement could be reached, the Air Force put its plans into operation and integrated its dental surgeons with its medical corps as medical officers in the dental branch. They wore the same uniform and insignia as other medical officers in equal rank. This arrangement

68 worked out excellently and was adopted by the Army in 1942.

Dental treatment of military personnel in the Air Force was a responsibility of the following:

(1) The dental surgeons with the medical squadrons stationed at the air port commands;

(2) The dental and jawbone surgery departments of Air Force hospitals;

(3) The small dental surgery posts;

(4) The dental surgeons with medical detachments;

(5) The major dental surgery posts;

(6) The motorized dental surgery stations;

(7) The dental surgeons stationed with antiaircraft artillery regiments.

The basic idea in planning for the dental care of the troops was to provide as dense a network as possible of dental surgery stations in each air district command area.

Each medical squadron at air port commands had one dental surgeon and one dental technician; each medical detachment had two dental surgeons and two dental technicians; and each small or secondary dental surgery station had four dental surgeons and four dental technicians.

The small stations could be established whenever required. The large dental surgery stations had as many as twenty dental surgeons plus an appropriate number of dental technicians and other auxiliary personnel. The large stations were

69 established primarily in large towns and cities.

Motorized dental surgery stations were assigned to unit medical officers who, because of the nature of their assignments, were separated for periods of long duration from permanent supply bases. The stations had specially constructed vehicles in which they could give proper treatment and carry out all technical work required.

Unit dental surgeons were in the medical squadrons at air port commands and at antiaircraft artillery regiments. The maintenance of such squadrons with other arms and service units of the Air Forces would have been uneconomical, because such units were too widely scattered in small elements. For this reason they had to rely on the nearest unit dental surgeon or dental surgery station. Unit dental surgeons and dental surgery stations of the Air Force gave dental treatments to military personnel of the Army, Navy, or Air Force.

In each case the chief dental surgeon, when necessary in agreement or consultation with the locally responsible unit medical officer determined the nature and scope of dental treatment a patient was to receive.

The dental and jawbone surgery departments of hospitals served primarily to give treatment to persons with jawbone or facial injuries. The staffs included jawbone surgery specialists. Patients requiring stationary dental treatment were

69 also admitted, and dental surgeons from the department visited the other departments of the hospital to treat patients there. During periods when the dental surgery department was not overloaded, the policy was to take advantage of the time other patients spent in hospital, regardless of the ailment for which they were admitted, to carry out all necessary work they required of a dental nature.

At the outbreak of the war a dental surgery kit was available which had been developed under supervision by dental surgeon Major Dr. Witt, Branch Director in the German National Sick Fund Practitioners Union prior to the war and expert for dental services on the staff of the Chief of AF Medical Services during the war.

70 The entire outfit was packed in six cases, numbered 1 through 6, each of which could be handled easily by two men. The contents of the cases was as follows:

Case 1: Instruments for the maintenance treatment of teeth.

Case 2: 1 dentists chair.

Case 3: 1 dentists drill for electric or foot drive.

Case 4: Instruments for jawbone surgery.

Case 5: False teeth kit.

Case 6: Vulcanizing apparatus.

Everything was so arranged that the dental surgeon

could take along everything or only a part of the outfit according to current requirements or the possibilities for transportation. The contents of Cases 1-3 enabled him to give all treatment needed to conserve a patients teeth; Case 4 enabled him to carry out the most essential jawbone surgery; Cases 5 and 6 enabled him to make false teeth as required.

In the light of the excellent results obtained with the dental surgery outfit just described, a new and more extensive outfit, known as"Dental Surgery Outfit 41(das zahnaerztliche Geraet 41)" was issued in 1942. This outfit contained everything needed in twelve cases and could be broken down into three separate kits. namely,

Cases 1 and 2: Light kit.
Cases 1 to 4: Medium kit.
Cases 1-to 8: Heavy kit .

Cases 9-12 could be used as required to supplement the separate kits. The contents of the cas s were as follows:

Case 1: Top part of instrument closet with dental surgery instruments.

Case 2: Drilling machine.

Case 3: Chair.

Case 4: Lower part of instrument closet containing technician's appliances for manufacture of dentures.

71 Cases 5-6: Technical instruments

Cases 9-10: Technical instruments for steel work.

Case 11 : X-ray apparatus.

Case 12 : Kit for major dental surgery.

The stationary dental surgery posts located in large town were equipped throughout with normal standard trade type items such as oil pump chairs.

b. Dental Care of Military Personnel. According to the Medical Care Regulations contained in Field Manual L. Dv 93, Part 2 , military personnel were entitled to free dental treatment and the supply of dental plates if this was necessary to maintain or restore the health of the person concerned to render him fit for duty. Dentures which had to be furnished when necessary included crown teeth, bridges and dental plates. Fundamentally that form of denture was to be supplied which with the simplest means would most effectively achieve the medical purposes desired. Fixed dentures in the form of bridges had to be approved if the medical opinion was that they were essential, as was the case with flying personnel; musicians (in the case of front teeth); injuries leading to loss of the incisors, etc. During peace any major denture or gold work was subject to approval by the appropriate air district command medical staff officer; during the war only gold work required

71 approval by the Chief of AF Medical Services because gold supplies had to be centrally controlled. Otherwise all dental work could be approved during the war by the chief of the dental surgery station involved, if necessary in consultation with the appropriate unit medical officer. What made it possible during the war to dispense with the necessity for prior approval by the appropriate air district command medical staff officer was the fact that, in contrast with the peacetime practice under which civilian dental surgeons carried out the work, the responsibility for all dental work during the war rested with the medical officers of the dental

71a branch of the AF Medical Services. The basic rule governing the approval of dentures was that no tooth was to be drawn if it could be preserved. This was the reason why crowns were even made for the first back teeth, because in the case of young soldiers it was these first permanent teeth which frequently were most damaged, so that the only possibility to preserve them was by means of a crown.

Besides gold crowns, growing use was made of steel crowns. Steel techniques, using V2A steel or BH3 special refined steel, had been developed to high perfection in all details by Dental Surgeon Dr. Hauptmeyer, head of the Dental and Jawbone Clinic of the Krupp Works at Essen, during the past decades. Development of an easily transportable steel

71a press and a cast steel centriguge had made it possible to use these methods in the field. This had so far reduced the use of gold for crowns, bridges, plates, etc., that the gold supplies available to the Chief of AF Medical Services were never exhausted although reduced repeatedly. Both dental surgeons and dental technicians were given special training in courses on the use and processing of steel, and they and their p tients had developed such confidence in steel that its use grew steadily for all purposes. Rubber, in contrast, was used with less and less frequency, finally almost exclusively for the repair of old dentures. Its place was taken by artificial resin.

Among the various new materials placed on the market, Paladon became the most popular and was finally used almost exclusively, both for complete plates and for part dentures. Palapont, related to Paladon, served excellently for artificial teeth. The great advantage with both of these materials is the ease with which they can be processed, for which purposes no special tools are required. Other advantages are their satisfactory coloring, their light weight,

72 and the fact that they do not irritate the gums. Another newly introduced material tried out was Gingivist, which was even lighter. This material was also highly satisfactory, but was more difficult to handle under field conditions,

72 since it had to be treated in an oil bath under high pressure. Large use of Gingivist should be possible without complications under peace conditions.

Apart f om efforts to develop a field dental surgery service second in no respects to the treatment given under peacetime conditions, the German Armed Forces at all times devoted very particuler attention to the problems of paradentosis. Systematic treatment for paradentosis was introduced as far back as 1927 in the post-World War I 100 000-man army. The same system was taken over by the Air Force.

For each case of paradentosis detected Professor Weski, Berlin, was required to register a paradentosis status together with an X-ray status of the patient's teeth and recommendations for treatment. The paradenthosis status chart was forwarded together with all other data to the appropraite air district command medical staff officer, where the specialist on paradentosis treated the case. The treatment recommended by the specialist was approved and carried out by the medical officer treating the patient concerned.

Unit medical officers had instructions to watch out for cases of paradxntosis during medical examinations and to send forward all suspicious cases to a dental surgeon.

The measures d scribed above made it possible as time passed to detect cases of paradentosis in the early stages

72 and serious cases from then on were a rare occurrence. Most of the dental cases coming in for treatment from then on were light ailments, such as bleeding gums, small abcesses, or slightly loose teeth, and simple treatment was usually sufficient to remove the last traces of paradentosis, and thus preserve the teeth of the patients involved, most of whom were from among the younger age classes.

One more point deserves mention here on the subject of the campaign against paradentosis in the armed forces and that is that the systematic methods employed proved highly beneficial in its effects on the general health of the whole Nation.

Even to this day it is not possible to cure extreme cases of this ailment, and even close clinical observation of such cases has produced no indications as to the endogene causes of the ailment and thus also no indications for proper treatment.

The fact that the system employed in the German armed forces made it possible to treat the light cases in time to prevent their serious development can be considered a great success because in the case of many young people it prevented their early loss of their teeth.

74 XI. THE PHARMACEUTIC SERVICES IN THE GERMAN AIR FORCES.

These services in the German Air Force were in the hands of Air Force Apothecaries. As was the case with such personnel in the Army and the Navy, apothecaries in the Luftwaffe came within the bracket of higher grade military officials, which required university training.

Regulations required that to hold a regular position as a military apothecary, the applicant had to have university degrees both as an apothecary and as an authority on the subject of food chemistry, which required special study. This extra requirement did not apply to personnel in reserve status.

Military apothecaries received the same military training as candidates for the military medical services, and involved a tour od duty in unit medical services, promotion to the rank of assistant apothecary (Unterapotheker) with the rank of officer candidate NCO, followed by promotion, if adequately qualified, to the rank of Staff Apothecary with the status of a military official. All military officials in the higher brackets commenced their career in the rank of captain.

Rank designations for military apothecary personnel were as follows:

		Equivalent to
Staff Apothecary	(Stabsapotheker)	Captain
Chief Staff "	(Oberstabsapotheker)	Major
Chief Field "	(Oberfeldapotheker)	Lieutenant Colonel
Chief Apothecary	(Oberstapotheker or) Ministerial Councillor*) Ministerialrat*)	Colonel

* If employed in the Air Ministry.

74 Personnel in the ranks of Staff or Chief Staff Apothecary were assigned to head the dispensaries attached to military hospitals, or at medical supply parks and sub-parks. Chief Field Apothecaries and Chief Apothecaries were to head the medical supply parks or were attached to the various medical staff officers at the air district commands as Air District Command Apothecary Staff Officers. The Chief of Apothecary Services, at Headquarters of the Chief of Medical Services had the rank of a ministerial councillor.

The missions of Air Force apothecaries were as follows:

(1) To administer Air Force pharmacies;

(2) To administer medical supply parks, and sub-parks, and distribution or issue centers and points

75 (3) To direct and supervise the equipment of combat and medical units with medical bandagings and medical instruments;

(4) The following agencies existed for these purposes:

Within the Office of the Chief of Medical Services:

A Pharmaceutical Services Section headed by a ministerial Councillor (Air Force Apothecary).

Attached to the various Air District Command Medical Staff Officers:

(1) An Air District Command Staff Apothecary to handle all pharmacy problems under the Air District Command Staff Medical Officer;

(2) Medical Supply Parks (in the case of Field or Special Air District Commands the sub-parks) with their forward medical supply distribution points;

(3) The dispensaries attached to Air Force Hospitals.

75 Each combat, medical, or other unit forwarded its requisitions for medical supplies to the nearest medical supply distribution or issue point. Provided such requisitions corresponded to actual requirements in point of types and quantities, the distribution point met them if stocks on hand permitted. Medical supplies or instruments which were not standard items of equipment had to be requisitioned from the appropriate Air District Command Medical Staff Officer, who approved their procurement in line with established priorities, in times of peace if the budget permitted. In times of peace the Chief of Medical Services had to give prior approval for the purchase of any medical instruments costing more than 500 Marks (roughly 120 Dollars), since he controlled all funds for large purchases.

At the Office of the Chief of Air Force Medical Services the Chief of the Pharmacy Services Section handled the procurement of bandaging and other medical supplies and instruments for the entire Air Force. In the early stages some lattitude was allowed in the matter of such procurements, the procedure being that the Central Medical Supply Park at Berlin, as the main center for the entire military forces, furnished all supplies in accordance with requisitions received, while authority existed to purchase limited supplies in limited quantities on the open market. With expansion of the staff of the Reich Commissioner and Commissioner General for Medical and Health Services,

77 however, this supply system was discontinued. Procurement from then on was possible only through the Chief/Medical Supply Officer at the Office of the Chief of Military Medical Supply Services, who in turn was subject to the supplies of raw materials and finished products allocated by the Reich Commissioner and Commissioner General.

This new arrangement deprived all lower level agencies of their freedom of action. In addition, it made them dependent on agencies not organic to their branch of the military services. This was an unavoidable restriction, since the only way to insure that all requisitions would receive just treatment was by means of a strictly controlled and uniform system of allocation of the limited supplies available.

Regular tables of organizatuon and equipment existed for the madical supply parks and sub-parks, while the various medical supply distribution points received personnel and supply allocations in accordance with local circumstances.

The size of the medical supply sub-parks depended on the areas they were to service. The largest could be assigned as many as twenty apothecaries and administrative personnel.

Each medical supply park had three main branches:

(1) A medical supplies branch;

(2) a bandaging supplies branch;

76 (3) A medical instrument supply branch.

In addition, each park had one pharmaceuto.chemical and one food chemistry laboratory.

77 XII. SUITABILITY FOR AVIATION.

The following establishments were created to determine the suitability of personnel for aviation:

(a) Air Personnel Examination Points;
(b) Medical Observation Centers at Air Force Hospitals;
(c) Altitude Testing Stations;
(d) Sub-Normal Pressure Chamber Platoons.

Before being tested for suitability as airmen, personnel first underwent the normal examination to determine whether they were fit for military service in general. All applicants intended for flight training were given a perliminary examination by a military medical officer. If weaknesses were discovered at this stage which established with certainty that the applicant was unsuitable as an airman, no further tests were administered. If the applicant was found suitable, the examining medical officer reported him to the appropriate air district medical staff officer for tests to determine whether he met all requirements for flight training. The air district command medical staff officer appointed the time and place for such examinations.

Ad (a), above. The Air Personnel Examination Points examined applicants to determine whether they were suitable for assignment as flight personnel or as paratroopers. The details for such examinations were set forth in Air Field Manual L.Dv.

77 94: Regulations Concerning Medical Examination of Personnel to Determine Their Suitability as Airmen or Paratroopers (Vorschrift ueber die aerztliche Untersuchung auf Fliegertauglichkeit und Fallschirmschuetzentauglichkeit). One such examination point existed at each Air Force hospital in addition to points established in large cities and at other easily accessible localities, making a total of seventy throughout Germany.

If an airmen while on service developed complaints which impaired his aviation performances; or if his superior officer harbored doubt concerning an airman's physical or psychological suitability; or if an airman recovered from an accident or an ailment which might impair his aviation performances, the unit medical officer first endeavored to determine whether the subject person was still suitable. If he was unable to decide the point, or if the facilities at his disposal in the unit were inadequate for the purpose, he could follow one of two courses: He could either send the subject person to an Air Personnel Examination Point for renewed testing or, if he considered that a clinical examination was necessary, he could send him to a Medical Observation Center at one of the Air Force Hospitals.

Ad (b), above: The Medical Observation Centers had on their staffs medical officers with aviation experience, and if possible with training as specialists on internal disorders. The centers were known as Department VII at each hospital.

78 The whole series of tests was so arranged that it was usually completed in five or six days. When more time was needed this was in most cases due to some hitherto undetected ailment which rendered the person under examination unsuitable for further employment as an airman.

Ad(c), above: To complete the examination of prospective air personnel a system was introduced at the beginning of the war to test resistance to high-altitude conditions. It was considered unnecessary to test resistance at various altitudes and a test was administered only to determine resistance at an altitude of roughly 25 000 feet (7500 meters) as the most important altitude in actual practice, and the person under examination was given an appropriate admixture of air to breathe for this purpose. While sitting at a table breathing air with the appropriate deficiency of oxygen (an admixture with 7 percent O_2) from a gas cylinder, he was given the Lottig numbers test, which required him to write down numbers starting from 1000 and continuing downwards. He wore a normal altitude mask during the test and without his knowledge the oxygen content he was breathing was gradually reduced from normal to the required admixture, the examiner noting when he was no longer able to write the numbers in proper sequence or halting the test if the candidate showed signs of losing consciousness. As a rule, this happened after a candidate had breathed the oxygen-defi-

78 oxygen-deficient air for between four and five minutes. Resistance for less than four minutes was considered inadequate, above six minutes meant that the candidate was particularly suitable for high-altitude operations.

Whole aircraft crews were tested successively in this way, the rest of the crew looking on while one of their number was under the test. In this way each member learned to recognize the first symptoms of altitude sickness in himself and in other members of the crew.

Ad (d), above: Besides the normal training tests, possibilities existed to subject personnel to tests in altitude-pressure or sub-pressure chambers for special purposes. The German Air Force had such installations at numerous points throughout Germany. These were stationary installations, with very few exceptions developed by the firm of Zeuzem, Frankfurt on Main, and finally at Homburg vor der Hoehe. These chambers each had membrane apparatus and altitude control gadgets, as well as instruments to arrest and retain the exhaled air, temperature regulation, and intercommunications. A few, developed by the firm of Adlerhof, at Goettingen and Rechlin, had machinery to reduce temperatures to as low as minus 131 degrees, Fahrenheit (55° Centigrade). The chambers were round and could contain between 6 and 8 persons, as required, and proved very useful.

79 Sub-pressure testing chambers were available at the following points:

	Locality	Institute
1.	Koenigsberg, Eastern Prussia	Prussian Medical University Clinic
2.	Breslau	University Psychological Institute
3.	Greifswald	Air Force Hospital
4.	Kiel	University Medical Institute (destroyed by air attack)
5.	Hamburg	Institute for Aeromedicine
6.	Goettingen	University Psychological Institute
7.	Detmold	Air Base
8.	Halle on Saale	University Medical Clinic
9.	Halle-Doenau	Air Force Hospital
10.	Berlin	Research Institute for Aeromedicine
11.	Berlin	Charité Medical Clinic
12.	Berlin-Adlershof	Deutsche Luftsprotverband Institute for Aeromedicine
13.	Rechlin	Experimental and Research Station
14.	Cologne	Lindenthal Hospital "edical Clinic
15.	Duesseldorf	Medical Academy, Clinic for Internal Disorders
16.	Giessen	University Institute for Psychology
17.	Bad Nauheim	Kerkhoff Institute
18.	Frankfurt on Main	Air Force Hospital
19.	Braunschweig	" " "

79	20. Heidelberg	Heidelberg University Institute for Pharmocology
	21. Nuremburg	Air Force Hospital (destroyed by air attack)
	22. Freiburg	University Medical Clinic
	23. Munich	Institute for Aeromedicine (destroyed)
	24. Muenchen-Freising	An alternate station for Aeromedicine (destroyed)
80	25. Ainring	German Gliding Research Station (Deutsche Forschungsanstalt fuer Segelflug)
	26. Jena	University Medical Clinic
	27. Limburg on Lahn	Alternate station of the Kaiser Wilhelm Institute for Work Psychology
	28. Dresden-Klotsche	Air Base

In addition to the above installations, all of which were stationary, the need arose during the war to construct mobile altitude chambers which could proceed to air units in the field for special tests. These were developed with support from the firm of Zeuzem. The whole unit consisted of a Faun tractor of fifty horse power, the chamber truck carrying a chamber for eight persons, and the machine truck carrying the necessary engines and pumps together with an emergency Diesel-driven electric generator. In these chambers altitude changes could be varied by 3 300 feet per minute. Each altitude chamber (or sub-pressure) platoon was under the command of a medical officer supported by four medical NCOs, who acted as his

assistants, and two drivers, who were also responsible for maintenance of the machinery, plus one clerk and one medical NCO. The mission of these platoons was to administer Class 2 altitude tests for air operations at altitudes up to 40 000 feet in order to provide data for the study of meteorism and aerobolism.

Four platoons of the above type were constantly in operation with flying units.

Individual sub-pressure chambers were assigned to air units operating at high altitudes. The purpose here was to maintain the altitude resistance developed by personnel by means of a stay lasting ten days in very high mountains. This required a daily exposure of the personnel lasting one hour in the sub-pressure chamber under conditions regulated to an altitude of 16 500 feet.

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XIII. List of Institutes of Medical Science Controlled by the Chief of Air Force Medical Services.

Institute & Name of Chief	Departments Department Chiefs Assistants	Principal Fields under Study
1. Aeromedical Research Institute (Luftfahrtmedizinisches Forschungsinstitut) of the Air Ministry Berlin Director: Professor Colonel (Med.) Professor Dr. Strugold, finally at the University Institute for Psychology, Goettingen	Policy Branch: Major Professor Dr. Schuetz, Director of University Institute for Psychology, Meunster, Wuertemburg Assistants: Schmidt, d.med eng. University lecturer Autrum, Ph. D. Denzer, Ph. D. Major Dr. Rose Suchalla, Ph.D.	Pattern of altitude impact; Sensory-psychogic optics. EKG research. Bibliography of aeromedicine. Comparative psychology. Biological isotope research. Animal experiments.
	Department 1: Alti-Research University lecturer Dr. U. Luft	Altitude adaptability
	Department 2: Histo-physiology University lecturers Dr Opitz & Dr. Palme	Oxygen r quirements of tissues. Altitude resistance. Electroncephalography.
	Department 3: Respiration & criculation physiology Dr. Clamann	Measuring techniques, pressure-drop research. Oxygen poisoning. Sensory physiology
	Department 4: Accelleration problems Major (Med) Dr. Gauer, University lecturer	Accelleration research.
	Department 5: Experimental flights &	Oxygen poisoning; Altitude accidents; Thirst

81	Institute & Name of Chief	Departments Department Chiefs Assistants	Principal Fields under Study
1.		Policy Branch--Cont.	
		Department 5--"	
		Practical Problems. Major (Med.) Dr.Becken-Freyseng, University lecturer & Assistant Dr. K. Schaefer	thirst prevention for persons in distress at sea.
		Department 6:Nutrition Physiology. Major (Med.)Dr.Hansen, university lecturer and Assistant Dr. Habild	Special foods for aviators; General problems of troops nutrition
		Department 7:Outstation for Cerebral Research, Berlin-Buch. Lt.Col (Med)Professor Dr.Spatz;1st Lt.Dr. Noell,university lecturer; Major (Med.) Dr.Noetzel; Major (Med.) Dr. Welte	[redacted] Physiology & pathology of the central nervous system
		Department 8:Outstation for Aerophysiology. Lt.Col.Professor Dr. Rein,Goettingen;Major (Med.) Professor Dr. Schoedel; Major (Med.) Dr.Grosse-Brockdorf, university lecturer; Major (Med.) Dr.Martins; 1st Lt.(Med.)Dr.Loeschke, university lecturer	General physiology of the respiratory and circulatory systems. Oxygen insufficiency, and loss of bodily heat.
		Department 9: Outstation at Helmholtz Institute for Vibration Research,Brannenburg on the Inn. Major (Med.) Dr. Desaga; Major (Med.) Dr. Pichotka; Major (Med.) Dr. Reimann; 2d Lt. (Med.) Dr. Aschoff	Experimental station for passive air defense; Impact of detonations (air pressure); Dust effe ts.

82	Institute & Name of Chief	Departments Departmental Chiefs Assistants	Principal Fields under Study
2.	Institute for Aeromedicine, Hamburg (Institut fuer Luftfahrt-medizin in Hamburg) (Closed February 1945)	Major (Med.) Dr.Schwarz Major (Med.) Dr Danker	Suitability for aviation; Heart Collapse.
3.	As above in Munich Lt.Col.(Med.) Professor Dr. Weltz	Major (Med.) Dr.Lutz " " Dr,Wendt Dr.von Werz Dr. Seelkopf Courses on altitude adaptation: Major (Med.) Dr.Reichel " " Dr.Frank	Research on general problems of loss of body heat; Altitude research. Conducted on Zugapitze Mountain
4.	Institute for Aeromedical Pathology (Institut fuer Luftfahrtmedizinische Pathologie) Freiburg/Breisgau Lt.Col.(Med.) Professor Dr.Buechner	Major (Med.) Dr.Peters+ " " Dr.Altmann " " Dr.Schubothe	Pathology of oxygen insufficiency, loss of body heat, and aero accidents; General military pathological problems of the Air Force
5.	Medical Experimental and Training Bn of the Air Force (Sanitaets-versuchs- u.Lehrabteilung der Luftwaffe, Jueterbog	Major (Med.) Dr.Schneider " " Dr.Hanisch " " Viermetz Aero Engineer Boehme	Medical personnel test flights. Experiments. Support in development of aero equipment. Expert opinions on suitability of convalescent airmen prior to reassignment.
6.	Air Force Institute for Military Hygiene (Institut fuer Wehrhygiene der Luftwaffe) Professor Dr. Rose,	Department I: Fever theraphy; Major (Med.) Dr.Blaurock " " Dr.Boventer " " Dr. Kruepe Department 4: Harmful Parasites (Gesundheitsschaedlinge).	Malaria therapy. Malaria prevention. Malaria diagnosing. Mechanismy of therapeutic effects. Testing of new drugs.

+ University lecturer

83	Institute & Name of Chief	Departments Departmental Chiefs Assistants	Main Fields under Study
6		Branch 4--Continued Dr. Ermel	Anti-vermin biology. DDT preparations. Toxicology.

Departments 2 and 3 were not established.

Institutes under Functional Control by the Chief of Air Force Medical Services

7.	Institute for Aero-medicine (Institut fuer Luftfahrtmedizin) of the Deutsche Versuchsanstalt fuer Luftfahrt, Berlin-Adlershof	Dr. Romberg Major (Med.) Dr. Freitag " " Dr. Wuensche 1st Lt." Dr. Loeckle XXXXXX Dr. Ludwig	Aero-accident medicine. Aviation suitability. Acceleration & altitude research. Experimental flights.
8.	Medical Institute of the Aviation Research Establishment ~~XXXXXXXXXXXX~~ Munich. Major (Med.) Dr. Henschke+	1stLt. Dr. Keidel	Physiological optics aiming & sighting devices.
9.	Medical Department of the Graf Zeppelin Research Institute, Stuttgart-Ruit (initially a branch of the Rechlin Testing Station)	Buettner, Ph.D.+ Rehmann, Ph.D	Altitude (Pressure drop) research. Military climatology. Protection against cold & heat. Heat regulation. Psychology.

+ University lecturer.

84 XIV. BLOOD TRANSFUSIONS.

Facilities existed in the German field forces for the transfusion of blood or of blood substitutes, as follows:

a. by means of direct transfusion from the donor to the patient;

b. by means of the injection of conserved blood plasma;

c. by means of the injection of blood substitutes.

Ad [a] above: To facilitate the finding of suitable blood donors if the necessity arose, regulations required entry of the blood group of each member of the military establishment on the first page of his pay book. This entry was to be made immediately after induction.

Experience having revealed that these entries were not always reliable, it was recommended that a biological blood test should be made before any blood transfusion unless facilities were available to recheck the blood types of the donor and recipient.

The equipment of each medical unit included the necessary Braun type instruments for blood transfusions.

Donors were usually selected from among the close comrades of the patient, and whenever possible the donor was given an additional food ration for a few days.

Ad (b) above: At the beginning of the war Professor Viktor

84 Schilling, at the time Professor for Internal Disorders at the University of Muenster, developed and introduced for practical use a method to conserve blood plasma. This was supplied in 550-ccm containers with a content of approximately 300-ccm Type C blood plasma for direct intraveinous injection from the glass ampule after heating to body heat.

The blood plasma thus supplied could be stored for three weeks if kept at a suitably low temperature and protected as far as possible against vibrations. ~~Owing to~~ Its short duration and its sensitivity to outside influences impaired its usefullness for field purposes, so that it was not considered suitable. It proved almost impossible to transport it without spoiling to near-front areas. In rearward areas, on the other hand, it was not used because enough blood donors were available.

The use of this type of conserved blood plasma ceased in 1942, but work continued to develop better methods. A solution to the problem was found by Colonel (Med.) Professor Lang, who headed the Military Physiological Institute of the Army Military Medical Academy.

Lang based his work on his earlier experience which had shown that the injection of plasma had the same results as a blood transfusion, and succeeded in producing a dry preparation of plasma which met all requirements. Ample provisions

85 were made for the mass production of this new type of conserved dried plasma, but it was not yet introduced for general use by the end of the war.

Ad (a) above: Blood substitutes were carried in adequate quantities by all medical units, the most favored in use being Tutofusin, followed by Glucose and Normasol.

86 SPECIFICATIONS FOR CONSTRUCTION OF MODERN HOSPITALS

A. MASONRY CONSTRUCTION

1. Site. The site should have as wide a front facing south as possible, and should be distant from milit ry and industrial installations and rail depots. Care must be taken to insure favorable sub-surface water conditions, good communications, and a size calculated on the basis of roughly 240 square yards (200 square meters) per bed.

In the case of military hospitals particular importance attaches to the provision of large grounds in order to allow ample space for outside athletic and sports grounds. As a rule military patients have to be retained longer in hospitals than civilians, who are generally discharged sooner to their homes. Therefore, open-air games and sport under medical supervision are especially valuable to support full recuperation.

2. Size. The size of a military hospital will be calculated on the basis of the numerical strength of the units it is to serve. The factors to be used in such calculations will be 4 percent of the numerical strength of units stationed in the local military post plus 2 percent of the numerical strength of all military posts to be served which have no hospital of their own. Patients in the latter who cannot be transported will be moved to the appropriate local civilian hospitals.

86 The area to be served by a military hospital will be determined by road and rail transport facilities. With modern means of communications and transportation localities up to 45 or 60 miles distant can well be included in the area to be served by any one hospital.

3. The Hospital Buildings. For reasons of economy a return has taken place in modern planning for hospitals from the "pavilion" type layout to the "block" system. With the exception of a small isolation ward, which will be in a separate building, connected if at all possible by means of passages with the main building, all wards and departments will be in one main building The wards should face south. At ground level, they should have an outside terrace, while those in the upper floors should have balconies not wider than 3 feet to 3 feet six inches, so that the higher floor balconies will not place the lower in shadow. The medical attendance wing should, as a rule, be constructed vertically to the ward wing, to form a T-shaped outlay.

The type of construction should be adapted as far as possible to types most generally found in the locality, for example, brick should be used where brick structures are most common, natural or artificial stone where such structure is the general rule.

A hospital should never give the impression of being a

37 foreign element in its surroundings. Regulations required that in every newly constructed military hospital, local talent was to be employed in designing and carrying out decorations in the entrance halls, the stairwells, day rooms, dining halls, and all other premises serving to make the hospital livable.

For the internal planning it is a basic principle to keep all possible traffic and noise away from the premises where patients will be housed. For this purpose the hospital building should be located in such a manner that the larger part of the front garden will be in front of the south front, so that the wards will be at least 55 yards distant from roads and other sources of noise and disturbance. It is also essential to prevent all noise within the ward premises themselves, which can best be accomplished by the following measures:

(1) The main entrance should not be in the main front, which will face south, but at the western, eastern, or northern side of the building;

(2) The premises for medical attendance will not be within the ward premises but in a special wing. This will keep outside patients coming in for treatment away from the ward premises;

(3) Food distribution, and the dispatch and receipt of laundry should take place in separate premises. These

87 premises should be below the ground floor and connected with the kitchen and the laundry at the distribution level. From this basement level meals will be moved up by alevator to the tea and other rooms, linen etc. to the linen closets;

(4) No living quarters will be provided for medical officers, nurses, or medical NCOs and men within the ward premises;

(5) The departments. The types of departments and their size in various hospitals will be determined from case to case. Military hospitals had the following wards or departments:

Department I: For internal disprders
Department II: For surgical cases
" III: For skin and venereal diseases
" IV: For eye patients
" V: For ear, nose, and throat cases
" VI: For nervous disorders and mental cases
" VII: Dental cases
" VIII: Medical observation ward
" IX: For women (not exclusively gynaecological cases).

Each department could, according to size be sub-divided into one or more "stations" of 70 beds, each station being two attendance units.

This concept of attendance units (a unit bein, 30-40 beds) was established by the Hamburg architect Distel and must be understood to mean not only the neds but also all

88 rooms,etc., needed for their maintenance such as the wards, nurses' rooms (which will serve simultaneously as linen closets), bathrooms (12-15 patients per bathtub), a tea kitchen, wash rooms with one wash basin per four patients, toilets (with one basin and one urinary for each ten patients), one toilet for personnel, one room for dirty linen, dirty urinary jars, etc.

In addition to the above each station will have one room for the attending physician, one room for the senior station nurse, and one day and night guard room.

(5) The Wards. A minimum of 1225 cubic feet of space will be allowed per bed. This corresponds to roughly a height of between 10 and 11 feet and a floor space of 107.6 square feet per bed. The wards will have one- and two-bed rooms for serious cases and officers, and rooms with 4 and six beds for NCOs and men. The majority of the rooms must be for four beds. The floor space given above is perfectly ample for multi-bed rooms, but between 129 and 161 square feet should be allowed for single bed rooms. In cases of emergency it is thus perfectly safe to place 6 beds in a room intended for 4, and 8-10 in a room intended for 6 beds. Each single and double bedroom will have a wash basin, but not the rooms for 4 and 6 beds. Patients in these who can leave their beds will wash in the wash rooms, those who cannot

89 leave bed will be washed in bed.

(6) The Attendance Wing. This wing will usually be placed vertically to the ward wing and join it at its middle, so that the attendance rooms and their appropriate wards will be on the same floor level.

Each department must as a rule have

A waiting room
An orderly room (usually occupied by a medical sergeant) to serve simultaneously as anteroom for the medical officer in charge of the department
A room for the medical officer in charge of the department.

According to the medical fields involved, the individual departments will have the following rooms for the treatment of patients:

Department I: 1 medical examination room; 2-3 laboratory rooms (according to the size of the hospital); 1 EKG room; 1 room for determination of basal metabolism.

Department II: 1 surgery room for aseptic and one for septic cases, each to be between 12 and 14 feet high with a floor space of between 269 and 313 square feet (25-30 square meters) and each to have one anteroom and one washroom; 1 room for urological treatment (in the case of large hospitals) 1 gypsum work room, one bandaging room, 1 instrument sterilizing room, 2 preparation rooms, 1 room for medical officer, and one room for nurses.

90 Department III: 1 Medical Examination room, one bandaging room to serve also for minor operations, 1 laboratory room. In hospitals as they exist at present, this department also has the usual rinsing room for the customary treatment of gonorrhea, with a trough over which the patients rinsed their parts under supervision by a medical NCO.

Departments IV, V, and VII: Each one examination or consulting room (for Departments IV and V at least 20 feet long to permit tests for vision and hearing), and each one operating room for surgical operations.

Departments VI and VIII: Each one examination or consulting room.

Department IX: 1 Examination or consulting room , 1 delivering room (surgical operations were carried out in Department II). A nurse or midwife replaced the NCO on duty as orderly in the other departments.

7. Medicinal Baths Department. All methods of hydro and other physical therapy will be consolidated in this department.

One large room to contain 3 to 5 bathtubs, according to the size of the hospital, for the administering of baths with medical admixtures and for carbo or oxygen baths, plus one bathtub for underwater massage.

It is not considered advisable to have separate rooms

90 for each bathtub. Ventillation is better in a large room and patients do not feel themselves as confined as they would in the small space of a small cell-like single bath room. Supervision is also simplified. Separate groups of rooms will be available for mud packs and mud or sulphur baths, the odors from which would be a nuisance in the common bath room. In this group it is also advisable to include the bathtub for underwater tract rinsing, although these baths do not give off offensive odors.

Medicinal baths which proved particularly beneficial were those for the treatment of rheumatic ailments, nerve inflammations, general exhaustion, insomnia, and similar ailments. The method here was to place the patient in a tannine solution through which an electric current wass passed, similar to the "four-cell" bath system. These baths were called Stanger baths, after the name of the discoverer, a tanner master.

The Medicinal Baths Department will also have one or two rooms for electro therapy, containing the usual instruments for the purpose; an inhaling room for individual treatment; a hot-air bath; a massage room; an exercise room; and the necessary resting and dressing rooms, waiting rooms, wash rooms, and other r oms.

(8) The Pharmacy. The hospital pharmacy will be equipped and stocked with supplies to take care of the needs of the

91 hospital itself and of the troop units dependent on the hospital for the medical instruments and other medical supplies. The pharmacy will be headed by a professional apothecary with the status of a military official and in officer rank (captain or major rank).

Having to supply outside units, the pharmacy will incur considerable traffic. It is therefore advisable to locate it near the main entrance in order to avoid unnecessary entrance to the hospital proper by personnel arriving to pick up medical supplies and so forth for their units.

The pharmacy will have a drug room with all instruments required to make up prescriptions, although most of the medicines and drugs required will be available ready-made in the form of tablets, ampules, tubes, etc. It will also have a room for the apothecary; a chemical laboratory; a bottle cleaning room; and a store room, which will be subject to the special regulations governing the structure of premises containing flammable materials.

(9) The Kitchen and the Laundry. Both of these installa-

92 tions should be separate from the main hospital building, in one or two separate buildings according to the size of the hospital, so as to preclude any possibility of nuisance from the odors which might penetrate into the sick wards.

The lay out will be such that an entrance to the ward

92 wing basement can be provided, at what will be called the distribution level. From this padsage the meals coming from the kitchen and the linen coming from the laundry will be moved in the basement to lifts which will convey them to the ward premises.

Besides the normal cooking facilities one-third of the kitchen capacity will be clearly separated from the rest and reserved for dietary cooking, with separate boilers, stoves, kitchen utensils and supplies. Without such a clear cut division there would be no possibility to guarantee that diets would be prepared in complete compliance with requirements.

The laundry will comprise the usual washing, drying, and ironing machinery, besides mending facilities for the clothing of patients, storage rooms, and delivery points.

10. The Mortuary. An open space will be provided before the mortuary for the troops to form up who are participating in a funeral. The mortuary building itself will, in addition to the space where corpses will be kept pending burial services, contain a autopsy room, a small laboratorium, and a cold chamber in which to keep corpses.

11. The Boiler House. This will be the nerve center of all machinery: boilers for hot water supplies to the ward premises; Low-pressure steam for the central heating system; high-pressure

steam for instrument sterilization, and so forth, plus the electricity supply center together with the necessary transformers.

A requirement which must not be forgotten here is that of an incenerator in the boiler house to dispose of used bandages and similar offal customary in a hospital. This is an absolute necessity since such residue cannot be disposed of within the hospital departments, which will be centrally heated and therefore will have no open fire places, and since such residue should not be placed in the normal garbage cans.

The boiler house should also have coal storage facilities to contain supplies adequate for approximately four months.

12. Living Quarters for Personnel. Separate houses will be built to provide quarters for unmarried medical officers, officials, medical NCOs and men, as well as for the nurses and housekeeping personnel, for the latter if the isolated location renders this necessary. The following space is authorized for the various personnel:

Medical officers: 1 living & 1 bed room with a total floor space of 375 square feet (35 square meters).

Nurses : 1 living and 1 bed room with a total floor space of 323 square feet (30 sq.meters).

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Medical NCOs (Sergeant rank)	: 1 room with a floor space of 138 square feet (14 square meters).
Medical NCOs (below Sergeant rank)	: Per capita 106.3 to 128.9 square feet (9-12 square meters) of floor space in rooms for two or four persons.
Men	: Per capita 64.4 square feet (6 square meters) floor space in romms for four to six men.

In addition the necessary bathroom and toilet facilities were authorized.

The commanding officer and whenever necessary the department chiefs, machinists, married sergeants and other NCOs were provided government housing off the hospital premises, for which their rent allowances were deducted from their pay. The following floor space was authorized in such cases:

Commanding Officer:	A house with 1483.6-1591.2 square feet (140-150 square meters) of floor space.
Department Chiefs, Responsible administrative officials, etc.	: Per family an apartment with 968-1183.6 square feet (90-110 square meters) of floor space.
Sergeants, machinists, etc.	: Per family an apartment with 538-645.6 square feet (50-60 meters) of floor space.

B. HOSPITALS IN CANTONMENT-TYPE STRUCTURES.

In 1938 the general shortage of construction materials necessitated more simplified construction methods. Instead of the masonry structures of the past, troops in many cases were placed in cantonment type billets. The Construction Admini-

94 Administration Departments of the Army and the Air Force had developed standard types of cantonment type structures to be used for normal billeting purposes.

In order to adapt hospital construction to existing conditions measures were taken to develop from these standard types structures which would be suitable for hospital purposes. In size and outlay these structures were to be such that use could be made of the standard construction elements already ~~mmmxg~~ in serial construction. All planning was based on the development of 300-bed space hospital units.

The measurements of the standard type cantonment hospital building were as follows:

Length: 149.9 feet (45 meters); width: 41 feet (12.5 meters); Height (inside): 8.86 feet (2.7 meters), which allowed for a ceiling and a roof with a slight pitch. A passage 8.2 feet (2.5 meters) wide ran through the center of the entire length, leaving rooms 16.4 feet (5 meters) wide on either side. The length of the room depended on the number of sections making up its longitudinal walls; rooms could be constructed with 2, 3, 4, 6, or eight such structural sections.

Normally each room had four structural sections giving it a length of 16.4 feet. It thus had a floor surface of 268.5 square feet (25 square meters). By the standards established for mortar type buildings, this was sufficient for 4 beds. How-

94 However, it was used for six beds, implying a reduced floor space per bed which was considered justifiable in view of the existing circumstances.

The cantonment type structures had no cellars. They were mounted on morticed stone pillars. Each pillar had a central opening to take pipes for water supplies, water removal, and the heating system. The side sections had double wallsheld together by a timber framework with a thickness of approximately 3.94 inches (10 centimeters). The inner wall was made from a newly developed type of material consisting of an admixture of cement, wood fibre, and other elements. The outer wall was of timber, and the space between was filled with impregnated artificial materials, such as glass fibre or other insulating materials. In combination, the artificial materials used provided insulation and protection equivalent to that of a stone wall with a thickness of 9.85 inches (25 centimeters).

One important requirement was to group all rooms with water together, in order to obtain as simplified a pipe system

95 for the intake and outflow of water. Details on this point can be seen from the drawings which follow. The structures containing sick wards were lengthwise north by south, with the rooms facing east and west. The medical attendance building had rooms for surgical operations and laboratories and was connected by means of covered passages, which could be heated,

94 with the sick wards of their departments.

The hospitals thus established in cantonment-type buildings proved highly satisfactory, and a great advantage was that they could be built so much faster than masonry structures. The time required was between 6 and 12 months depending on the labor and materials available. In them patients can be cared for and treated in accordance with the highest modern standards of medical practices. The shelter they provide is good, and noise can be lessened if the passages are carpeted.

The above passages contain all that I am able to say which I consider of any importance on the subject of modern building construction for hospital purposes. Many details could be added, most of them dealing with construction processes.

One principle must be borne in mind in all problems concerning the construction of buildings for use as hospitals, and that is that all technical, housekeeping, and organizational measures taken must be adapted to the mentality of the prospective patients, most of whom will be young soldiers. All means and measures must be employed to insure that the soldier-patient will receive medical care and treatment commensurate with the highest modern standards. At the same time, however, care must be taken that his stay in a hospital will not estrange him from his normal military surroundings. For this reason, patients

95 in a military hospital must find themselves in surroundings resembling those of barracks life as closely as is compatible with medical considerations, and among other things this implies collective dormitory-wards, and collective life. Patients who can leave their beds will wash themselves in common wash rooms, will take their meals together in a common dining room, just as they do in barracks. They will participate in games and sport appropriate to their current physical condition and conducted in accordance with military principles.

In short, a military hospital should be more or less an ideally equipped and furnished barracks, but at the same time should bear the clear imprint of an establishment designed to serve the sick and the wounded from among military personnel.

96 Legend:

Grundriss eines neuzeitlichen Lazaretts	Ground plan for a modern military hospital
Behandlungsfluegel	Attendance Wing
Eingang	Entrance
Kueche	Kitchen
Waschanstalt	Laundry
Haupttreppe mit Fahrstuehlen	Main stairwell and elevators
Speise- und Waeschefahrstuehle	Elevators for food and laundry
Hauptkrankenblock	Main ward block or wing
Suedseite: Erdgeschoss unter Erdgleiche	South front: ground floor below ground surface
Nordseite: Erdgeschoss zu ebener Erde	North front: ground floor level with ground surface
Behandlungsfluegel	Attendance Wing
Erdgeschoss	Ground Floor
A. Baederabteilung	Medicinal Bath Department
B. Aufnahme, Apotheke, Telephonevermittlung	Reption, Pharmacy, Telephone Exchange
1. Geschoss	Second Floor
A. Chefarzt und Verwaltung	Commanding Officer and administrative offices, etc.
B. Behandlungsraeume der inneren Abteilung einschl. Laboratorien	Attendance and consulting rooms of Department for Internal Disorders, including laboratories
2. Geschoss	Third Floor
A. Operationsraeume	A. Surgical operation theaters
B. Roentgenabteilung	B. X-Ray Department
3. Geschoss	Fourth Floor
A. Lagerraeume (geringere Hoehe, da Oberraeume im 3. Geschoss hineinragen)	A. Store rooms (lower ceilings because upper rooms project into Fourth Floor).

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4. Geschoss

A. Versammlungs- und Festraum

B. Behandlungsraeume der Haut- und Geschlechtskranken-Abteilung

5. Geschoss

Dachboden

Fifth Floor

A. Meeting and Recreation Hall

B. Attendance rooms for the Department for Skin and Veneral Diseases

Sixth Floor

Attics.

97 Legend:

Behandlungs-Baracks mit Operations-Verbandsraeumen, Roentgenabteilung und Laboratorien	Attendance wing with surgical operation and bandaging rooms plus X-Ray Department and laboratories
Ascept. Op.	Aseptical surgery
St.	Steps
Sept. Op.	Septical surgery
Vorber. und Waschraum	Preparatory and washing room
" " "	" " " "
Arztzimmer	Room for medical officer
Verb. Raum	Bandaging room
Geschafftszimmer	Office
Arznei u. Verb. Mittel	Bandages, medicaments, etc.
Verb. Flur	Connecting passages
Lichtschl. zugl. Warteraum	Light shaft and waiting room
Dunkelraum	Dark room
Roentgen Raum	X-Ray room
Schalt Raum	Switch room
Roentgen Raum	X-Ray room
Geschaefts-Roentgen Archiv	Office and X-Ray photo files
Pers. Abort	Toilets for personnel
M.	Men
W.	Women
Laboratorien	Laboratories
Labor Geschaeftsz.	Laboratory office.
Vorfahrt	Driveway

Legend:

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Schwestern Unterkunft	Nurses' quarters
Elektro- u. Hydro-therapie	Electro- and Hydrotherapy
Heizung	Heating furnace (boiler room)
Waschanstalt	Laundry
Kueche	Kitchen
Serving room	Dining room for officer personnel
Innere Abteilung	Department for Inte nal Disorders
San. Off. Unterkunft	Medical officer quarters
" " Speiseraeume	" " dining rooms
H. N. C. Abteilung	Ear, Nose, and Throat Department
Behandlungsbaracke	Medical Attendance Building
Aug. Abteilung	Opthalmic Department
Zahnarzt	Dental officer
Chir. Abteilung	Surgical Department
Sicht. Abteilung	Medical Observation Department
Verwaltung	Administration
Chefarzt	Commanding Officer (Medical)
Apotheke	Pharmacy
Uffz.-Unterkunft	NCO quarters
Kammer	Clothing store room
Hpt.-Eing.	Main Entrance

99 Legend:

Krankenbaracke mit Verbindungsgaengen, 40 Betten ohne Behandlungszimmer	Ward Building with connecting passages--40 beds. Not showing medical attendance rooms
2 Betten	Two-bed room
4 Betten	Four-bed room
Bad	Bath room
Arztzimmer	Room for medical officer
Waschraum	Wash room
Schwester	Room for nurse
Teekuecke	Tea kitchen
Abort	Toilet
Wachdienst	Guard room
Schreibzimmer	Office

100	Krankenbaracke ohne Verbindungsgaenge, mit 34 Betten fuer Haut-, Geschlechts-, Augen-, Hals-, Nasen-, Ohren-, Zahn-, Mund- u. Kieferkranken, Sichtungs-Abteilung u. Behandlungsraeumen	Ward building (not showing connecting passages) with 34 beds for patients under treatment for skin, venereal, eye, throat, nose, ear, teeth, mouth, and jawbone diseases and other ailments; Observation Department and attendance rooms
	Lichtschleuse, zugl. Tagesraum	Light shaft, serves also as day room
	Abort	Toilet
	2 Betten	Two-bed room
	4 Betten	Four-bed room
	Schmutzraum	Scullery
	Schwesterzimmer	Nurses' room
	Wachdienstraum	Guard room
	Arzt Zimmer	Medical officer's room
	Behandlungs-Zimmer	Medical attendance room
	Labor u. Dunkelkammer	Laboratory and darkroom

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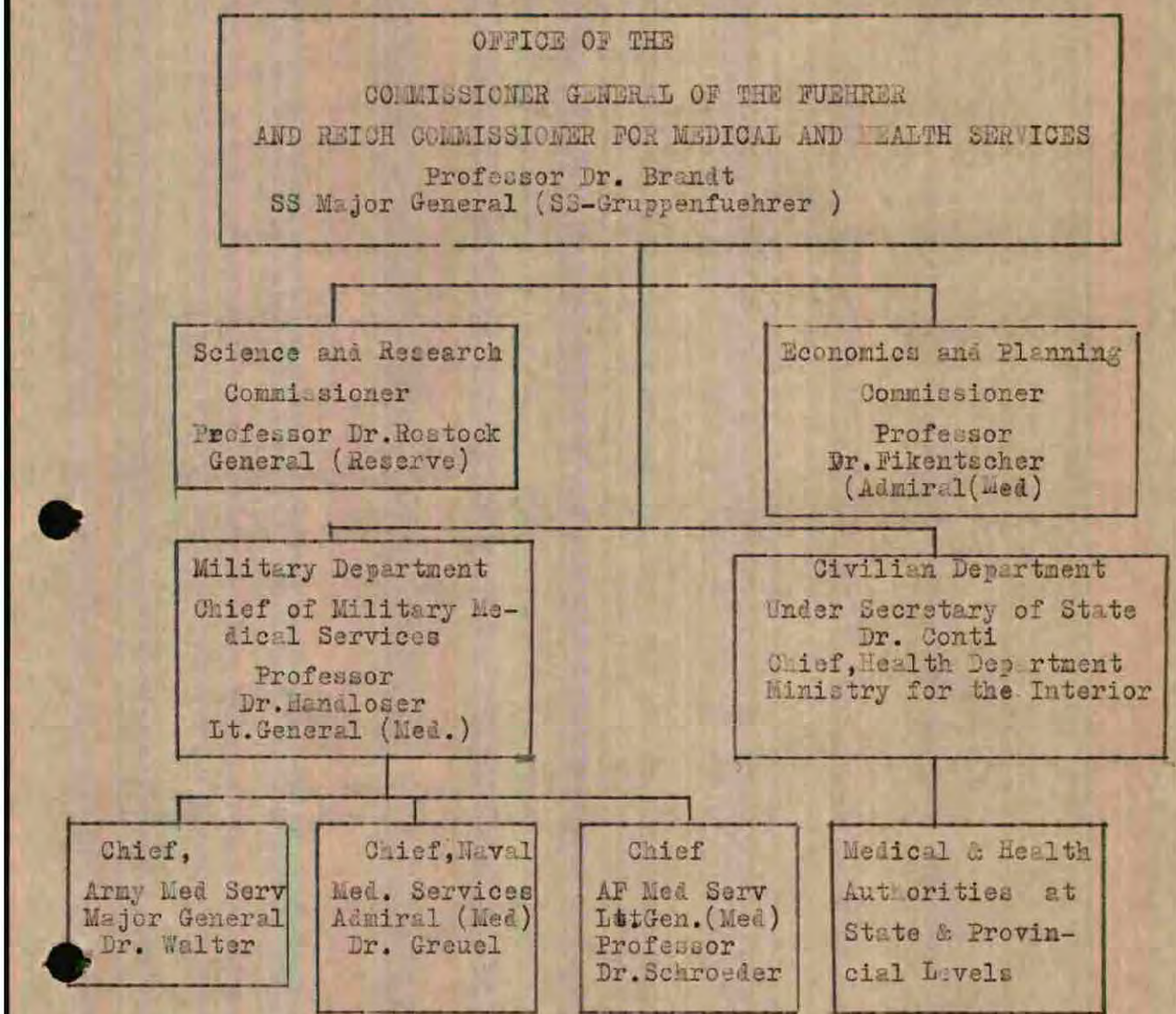
APPENDIXES TO THE ENTIRE STUDY

APPENDIX 1

ORGANIZATION TABLE



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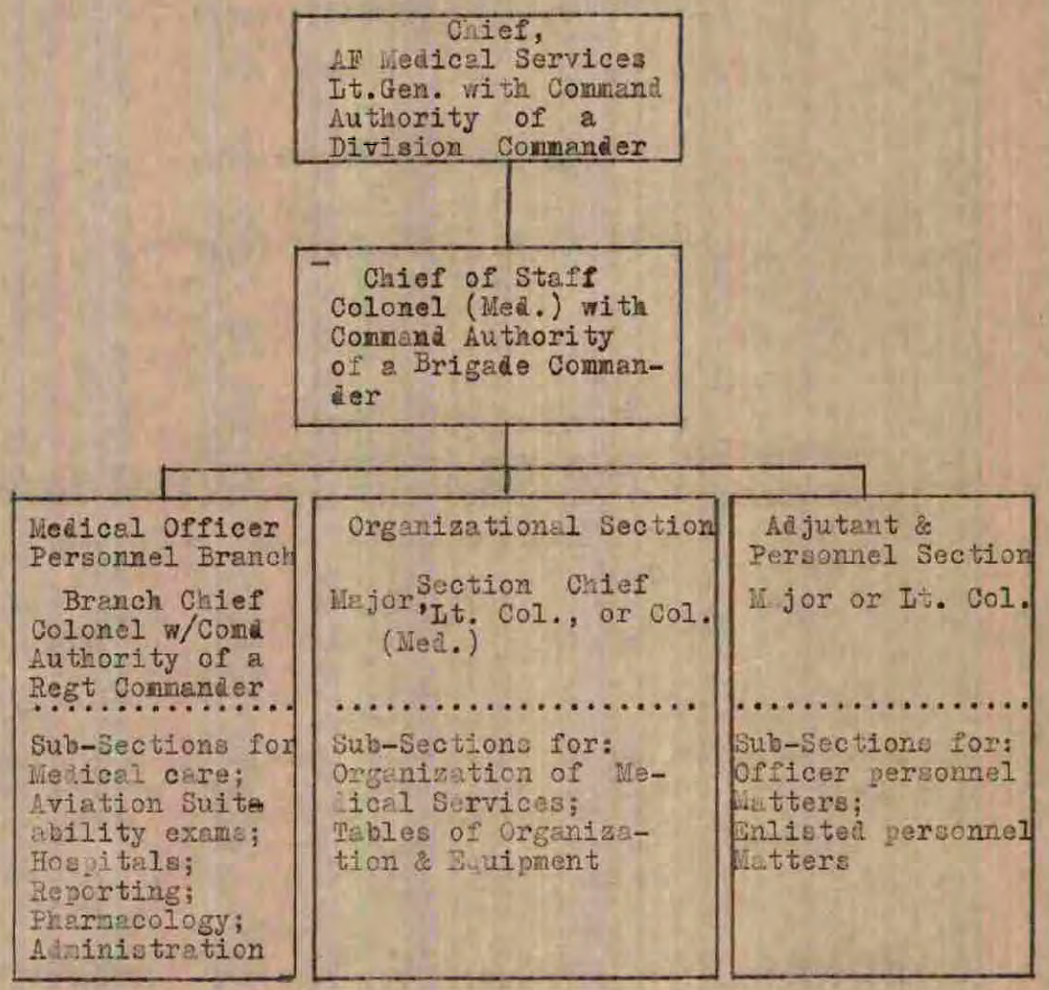
APPENDIX 2

AIR FORCE MEDICAL INSPECTORATE
(Inspectorate 14)

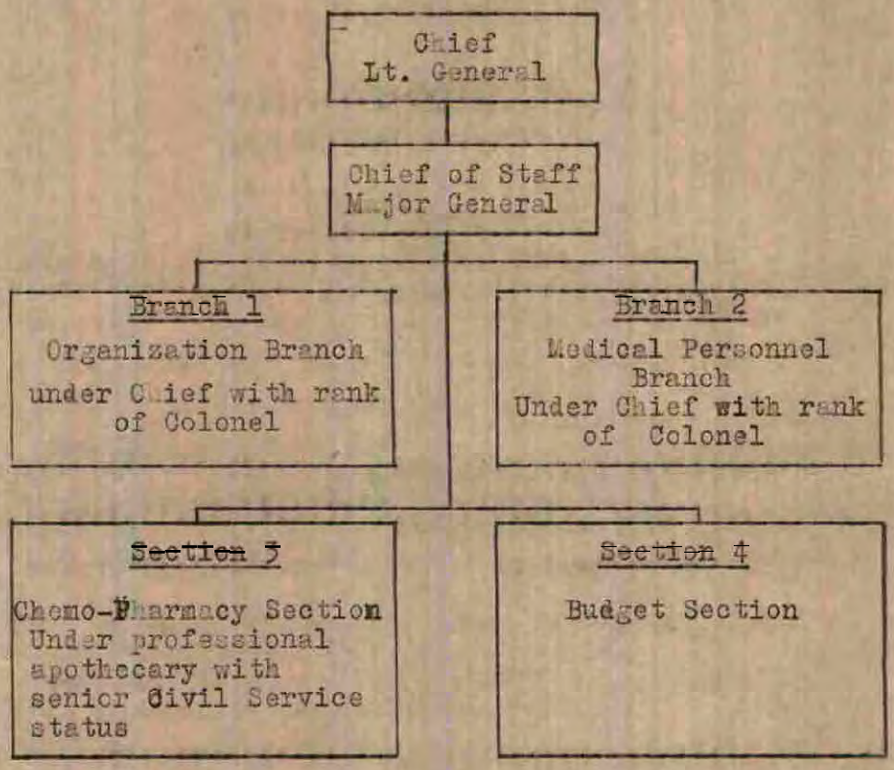
Table of Organization
Status 1937



APPENDIX 3

AIR FORCE MEDICAL INSPECTORATE

Table of Organization--Status 1943



The Chief of Branch 2 was assisted by 6 consulting physicians, specialists on various medical subjects

All sub-sections were headed by medical officers with the exception of the section handling the affairs of officer personnel in the airborne ambulance units.

For organization of Branches 1 and 2 see page 168

" " " Sections 3 and 4 see page 169.

APPENDIX 3

AIR FORCE MEDICAL INSPECTORATE

Table of Organization--Status 1943--Continued

BRANCH 1

Sub-Section Ia

Organization & Airborne Ambulance Units
(3 Consultants)+

Sub-Section IB

Airborne Ambulance Unit Records; Service Regulations
(1 Consultant)

Sub-Section IC

Tables of Organization & Equipment
(1 Official--Intermediate Grade)

Sub-Section ID

Top-Level Personnel Assignments in Med Serv; Control of Medical Specialists; Adjutant Sec.
(1 Consultant)

Sub-Section IE

Training & Control of Lower Grade Med. Pers.
(1 Consultant)

Sub-Section IF

Personnel Matters of Voluntary Female Nurses & Auxiliaries
(1 Consultant)

Sub-Section IG

Passive Air Defense Med. Services
(2 Consultants & 1 Official--Senior Grade)

BRANCH 2

Sub-Section 2A

Medical Care; Dental Care; Hospitals
(3 Consultants)

Sub-Section 2B

Hygiene
(1 Consultant)

Sub-Section 2C

Medical Reporting
(1 Consultant & 1 Official --Intermediate Rank)

Sub-Section 2D

Medical Officer at Air Ministry
(6 Medical Officers)

Sub-Section 2E

Aviation Suitability & Personnel Assignment Problems
(1 Consultant)

Sub-Section 2F

Aero Medicine & Research Assignments
(2 Consultants)

Sub-Section 2G

Scientific Literature

Sub-Section 2H

Press & Film Matters
(1 Consultant)

+ The German term "Referent" has been translated as "Consultant" because it implied more than merely reporting.

APPENDIX 3

AIR FORCE MEDICAL INSPECTORATE

Table of Organization--Statut 1943--Continued

Sub-Section 3A

General Chemo-Pharmaceutic. Matters
(1 Apothecary with rank of Senior Official)

Sub-Section 3B

Medical Supplies Procurement & Operations
(1 Apothecary with rank of Senior Official)

Sub-Section 3C

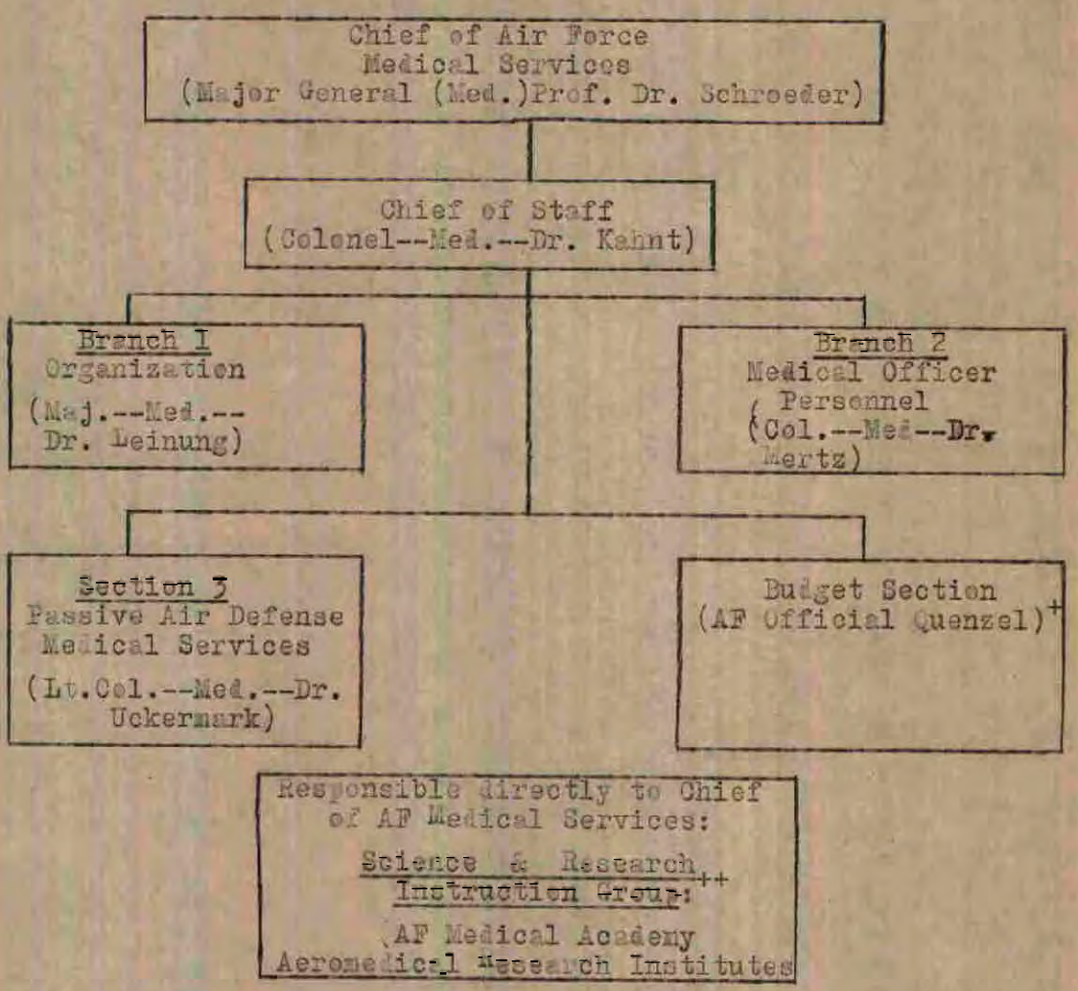
Personnel Affairs of Apothecary Personnel
(1 Apothecary with rank of Sevior Official)

Sub-Section 4

Budgetary & Housekeeping Matters
(2 Officials, 1 Senior & 1 Intermediate Rank)

APPENDIX 4

OFFICE OF THE CHIEF OF AIR FORCE MEDICAL SERVICES
TABLE OF ORGANIZATION



\+ An administrative official with field grade rank (Ober-Feldintendant).

++ With medical consultants.

For organization of Branches 1 and 2 and Section 3 see p. 171.

OFFICE OF THE CHIEF OF AIR FORCE MEDICAL SERVICES

TABLE OF ORGANIZATION--Continued

BRANCH 1

Sub-Section I A
Organization
(Maj.~~SS~~Med.--Dr.Leinung)

Sub-Section I B
Med.Unit Records; Service Regulations
(Maj.--Med.--Dr. Bufe

Sub-Section I C
Hospital Matters
(Lt. Dr. Zeitzler)

Sub-Section I C
Airborne Ambulance Units
(Captain Roehm)

Sub-Section IIa
High Pers.Assignments, Control of Med.Specialists,Volunteers
(Maj.Dr.Augistinick)

Sub-Section IIB
Basic & Advanced Tng of lower level Med. Serv.Personnel
(Capt.Dr.Hallermann)

Sub-Section III A
Chemo-Pharmac.Matters
AF Official Scheiber+

BRANCH 2

Sub-Section I A
Medical Care
(Major Dr. Grimm)

Sub-Section I B
Hygiene
(Captain Dr.Ahmer)

Sub-Section I C
Dental Services
(Major Dr. Witt)

Sub-Section II A
Aeromedicine
(Captain Dr. Becker-Freyseng)

Sub-Section II B
Aero-Suitability of Personnel;Supplies
(Captain Keiler)

Sub-Section III A
Medical Reporting
(AF Official Langhoff++

~~Section 3~~

~~Passive Air Defense~~

~~(Captain Dr.~~

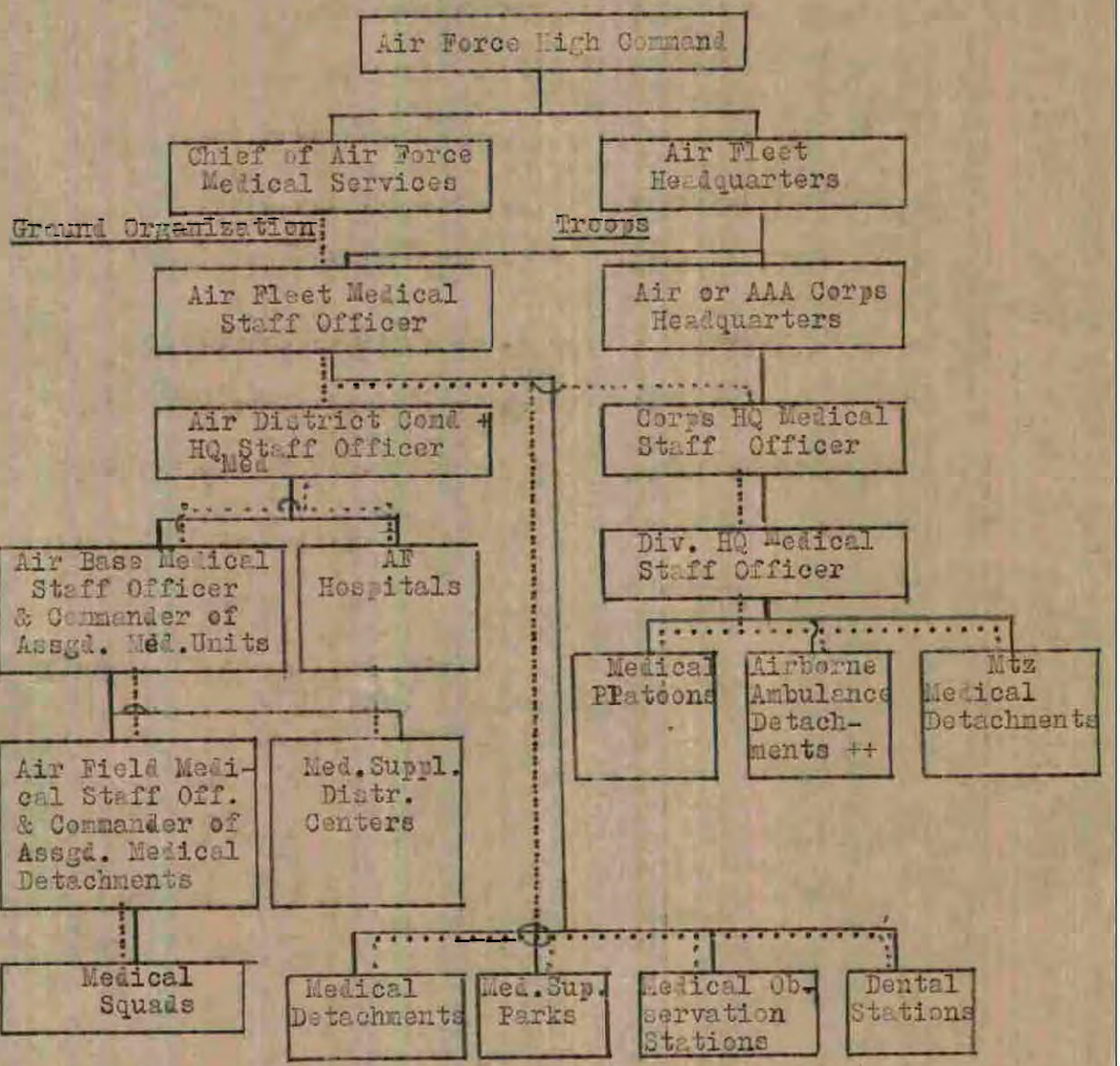
Sub-Section 3 A
Passive Air Defense Medical Services
(Captain Dr. Lock)

Sub-Section 3 B
(Major Dr.Heltemeier)
Gas Defense

Sub-Section 3 C
(Asst.Med.Officer Dr. Schelda)
Instructions to Passive Air Defense Med.Service Personnel at Reich In-Institute of the AF for Passive Air Defense

+ "Ministerialrat," equivalent to Colonel.
++ "Stabsintendant."

AIR FORCE MEDICAL SERVICES
TABLE OF ORGANIZATION AND COMMAND CHANNELS



Legend.

Solid Lines :	Tactical Control
Dotted Lines:	Functional Control
Solid and Dotted Lines:	Tactical and Functional Control
+	The Air District Command HQ Medical Staff Officer was tactically assigned to the Air District Command
++	Only at Air Fleet, Air Corps, etc. Level.

APPENDIX 6

TRAINING OF MEDICAL OFFICER CANDIDATES AND OFFICERS

Year	Rank	Training Given
1st		Obligatory 6 months in Reich Labor Service
	After 6 months basic military training Off Cand Pfc+	Six months basic military training and optional Off Cand course
2nd	After 12 & 18 months, respectively, Corporal and Sergeant Off Cand++	Two semesters University. First preliminary exams. During long vacation 3 months at military service school.
3rd	After 24 months Master Sergeant Off Cand+++	Two semesters University. Second primary Exams. During vacation courses at sport and glider aviation schools
4th		Two (making total of 6) semesters medical studies
5th		During vacation medical attendance course. Course as assistant at glider aviation.
6th		Service with field units, Air-Sea Rescue Services, etc.
7th	After completion of studies Assistant Medical Officer	Final exams. Commencement of obligatory year as assistant in a hospital.
8th	1st Lieutenant (Med)	Conclusion of obligatory year as assistant in hospital. Assignment as assistant unit medical officer
9th		Assistant unit medical officer
10th	Captain (Med)	Unit medical officer
11th 12th 13th		3-monthly rotation assignments for advanced training and as adjutant, etc., and training training in aviation and aeromedicine or training in some specialized medical field.

+ Fahnenjunker-Gefreiter.
++ Fahnenjunker-Unteroffizier and Fachwrich.
+++ Oberfachwrich.

APPENDIX 7

FINAL REMARK BY AUTHOR

The methods employed by the German Air Force and the subject of German aeromedicine are treated in detail in the two volumes of

GERMAN AVIATION MEDICINE, WORLD WAR II,

prepared under the auspices of the Surgeon General, U. S. Air Force and published in April 1950 by the Department of the Air Force.