COPY NO.

AVIATION MEDICINE, GENERAL MEDICINE, VETERINARY MEDICINE, CHEMICAL WARFARE

[redacted]

COMBINED INTELLIGENCE OBJECTIVES
SUB - COMMITTEE

1945

[redacted]

AVIATION MEDICINE, GENERAL MEDICINE, VETERINARY MEDICINE, CHEMICAL WARFARE

UNIVERSITY OF GOTTINGEN

18 April 1945 to 27 April 1945

CIOS Target Nos. 24/17 & 25/82
Medicine
Aircraft

COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

[redacted]

S-E-C-R-E-T

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Commander A.J. Vorwald (MC) USNR	Team Leader
W/Commander R.H. Winfield, RAF.	Deputy Team Leader
Colonel Francois Reynolds, U.S. Army	
Colonel Herbert Wright (MC) USTAAF	
Commander Fitz Weddell (MC) USN	
Major S. Curwen, RAMC.	
Major Francois Chinard (MC) USTAAF	
Captain Carlo Henze (MC) Office of the Chief Surgeon ETOUSA	
Captain J. Harley Mason, RAMC	
Captain Anthony Domonkes (MC) USTAAF	
Surgeon Lieut. J.E. Gabb, RNVR	

PART I

AVIATION MEDICINE

1. The Target

The target located in Gottingen, Germany, consisted primarily of the Physiology Institute attached to the Medical School of the University. This Institute had been actively engaged in Aviation Medical Research under the direction of Professor Hermann Rein.

In addition, Dr. Hubertus Strughold, Director of the Aviation Medical Research Institute, Air Ministry, Berlin, and some of his colleagues now prisoners of war at the Institute were available for interrogation.

Furthermore, Gottingen contained a large Aerodynamics Institute and a number of optical works. These were only of secondary interest as targets for investigation by the medical team.

The air field, a few miles outside of Gottingen, was largely destroyed. Nevertheless, this too was briefly investigated in the interest of Aviation Medicine.

2. Personnel Interrogated.

A. Dr. Hubertus Strughold, a Colonel in the Luftwaffe and Director of the Aviation Medical Research Institute, Berlin: Strughold was the mainspring of German Aviation Medical Research. He did Post Graduate work in America during 1929, 1930 and 1931. Most of his time was spent at the University of Chicago, Northwestern University and Western Reserve.

B. Professor Hermann Rein, Director of the Physiology Institute of the University of Gottingen.

C. Frauline, Dr. Ingerbor Schmidt, a colleague of Strughold and reputed to be an authority on vision.

D. Dr. Rosé, a Lieutenant Colonel in the Luftwaffe, a colleague of Strughold and interested primarily in vision.

E. Dr. Jurgen Aschoff, the son of the well known pathologist Ludwig Aschoff. He worked at the Institute and his interest related to acclimatization, temperature control and physiological reactions of the body to variations in ambient temperature and humidity.

3. Information Obtained by Interrogation.

A. In general, interrogation revealed very little information not already known by the Allies. Even though the interrogatees apparently cooperated to the fullest, it soon became evident that German research had failed to solve many of the current medical problems pertaining to aviation. Although numerous observations were divulged with enthusiasm nevertheless most of them had long since been made and applied by the Allies.

It appears therefore that German investigators suffered tremendously from their isolation. Knowledge and developments apropos aviation medicine were not coming to them from outside their sphere of domination.

B. Colonel Strughold revealed that his work at the Aviation Medical Research Institute in Berlin was largely academic. This is somewhat contrary, however, to impressions gained by reading his various monographs and many articles published in the German Journal "Luftfahrt Medizin". He disclosed, also that he visited various activities of the Luftwaffe to give lectures relative to oxygen and oxygen indoctrination.

Of significant value to the Allies is the fact that a Japanese scientist worked in Strughold's laboratory for two years. He was identified as a Dr. Murai and was reported as having gone down in a Jap U-Boat sunk somewhere in the Pacific on its return to Japan. Nevertheless it was surmized that he had transmitted much information to Japan apropos German Aviation Medicine. Not only was this information relevant to activities in the Central Medical Laboratory, but probably concerned also other medical research centers throughout the Reich.

Strughold was considerably disturbed about the welfare of his staff who, unable to evacuate Berlin, were now threatened by the Russians. In this respect, he frequently

mentioned his colleague Dr. Ulrich Luft. Latest information placed Luft at 74 Kaiseralle, Berlin, Wilmersdorf or at the Kaiser Wilhelm's Institute, Berlinerbuch. A number of other experts were also mentioned including Professor Jungbluet at Utrecht, the man who first described air embolism; Dr. Hanson at Halle, an expert on nutrition at high altitude; Professor Knothe at Jutebog, and expert on clothing and chief of Air Evacuation for the Luftwaffe.

In addition, Strughold repeatedly expressed great concern about the whereabouts of his records and scientific equipment. Although much of it had been shipped out of Berlin it had never arrived in Gottingen. Latest underground information coming to Strughold places the equipment in a barracks and two freight cases in Tepel, a small village near Marienbad and in a freight car in the town of Neustadt on the Orlar river near Erfordt. His records were reported to be in the private library of a convent in Tepel also in a library in Frankfurt on the Oder.

Considerable time was spent viewing a number of rolls of movie film which Strughold had prepared in Berlin. He prized these very highly and made a great effort to bring them personally to Gottingen. The films were exceptionally good. They depicted nothing new or striking however. The agencies of Britain and America have long since produced similar preparations. The films have been included in the pouch forwarded to the Secretariat, C.I.O.S. Copies should be prepared and distributed to the interested agencies of the Royal Navy, the Royal Air Force, the U.S. Navy and the U.S. Army. The films having priority for copy and distribution may be listed as follows:

(1) "Unterbrechung der Sauerstoffmung in Verschiedenen Hohen". 1 roll.

(2) "Elektroencephalographie" 2 rolls.

(3) "Beschleunigungsfilm". 1 roll.

(4) "Darstellung der Hohenwirkung". 2 rolls.

A list of German Institutes engaged in Aviation Medicine Research was also obtained from Strughold. The list is as follows:

(1) Luftfahrtmedizinisches Forschungsinstitut des RLM. Berlin NW40 Scharnhorststrasse 35 (H. Strughold).

(2) Institut für Flugmedizin, Berlin Adlershof (Dr. Ruff).

(3) Erprobungstelle der Luftwaffe, Rechlin / Stuttgart (Dr. Benzingen)

(4) Pathologisches Institut Freiburg / Breisgau (Prof. Büchner)

(5) Physiologisches Institut Göttingen (Prof. Rein)

(6) Sanitäts-Versuchs-und Lehrgruppe der Luftwaffe, Jüterbog, Altes Lager (Prof. Knothe).

(7) Institut für Luftfahrtmedizin München (Prof. Weltz).

(8) .Inst. für Luftfahrtmedizin Hamburg Eppendorf (Dr. Schwarz)

(9) Kaiser-Wilhelm-Institut für Arbeitsphysiologie, Dortmund (Prof. Lehmann).

(10) Physiolog. Institut Köln (Prof. Schneider).

(11) Fleigerunterschuchungstelle der Med. Klinik Freiburg / Br. (Dr. Frey).

(12) Physiolog. Institut Breslau, Fliegerunterschuchungstelle, (Dr. Kreienberg).

(13) Aussenstelle für Hirnforschung des Luftfahrtmed. Forschungsinstituts im Kaiser-Wilhelm-Inst. für Hirnforschung Berlin-Buch (Prof. Spatz z. Zeit München).

(14) Aussenstelle des Luftfahrtmedizin. Forschungsinstitute Brannenburg am Inn (Dr. Desaga).

(15) Aussenstelle des Luftfahrtmed. Forschungstinst. Berlin, Physiolog. Instit Heidelberg (Dr. Gauer).

(16) Physiologisches Institut Prag (Prof. Schubert).

(17) Physiologisches Institut Leipzig und Gebirgssanitätsschule St. Johann in Tyrol (Prof. Kurt Kramer).

(18) Kerckhoff Institut Bad Neuheim (Prof. Schaefer)

(19) Physiolog Institut Giessen (Prof. Eb. Koch).

(20) Kaiser-Wilhelm-Institut für Biochemie Berlin Dahlem (Dr. Unstruth).

(21) Physiologisches Institut Danzig (Prof. Thauer Z. Zeit Bad Neuheim Kerckhoff Institut.

In addition two recent publications were acquired from Strughold, namely "Grundriss der Luftfahrtmedizin", Zweite Auflage, October 1944, and "Physiologie des Hohenfluges" (99 questions and answers.) These have been forwarded in the pouch to the Secretariat, C.I.O.S.

Strughold also gave the following information:

(1) There is only one human centrifuge in Germany which is at the Research Institute in Berlin, 35 Scharnhorststrasse. The Institute was bombed, but the centrifuge itself was not damaged. There is a new low pressure cold chamber, 95 feet long, three quarters finished, at Templehof, as well as an unfinished human centrifuge.

(2) Many experiments have been carried out in Germany on explosive decompression which demonstrated similar findings as those in the U.S. It was reported that there is a 17 second "time reserve" for all persons irrespective of their physical condition. This pertained to persons at altitudes of between 13,000 and 16,000 meters.

(3) There was considerable discussion concerning the "paradoxical effect of oxygen". Often semi-consciousness due to anoxia (usually demonstrated by breathing 7% oxygen) when pure oxygen or air is suddenly breathed by the patient, between 2 and 3% of those persons will go into a catatonic state. They have convulsions, athetoid movements and are entirely irresponsible for from 3 to 5 minutes.

German pilots are given indoctrination by being rendered anoxic and an effort is made to find out whether or not the "paradoxical effect" occurs in them. If it does, the pilot is disqualified. With relation to the U.S. Air Force pilots, inasmuch as we have only one anoxia incident per 1000 man missions and only 3% of persons so effected develop the paradoxical effect, it does not seem a very important item

(4) The physical examination given German pilots is practically the same as that used by the U.S. Air Force. The examination is not repeated periodically but only when indicated.

(5) Encephalography is used extensively in Germany for studying altitude sickness, locating brain tumors, etc.

C. Interrogation of Professor Hermannn Rein disclosed little or nothing of value to Aviation Medicine not already known to the Allies.

Since the Institute functioned as a subsidiary to the Central Research Establishment for Aviation Medicine in Berlin, it was the recipient of numerous secret documents. These were acquired and forwarded in the pouch to the Secretariat, C.I.O.S.

Rein disclosed his observations that the liver produces a hormone not unlike digitalis which influences cardiac efficiency. It was claimed that in animals whose livers have been removed, heart efficiency decreased unless this hormone was furnished or strophanthus injected. It was postulated that the high altitude effect of anoxia on the heart arose from lack of this liver-produced hormone.

In addition, Rein revealed his interest in infectious hepatitis. He claimed that the electrocardiogram revealed characteristic changes two to three weeks before the onset of Jaundice, thus making it possible to diagnose infectious hepatitis in its early stages. The change in the electrocardiograph was said to be not unlike those occurring in

anoxia. First, an increase in the size of the T-wave and then an inversion of that wave occurred. Although the specific cause of infectious hepatitis was unknown, Rein believed it resulted from a deficient diet, especially one poor in fat. This was referred to as responsible for the high incidence of hepatitis now prevalent in Germany.

Efforts were being made to uncover a source of fat and protein to fortify the deficient diet. Rein told of his current development, namely the extraction of protein and fat from the pollen of flowers from pine trees. The pollen is blown off the trees by huge wind propellors and collected from the air by suspended electrodes (electric precipitators). It was said that 1 hectar of pine wood of middle age delivered approximately 35 kilograms of protein and 35 to 40 kilograms of fat.

Some impression of the activites of the institute might be gained by perusal of the following list of publications by various attached investigators. Reprints of many of these are included in the pouch forwarded to the Secretariat, C.I.O.S.

Kreislauf-Regulation

Kommt Milchsäure als phsyiologisches Regulans im peripheren Kreislauf in Frage?

von Giovanni Domini und Hermann Rein.
(Pflugers Arch. 246, 608, 1943.)

Ueber die Wirkung der Kohlensaure auf entnervte Ge Gefassgebiete.
von Hermann Mercker.
(Pflugers Arch. 246, 577, 1943).

Vasomotorische Schutzreflexe aus dem Stromgebeit der Arteria hepat. von Hermann Rein.
(Pflugers Arch. 246, 866, 1943.)

Zur physiologischen Bedeutung des vasomotorischen Hepaticareflexes. von Hermann Rein.
(Pflugers Arch. 246, 880, 1943.)

Zur Frage der Herzinsuffizienz im Sauerstoffmangel.
von Hermann Mercker.
(Luftfahrtmedizin, Bd. 8,2/3. Heft, 217, 1943.

Ueber die Interferenz der lokal dilatatorischen Wirkung des Acetylcholins mit zentralnervöser Vasokonstriktion im peripheren Gefässnetz.
von Hermann Mercker.
(Pflügers Arch. 247, 336, 1943.)

Die Anpassung von Durchblutung und Energieumsatz des rhythmisch arbeitenden Skeletmuskels bei Belastungsänderungen.
von F. Gorsse-Brockhoff, H. Rein u.W. Schoedel).
(Pflügers Arch. 248, 62, 1944.

Versuche über das sensible Trigeminusgebeit als Ausgangestelle von Kreislaufreflexin.
von Heinz Weber.
(Pflugers Arch. 248, 143, 1944)

Die bestimmenden Faktoren fur die Vasomotorik der Ruhedurchblutung des Skeletmuskels.
von Hermann Rein.
(Pflugers Arch. 248, 100, 1944.

Das Zusammenwirken von Acetylcholin, Mangelstoffwechselprodukten und vegetativer innervation als Grundlage der natürlichen Vasomotorik des Skeletmuskels.
von Hermann Rein.
(Pflügers Arch. 248, 111, 1944).

Die Entstehung der Arbeitsmehrdurchblutung in Abhängigkeit von der Reizfrequenz bei indirekter Reizung.
von F. Grosse-Brockhoff u.H.Mercker.
(Pflügers Arch. 248, 454, 1944.

Die Wirkung von KCL auf den isotonisch arbeitenden Skeletmuskel in Abhängigkeit von der Reizintensitat und der Reizfrequenz im kurz dauernden Tetanus bei indirekter Reizung.
von F. Grosse-Brockhoff u.H.Mercker.
(Pflugers Arch. 248, 464, 1944).

Wärme-Regulation.
Physiologisches Grundlagen zum Verständnis von Wärme - und Kälte-schäden am menschlichen Organismus.
von Hermann Rein.
(Arch.f.Dermatologie u. Syphilie, 184, 23, 1943).

Ueber die Aenderungen der Erregbarkeit von Atem-und Kreislaufzentrum bei rascher Unterkühlung.
von F. Grosse-Brockhoff u.W.Schoedel.
(Pflügers Arch. 246, 664, 1943.)

Tierexperimentelle Untersuchungen zur Frage der Therapie bei Unterkühlung.
von F. Grosse-Brockhoff u.W. Schoedel.
(Arch.f.exp.Pathologie u.Pharmakol. 201, 457, 1943.)

Zur Wirkung der Analeptika auf unterkuhlte Tiere.
von F. Grosse-Brockhoff u.W.Schoedel.
(Arch.f.exp.Pathologie u.Pharmakol. 202, 443, 1942).

Das Bild der akuten Unterkühlung im Tierexperiment.
von F. Grosse-Brockhoff u.W.Schoedel.
(Arch.f.exp.Pathologie u.Pharmakol. 201, 417, 1943).

Die direkten Wirkungen der Temperatur auf den Artierien-Durchmesser.
von J. Aschoff.
(Pflugers Arch. 247, 132, 1943.)

Zur Frage der Kreislauf- und Atmungsregulation bei exogener Hyperthermie.
von F. Gorsse-Brockhoff, H. Mercker u.W.Schoedel.
(Pflugers Arch. 247, 342, 1943.)

Grundversuche zur Temperatur-Regulation. Ueber vergleichwnde Messwerte sur Beurteilung der Warme-Abgabe an Wasser.
von J. Aschoff.
(Pflugers Arch. 247, 469, 1943)

Grundversuche zur Temperatur-Regulation. Vergleich unterschiedlicher Wärme-Durchgangsbedingungen am Modellkörper u.an. der Hand.
von J. Aschoff.
(Pflugers Arch. 247, 480, 1944.)

Der Anstieg der Rectal-Temperatur bei umschriebener Abkuhlung der Körper-Oberfläche.
von J. Aschoff.
(Pflügers Arch. 248, 149, 1944.)

Die Vasodilatation einer Extremität bei örtlicher Kälteeinwirkung.
von J. Aschoff.
(Pflügers Arch. 248, 149, 1944.)

Ueber die Kältedilatation der Extremität des Menschen in Eiswasser.
von J. Aschoff.
(Pflügers Arch. 248, 183, 1944.)

Mitteilung zur spontanen und reflektorischen Vasomotorik der Haut.
von J. Aschoff.
(Pflugers Arch. 248, 171, 1944.)

Ueber die Interferenz temperaturregulatorischer und kreislaufregulatorischer Vorgänge in den Extermitäten des Menschen.
von J. Aschoff.
(Pflugers Arch. 248, 197, 1944.)

Kreislaufregulatorische Wirkungen der Kältedilatation einer Extremität als Folge extermer, umschriebener Abkühlungen.
von J. Aschoff.
(Pflugers Arch. 248, 436, 1944.)

Atmung und Sauerstoffmangel

Ueber Sauerstoff-Verbrauch und Wärmehaushalt im Sauerstoffmangel.
von K.Th.Jouck.
(Luftfahrtmedizin Bd.9, 1/2.Heft, 26, 1944.)

Ueber Umsatzanderungen bei experimenteller Acidose.
von W. Döring.
(Pflugers Arch. 248, 208, 1944.)

Ueber Störungen der Wärmeregulation im akuten O2-Mangel bei Kältebelastung.
von O. Hühnhagen.
(Luftfahrtmedizin Bd. 9, 1/2. Heft, 16, 1944.)

Ueber Atmungserregbarkeit im der Schwangerschaft.
von H.H. Loeschchke, u.K.H. Sommer.
(Pflüges Arch. 248, 405, 1944.)

Höhenphysiologie

Höhenanpassung am Jungfraujoch. I. Mitteilung. Untersuchung der Atmung und des Blutes unter Ruhebedingungen.
von H. Becker-Freyseng, H.H. Loeschchke, U. Luft. u.E.Opitz.
(Luftfahrtmedizin, Bd. 7, 2/3. Heft, 160, 1942.)

Höhenanpassung am Jungfraujoch. II. Mitteilung: Atemvolumen und Kohlensauresystem bei akuten Sauerstoff,amgel vor, während und nach Höhenanapssung.
von H. Becker-Freyseng, H.H. Loeschchke, U. Luft, u.E.Opitz.
(Luftfahrtmedizin, Bd. 7, 2/3. Heft. 180, 1942.)

Höhenanpassung am Jungfraujoch. III. MitteilungL Steigerung der Höhenfestigkeit während der Höhenanpassung und nach Rückkehr in die Ebene.
von U. Luft u.E. Opitz.
(Luftfahrtmedizin, Bd. 7, 2/3. Heft, 205, 1942.)

Höhenanpassung am Jungfraujoch. IV. Mitteilung: Umstellung und Anpassung der Atmung in 3500 m Höhe u. die Wirkung von NH_4Cl.
von H.H.Loeschcke, U. Luft u.E.Opitz.
(Luftfahrtmedizin, Bd.7, 2/3. Heft, 218, 1942.)

Höhenanpassung am Jungfraujoch. V. Mitteilung: Die Beteiligung der Niere am Säure-Basen-Haushalt beim Höhenaufenthalt und bei akuter Hypoxie.
von H.H. Loeschcke, U. Luft, u.E.Opitz.
(Luftfahrtmedizin Bd. 8., 2/3. Heft, 265, 1943.)

Ueber Blutzulcker und Zuckerbedarf im Unterdruck.
von F.W. Rittinghaus.
(Luftfahrtmedizin Bd.9, 1/2.Heft, 95, 1944.)

Methodik

Magnetische O_2-Analyse in Gasgemischen.
von H. Rein.
(Dtsch.Akademie der Luftfahrtforschg. Bd.7, 1943, Heft 2.)

Ueber die Durchblutungsmessung an Organen in situ, inabesondere mit der Thermostromuhr.
von H. Rein.
(Ergebnisse der Physiologie, 45, 1944.)

Photoelektrisch registrierende Schraubdrossel zur quantitativen Gefassdrosselung.
von K.E. Loose.
(Pflugers Arch. 248,71, 1944.)

D. Interrogation of Frauline Dr. Ingerbor Schmidt revealed nothing of significance. She demonstrated various vision testing instruments evacuated from Berlin.

These instruments included one designed for scoring color perception. Dr. Sscmidt studied 20,000 persons and concluded that 7% of men and 4% of women are color blind to some degree. The instrument was developed within a period of six days at the command of Marshal Goering who was dissatisfied with the ordinary color charts. It incorporates a series of small colored lights so varied in intensity as to make it easy to determine the degree of color blindness presnet. The instrument is described in the Journal "Deutsche Militararzt" for 1942. The instrument has been forwarded to the Secretariat C.I.O.S. in the interest of Major Francois Chinard of the U.S. 8th Air Force, Pinetree, England.

The other instrument was designed for measuring visual capacity in dim light immediately after full light adaptation. Description of this instrument, a modification by W. Comberg of the globe-adaptometer of Hertel can be found in Schiek and Brückner's Kurzes Handbuch der Opthalmologie 1932, pages 287-289. This instrument was not removed since identical ones have already come into the hands of the Allies.

The phorometer by Carl Zeiss was also demonstrated. This too was not removed since a similar one is already being evaluated at the R.N. Physiology Laboratory, Gosport.

E. Interrogation of Dr. Rosé revealed the following:

The Germans have not increased night vision acuity by the use of various chemical agents. Neither

lipoid extract from the retina, caffine, strichnine, nor nitrate worked. Many of these agents were tried at altitude. Stimulation of other senses, exercising skeletal muscles, failed to improve acuity as claimed by the Russians. Super sonic waves, 24000 x per sec, likewise failed. General muscle exercise did not improve dak adaptation as claimed by the Russians.

Rose denied all knowledge of the existence of a drug such as Lagtal B for improving night vision. He claimed, however, that good living, exercise and adequate sleep and training were of value.

With reference to optical correction of vision, the Germans had tried contact lenses, but they were most uncomfortable and became intolerable after being worn two hours. They had perfected goggles with corrective lenses with one piece of curved glass. Samples of these were not available.

The eyes of each pilot were tested routinely for visual acuity, fusion, color sense, depth perception, motility, and subjected also to a general opthalmological examination. The German standard for visual acuity for pilots was formerly 15/20 without glasses and 15/15 in one eye and 15/21 in the other eye without corrective lenses. More recently the standards have been raised due to the excess of pilots.

F. Interrogation of Dr. Aschoff revealed nothing not already detailed in his publications. Reprints of these are included in the pouch forwarded to the Secretariat, C.I.O.S.

4. Equipment

A. The scientific equipment in the Physiology Institute was generally first class. Except for a decompression chamber, nothing was found unlike that in any modern physiology laboratory of a medical school.

B. The Low Pressure Chamber, Gottingen University:

The German low pressure chamber was cooled by using

CO_2 ice in ethylene glycol. The temperature in the chamber could be reduced to minus 65°C in 45 minutes. The walls of the chamber were insulated by Iparkau which was very efficient.

A brief prepared by Prof. Rein relative to the low pressure chamber is reproduced as follows:

U-Kammer im Physiologischen Institut
Göttingen

Die Tiefkühlanlage

In zwei Tanks zu je 1000 Liter Inhalt sind je 500 Liter Aethyl-Glykol untergebracht. Durch Zugabe von "Trocken-Eis" (CO_2) erfolt eine Abkühlung der Flussigkeit auf ca - 75° C. In der Flussigkeit liegt in jedem Tank eine Kupferrohr-Schlange, welche unter Zwischenschaltug von 2 Umwälzpumpen mit den Radiotoren der Kammer verbunden ist Als Uebertrager-Flussigkeit in der abgeschlossenen Rohrleitung und den Radiotoren dient Aethylglykol. Das in de Tanks freiwerdende gasformige CO_2 wird durch einen Exhaustor abgesaugt. Innerhalb der Tanks liegt eine zweite Rohrschlange, durch welche die Ventilations-luft der Kammer zur Trocknung ausgefroren wird. Fur 24 Stunden werden bei Aufnahme von 2 Mann in der Kammer ca 1000 kg feste CO_2 verbraucht.

Ausser dieser Tiefkühl-Anlage ist noch eine doppelte gewöhnliche Chloraethylanlage vorhanden, mit welcher die Kammer je nach Besetzung auf Null bis - 10°C abgekühlt werden kann.

Als Kälte-Isoliermaterial war zunächst Glaswolle benutzt worden, die sich aber als zu hygroskopisch erwiesen hat. Sie wurde durch eine neues synthetisches Kunstharzpraparat der IG Farben ersetzt - In Neuen Kammern hat man mit Vorteil die Kälteisoloerung auf die Aussenseite der Kammer aufgelegt.

Die Pumpenanlage der U-Kammer.

Zur Evakuierung der Kammer wird eine grosse Schieber-Kolbenpumpe benutzt (5PS). Zur Ventilation und Konstanthaltung der Höhe eine Rotationspumpe von 3 PS, fur die Auffahrt der Schleuse eine kleine Rotationspumpe von 1, 1 PS. Samtliche Pumpen Wassergekuhlt.

Kie ursprünglich eingebauten Sicherhtsmasnahmen (Automatik fur bestimmte Hohen usw.) wurden ausgebaut, da die Kammer ausschliesslich fur Experimentierzwecke mit erfahrenom wissenschaftlichen Personal in und ausser der Kammer benùtzt wird.

5. Documents and Records.

A. Documents and Records acquired at the Institute were obtained from Professor Rein. They were forwarded via official pouch to the Secretariat, C.I.O.S.

B. Many of the documents enclosed in the pouch are classified. They were kept under lock and key and were presented only after considerable questioning about their presence.

Those with a high priority for translation and distribution in the interest of Aviation Medicine may be listed as follows:

"Drucksturzapoplexie"

"Druckflurz von 3 Auf 8 bis 15 km Ludtdruckhche Wirkung auf den Menschen"

"Kreislauf und Atmung bein Detonationated"

"Die Herstellung von Sauerstoff-Stickstoffe-Gemischen"

"Sitsanlage mit Syeurungseinrichtung fur hohe Flugbeschleunigungen"

"Untersuchung der Beschleunigungswirkungen"

"Messung des Warmedurchurchganges von Textilien, inabesonders bei Nasse und Druck"

"Untersuchungen uber die Gesetzmassigkeiten des Sehens und der Sichweite"

"Ertragöichkeitsgranze fur wechselnde Raumtemperatur und Feuchte"

"Ertraglichkeitsgrenze fur wechselnde Raumtemperatur und Fuchte bei Ruhe und Arbeit"

"Nachtsehen und Raumsehen"

"Die Luftstossverletzung des Mensches unter desonderer Berucksichtigung der Schitsmoglochkeit"

"Arztliche Luftschutsfragen"

"Schutz des Menschen gegen Brandhitze"

"Druckfturz auf Nenhohen bis 17000 m. Wirkung auf den Menschen"

"Physiologie des Hohenfluges"
(99 questions and answers)

"Grundrifs der LUFTFAHRTMEDIZIN" von S. Ruff und H. Strughold. ZweiteAuflage.

6. General Impressions

A. An assessment of the evidence gained by interrogation of the P.O.W. Personnel and of the equipment at the Target leads us to conclude that the achievements of German Aviation Medicine are in no case in advance of the Allies and in some instances definitely inferior to it.

B. It is also concluded that the German investigators suffered considerably from their isolation during the war years, since scientific achievements which they presented as new and revolutionary were in most cases long since attained by the Allied Investigators.

PART II

GENERAL MEDICINE

1. The Target. Institute of Hygiene, University of Gottingen, Germany. Directors: Professor Dr. Franz Schutz, Col. (MC) - POW Status.

The Institute is a moderately well equipped, s-story brick and stone structure, the top floor of which is used as living quarters for approximately 12 of the staff attached to the German Army and now in a POW status. The basement contains the usual storerooms in which were seen only a minimum quantity of stock. One section of the basement

was set up for the practical demonstration of a small modern delousing unit (small dressing rooms, showers and sterilizer). A moderately large animal house contains a few sheep, guinea pigs, rabbits and mice and is located nearby.

2. Personnel Interrogated

A. Interrogation of the director, Dr. Schutz.

(1) Infectious and Contagious Diseases, 1944, in Military area of Wehrkreis 11 (Hanover - Gottingen - Brunscheveig area), approximately 4,000,000 population (20% military).

Diseases	Number of Cases	Deaths
Dysentry, amebic	None	None
Hepatitis, acute infectious (not Weil's Dis.)	Very few	None
Diptheria	24,734	1,056
Scarlet Fever	19,880	189
Small Pox	None	None
Tuberculosis (pulmonary)	7,397	3,010
Typhoid fever	1,064	92
Typhus fever	890	102

(2) Diptheria is on the increase at the present time. Immunization of children is not obligatory, but it is estimated that 90% have been immunized.

(3) By the law of 1870, all children are vaccinated against small pox at the end of their first year and again after the age of 12.

(4) Using the usual typhus vaccine, only those exposed to typhus and all Military personnel over the age of 40 are immunized (3 injections) initially followed by 2 injections at yearly intervals.

(5) Tetanus is rare. Only paratroopers receive routine toxoid immunization. All others are dependent upon TAT prophylaxis after injury.

B. Interrogation of Professor Dr. Schoen, Col. (MC) Director of The Medical Clinic and Polyclinic, (POW). 20 April 1945.

(1) Tertian Malaria - Very few cases, despite the presence of Anopheles Mosquitoes and those cases are all imported. No better quinine substitute other than atabrine has been developed. Usual schedule of treatment is: Atabrine .1 Gram t.i.d. for 7 days, followed by Plasmochin 0.01 Gram t.i.d. for 3 days.

(2) No new or specific treatment of typhus fever.

(3) Rheumatic fever treatment: 4-8 Grams of Salicylates daily which he belives have only symptomatic effect. His views on etiology coincide with those current.

(4) No new blood substitutes. The Army uses dried serum and plasma. Transportation of whole blood was found to be very difficult and was practised but little.

(5) Has had no experience in the use of penicillin, as the drug has not become available.

(6) The best sulfonamide drug in Germany is BADIONAL developed and produced by I.G. Farben in 1944. Skin and kidney reactions are very rare and its preparations may be given orally or parenterally. Nothing new has been discovered re the clinical use of sulfonamides. Recoveries in pneumonia and meningitis are comparable to those obtained in the United States.

(7) The best delousing agent is GESSAROL quite similar to DDT, and used in the same manner.

(8) Nothing new in the vitamin field. Vitamin K is the latest development and used primarily for the new-born.

(9) Acute and sub-acute bacterial endocarditis seems to be on the increase and no effective drug is available.

(10) Dr. Schoen exhibited a classical case of epidemic typhus in a 40 year old Luftwaffe officer.

(11) A copy of "The Use of Sulfonamides", edited by Dr. Schoen was obtained and forwarded in the prescribed manner.

C. Interrogation of Professor Dr. W. Krantz, Director of the Polyclinic for Skin and Venereal Diseases. (POW) Status). 21 April 1945.

(1) Dr. Krantz spoke no English and questioning through an interpreter was not satisfactory. He was passively resistant and either knew little or pretended to know little of recent advances in certain skin and anti-syphilitic therapy. For example his schedule of treatment for the early cases of syphilis consists of 5 tenths to 6 tenths Grams of Meosalvarson twice weekly for approximately six weeks. During the same period bismuth in oil is given intra-muscularly twice weekly in 1.5 cc doses. This first phase of treatment is followed by a six weeks rest period. Then the same treatment and rest period are repeated twice. He does not make routine spinal fluid examinations during or on completion of treatment, but waits until 3 to 4 years laters.

(2) He has no radium available for therapy and has had no experience in the use of penicillin. He depends entirely on surgery and roentgen rays in the treatment of skin cancer.

3. Equipment. Nothing unusual was found other than the below described.

A. Membrane Filter, manufactured by the Sartorius Werke, Gottingen.

(1) This filter consists of a funnel-shaped, graduated glass container, at the bottom of which is a detachable metal filter holder. Suction applied to the filtrate exit facilitates and speeds up the process. The filter papers are round, thin, paper-like discs covered with a thin, homogeneous gelatin mixture. The frame work consists of cellulose esters or cellulose.

They are made according to the patents of Prof. Zsigmondy, Nobel Prize Winner. The filters are of varying porosity (3/1000 to 1/50,000 of a m.m.) and are said to be suitable for ultra-filtration, electro ultra-filtration, dialysis, electro dialysis, osmosis and electro-osmosis. The Hygiene Institue has been satisfactorily using the filter for the removal of the B. colic group of organisms from water of questionable potability. The filter paper is then placed directly on a suitable culture media, and after incubation a microscopic count of of the colonies is easily made. Dr. Schutz stated that the idea is new and was obtained from the Russians at Kiev a little over a year ago.

(2) An improved membrane - Filter unit and a supply of filter papers were obtained from the manufacturer, Herr Sartorius. He stated that only he and a woman chemist knew the secret formula for the preparation of the filter papers. No further information was obtained. The filter unit and papers were packed ans sent via the "T" Force Headquarters of the 12th Army Group to the Secretariat, CIOS Headquarters, Shaef, Rear.

B. <u>High Speed Centrifuge</u> - manufactured by the PhyWe A.G., Gottingen.

(1) This apparatus is relatively small, is driven by a compressed air turbine, and has a metal ovoid rotor containing 6 or more centrifuge tube-holders. Solutions are centrifuged in a vacuum and a speed of 40,000 RPM is attained.

(2) The Hygiene Institute is using the centrifuge in the early experimental phases of preparing a typhus vaccine from Proteus X-19 strains.

(3) An attempt was made to obtain a centrifuge from the manufacturer, but none was available.

4. Optical and Instrument Works Inspected.

Inspection of the below listed optical and instrument works in Gottingen, 23 April, 1945.

A. PhyWe, A.G.

An attempt was made to obtain a 40,000 RPM centrifuge but none was available. This plant had been bombed and partially destroyed.

B. R. Winkel, GmbH, - Nothing unusual from a medical standpoint.

C. Joseph Schnider - Nothing unusual from a medical standpoint.

D. Sartorius Werke Aktiengesellschaft & Company - One of the latest models membrane filters and a supply of filter papers were obtained.

PART III

VETERINARY MEDICINE

1. Introduction.

The city of Gottingen offers little with respect to veterinary science in attainments, in fact, after inspection of the only installation pertaining to this branch of medicine, the Tierarztiches Institut, which is a department of the Institute of Agriculture, and after conversation with a Dr. Eric Fischer, the acting director (in the absence of Director Schermer, a Nazi now in custody): Dr. Franz Schutz, Director of the Insitute of Hygiene of the University of Gottingen, and Professor Torreau, the Department of Soils and Plants, of the Agriculture Institute, it would appear that the widely advertised modern methods, meticulous public health regulations and practice of up to date preventive medicine attributed to this country generally, certainly does not obtain in this area.

2. Animal Diseases.

Records of the Institute of Hygiene augmented by conversa-

with Dr. Schutz, tersely show the prevalence of animal diseases and those with communicable animal diseases transmissable to men within their Vehrkrein XII, 1944 to be as follows:

	Diseases	Number
A.	Rabies	none
B.	Incephalitis	none
C.	Encephalomyelitis	none
D.	Anthrax	2 cases
E.	Botulism	none
F.	Trypanosomysis	none
G.	Tuberculosis in humans (Bovine Type 5 - 10%)	7397 cases 3010 deaths
H.	Typhus	890 cases 102 deaths
I.	Undulant Fever (Brucellosis Bov.)	A few cases
J.	Typhoid (water plus milk borne)	1064 cases 92 deaths
K.	Food poisoning (Salmonald) (Flexner plus sonne)	none a few
L.	Tetanus	4 cases
M.	Foot and mouth disease	very little
N.	Glanders	a few cases imported from Eastern front
O.	Blackleg	a few cases

In the opinion of Dr. Fischer of the Veterinary Department of the Institute of Agriculture, bovine tuberculosis, streptococcic mmammitis and brucellosis (Bangs Disease) are the most important diseases. The statement that there are but a few cases of foot and mouth diseases prevalent in this area is questionable.

Cattel employed for special purposes as in the production of "preferred" milk, are tuberculin tested and the milk centrifuged and injected into guinea pigs. Other cattle are not subjected to test unless requested by the owner. Reacting cattle and those showing advanced clinical signs are slaughtered. Before the war if such animals were of the "preferred class" the owner was paid 80% of the appraised value. There is no remuneration at the present time.

The director denied that vaccination against Brucellosis was practised, until the writer remarked concerning vaccination technique used extensively in the United States, when he suddenly remembered that vaccination of unbred heifers with live, attenuated cultures of B. abortus was being employed.

It was stated that cattle are being immunized against foot and mouth disease by the use of a Waltmmen's vaccine prepared on the Island of Reims - especially those animals in and about a focus of infection. Infected animals and premises are quarantined from 4 to 6 weeks and clinical cases are treated with "anti-serum". The doctor states that the serum is efficacious.

Glanders is diagnosed by clinical signs, complement-fixation test and cutaneous Mallein. Positive reactors are immediately slaughtered and the meat sterilized and prepared into meat meal for stock feed and fertilizer.

Trichinosis abounds among the swine. It was stated that the disease is especially wide spread in East Prussia where all foxes and wild hogs which are shot must be destroyed according to law.

3. The Slaughter House. The Municipal Slaughter House, which appeared adequate in size was found in a delapidated condition, unsanitary, and unfit for such purposes if guaged by American standards. It was inactive at the time of inspection though the carcasses of two recently slaughtered dairy cows were hanging on the rail prior to storage in the freezer. One live and poorly nourished animal, said to be lame, awaited slaughter. In Germany "emergency slaughter" is practised. By this rule, if an ailing animal can be slaughtered before it gasps its last breath, the carcase may be autopsied and if no visible signs of disease are prevalent, it may be passed for food.

The annual records of the slaughter house dating from April 1944 to March 1945, afford the following:

Cattle, large	1429
Cattle, small	770
Swine, large	5349
Swine, small	844
Swine, small shorts	7
Calves	4308
Sheep	1502
Goats	21
Horses, large	178
Horses, small	70
Colts	?

It was stated that all numbers are less than those of anti-bellum days. Equines are slaughtered in a separate section. Specimens from the diaphragms of all slaughtered swine are compressed and examined microscopically for thrichina cysts.

Carcasses are first retained in a pre-cooler at 2°C, after which they are stored in a cooler maintained at minus 4°C.

It was stated that rules of antimortem slaughter, post-mortem inspection and final disposition as laid down by Ostertag, are being observed.

4. Grades of Milk. The three grades of milk being employed in and about the city are:

A. Consumer
B. Drinking
C. Preferred

Grades A and B do not require a bacterial count, but must contain a minimum of 2.5% butter fat and must be pasteurized at the "Central Dairy". A flash system of pasteurization i.e. heating milk to 85°C and holding at that temperature for 2 minutes is employed.

The consumer grade is mostly employed in the production of cheese and butter: the drinking grade as a beverage for the less discriminating: and the preferred grade, which must contain not less than 3.5% butter fat and is not subjected to heating but is from herds which are inspected once each

week by government agents, is produced for children. Inspection is clinical only.

Preferred milk is not permitted to have a bacterial count above 3,000 per c.c. Should it exceed that count it falls into grades A and B. Bacterial counts govern the grade of milk despite the physical condition of the animal.

Dr. Fischer stated that attendents of herds producing "preferred" milk are examined periodically for carrier state and communicable diseases.

According to Dr. Fischer the Gottingen district possesses livestock in the following approximate numbers:

Horses	6000
Cattle	8000
Sheep	2500
Goats	1500
Swine	10,000
Calves	?

5. Agriculture.

Professor Torreau of the Plant and Soil Department, Institute of Agriculture stated that in order to successfully carry on agriculture pursuits, a great deal of calcium, phosphates, potassium and nitrogen are necessary. Especially is there a shortage of phosphates and the iron industry can furnish but about one-third of the amount required.

No machines are used at present, however in normal times, two-thirds of the farm work has been accomplished with animals, mostly horses and one-third by machinery. Small farms may use horses only.

Stock feeds are usually beets and oats in the winter and sometimes only betts. Hay, when available, is fed at the rate of 3 to 5 kilos each day. All residue from compressed rape seed, and brewery bi-products seeds such as malt and hops are also used. Owing to the shortage of stock feed, the animals are now receiving a maintenance ration which has caused a reduction in milk production. The

Central Dairy handles from 15000 to 20,000 liters a day.

Poultry have increased in number while cattle have been reduced by 10%; swine reduced 25 to 50%; sheep remain about the same as in normal times.

6. Apparatus Acquired: One membrane filter for use in water analysis was removed from the premises of the Sartorius-Werke Atiengesellschaft Company: two microscopes were procured at the R. Winkel Optical Works, and one magnifier (answerte-lupe) was gotten from the Schneider Company of the City of Gottingen. These will be employed in Army laboratory work.

7. Recommendations:

A. That no meat, meat food or dairy products produced in this area be utilized by troops of the Allies.

B. That if it is contemplated to maintain troops in this area for a lengthy period, all dairy cattle be tuberculin tested under the supervision of Army authorities.

C. That if a Medical General Laboratory is activiated in this area, the Institute of Hygiene be utilized for the purpose.

PART IV

CHEMICAL WARFARE

1. The target was non-productive in matters relating to Chemical Warfare.

PART V

INSTRUMENTS EVACUATED FROM TARGET

1. One optical instrument for testing and scoring vision color perception evacuated in the interest of Major Francois Chinard, Central Medical Establishment, 8th Air Force, Pinetree. Ref. Part 1, para 3, D of report.

2. One membrane filter was evacuated in the interest of Commander Fitz Weddell (MC) USN, U.S. Naval Dispensary, London, Ref. Oart II, para 3, A.

PART VI

DOCUMENTS AND RECORDS

EVACUATED FROM THE TARGET AREA

The documents and records evacuated from the target area are listed below. The contents of some have been cited in parts of this report. Those considered to have high priority for translation and distribution are identified by an asterisk.

The addendum to this report consists of photostatic copies of certain documents considered to have priority. These documents are identified in the list by a check (✓). Copies of other documents will be forthcoming from time to time.

The Movie Films in the list are being reproduced for distribution.

DOCUMENTS

GEHEIM

✓ 1 * "DRUCKSTURZAPOPLEXIE"

✓ 1 * "DRUCKFLURZ VON 3 AUF 8 bis 15 km Luftdruckhohe Wirkung auf den Menschen"

1 * "Kreislauf und Atmung bein Detonationated"

1 * "Die Herstellung von Sauersteff-Stickstoffe Gemischen"

✓ 1 * "Sitzanlage mit Steurungseinrichtung fur hohe Flugbeschleunigungen"

1 * "Untersuchung der Beschleunigungswirkungen"

1 * "Messung des Warmedurchganges von Textilion, inabesonders bei Nasse und Druck"

✓ 1 * "Untersuchungen uber die Gesetzmassigkeiten des Sehens und der Sichweite"

✓ 1 * "Ertragoichkeitsgrenze fur wechselnde Raumtemperatur und Feuchte"

✓ 1 * "Ertraglichkeitsgrenze fur wechselnde Raumtemperatur und Fuohte bei Ruhe und Arbeit"

✓ 1 * "Nachtsehen und Raumsehen"

1 * "Die Luftstossverletzung des Menschen unter desonderer Berucksichtigung der Schitsmoglichkeit"

1 * "Arztliche Luftschutzfragen"

1 * "Schutz des Menschen gegen Brandhitze"

✓ 1 * "Druckfturz auf Nennhohen bis 17000 m. Wirkung auf den Menschen"

MOVIE FILMS

1 roll * "Unterbrechung der Sauerstoffatmung in verschiedenen Hehen"

1 roll "Fisch und Flugzeug"

1 roll Der Krieslauf"

1 roll * "Elektroenkephalographie" Rolle No. 1.

1 roll * "Elektroenkephalographie" Rolle No. 2.

1 roll * "Beschleunigungsfilm"

1 roll * "Darstellung der Hohenwirkung" Rolle No. 1.

1 roll * "Darstellung der Hohenwirkung" Rolle No. 2.

- - - - - - - - - - - - -

1 reprint * "Physiologie des Hohenfluges"
(99 questions and answers)

8 vol * "Grundrifs der LUFTFAHRTMEDIZIN"
von. S. Ruff und H. Strughold
ZweiteAuflage 1944.

1 vol "Wissenschaftliche Abhandlungen aus
dem Physiologischen Institut der
Universitat Gottingen"
Band 4, Mai 1941

1 vol "Wissenschaftliche Abhandlungen aus
dem Physiologischen Institut der
Universitat Gottingen"
Band 5 Juni 1941 bis Dec. 1942

1 vol "Lehrbuch der Anatemie des Menschen"
von Benninghoff 1944

REPRINTS

1 "Uber Durchblutungsmossungen an Organen
in situ insbesondere mit der Therm
ostromuhr." von Butenendt, L.
Lendle etc. 1944.

1 "Uber Blutzucker und Zuckerbodarf in
Unterdruck" von F.W. Rittinghaus
1944.

1 "Die bestimmenden Faktoren fur die
Vasomotorik der Ruhedurchblutung des
Skeletmuskels" von Rein 1944

1 "Die Vasodilatation einer Extremitat bei
ortlicher Kalteeinwirkung von
Ashoff, 1944

1 "Zur physiologischen Bedeutung des
vasometorischen Hepaticareflexes"
Von Rein 1943

Reprints

1 "Der Einfluse der wichtigsten ,im Tierexperiment verwendeten Narkosmittel auf den respiratorischen Stoffwechsel" von R.Schleinzer und J.Antal 1941

1 "Versuche uber das sensible Trigeminusgebiet als Ausgangsstelle von Kriislaufreflexen" von H.Weber. 1944

1 "Uber Storungen der Warmerogulation im akuten O 2 -Mangel bei Kaltebelastung" von Otto Hulnhagen 1943

1 "Mohenanpassung am Jungfraujoch" 111 Mitteilung von Luft und Opitz, 1942

1 "Mohenanpassung am Jungfraujoch" 111 Mitteilung "Steiferung der Hohenfestigkeit wahrend der Hohenanpassung und nach Ruckkehr in die Ebene" von Luft und Opitz 1942

1 "Uber die Abhangigkeit der reaktiven Hyperamio von der Benervung." von Mercker und G.Urbig , 1941

1 "Magmetische O 2-Analyse in Gasgemischen" von Rein , 1943

LUFTFAHRT MEDIZIN
Vol 1 --1937 to Vol 7 --1943
6 Band 4(Schluss) Heft July 1942
7 Band 1 Heft
8 Band 1 Heft, 2/3 Heft, 4 (Schluss) Heft
9 Band 1/2 Heft
Proof of current edition

2 vol 1936/37 1938/40 VEROFFENTLICHUNGEN AUS DEM LUFTFAHRTMEDIZINISCHEN FORSCHUNGSINSTITUTES REICHSLUFTFAHRT-MINISTERIUMS, Berlin von Prof. H.Strughold 1936/1937 and 1938/1940

1 vol "Physiologie Des Menschen" von Hermann Rein Universitat Gottingen Siebente Auflage Publishers : Springer-Verlag, 1943

2 vol "Der Dienst des deutschen Wehrmachtapothekers" von Paul Zabler, 1944

1 vol	"Ergebnisse der Physiologie Biologiochenchemie und Experimentellen Pharmakologie" Herausgegebon von - A.Butenandt, LeLendle Verlag von J.F. Bergmann 1944
1 vol	Wissenschaftliche Abhandlungen aus den Physiologischen Institut der Universitat Gottengen unter Leitung von Hermann Rein December 1943
4 Reprints	"Physiologische Besiehungen Zwischen Der Lober Und Dem Energiestoffwechsel Des Herzens" von Hermann Rein December 1943
1 vol	"Gesammelte qualitativ-haematologische Untersuchungen 1936-1944 von Dr.med Joseph Arneth
1 vol	"Blutkonservierung und Transfusion von konserviertem Blut" von Dr.O. Schurch, Willenegger, Knoll 1942
1 vol	"Physiologie Des Menschen" von Hermann Rein 1943
3 copies	Arbeiten aus dem Physiologischen Institut Gottingen Jan. 1943-March 1945
1 vol	"Deutscher Flugzaugbau" Handbuch der Luftfahrttechnik Ausgabe 1939
1 vol	"Luftbild-Topegraphie" Hansa Luftbild G.M.B.H. Berlin 1946
1 vol	"Luftbild und Luftbildmessung" Hansa Luftbild G.M.B.H.
1 vol	"Das Gesetz Der Geschlossenen Blutkreise" von Dr.Arnold Poschl 1943
1 vol	"Der Pressluftschaden" von Dr.Alois Laarmann 1944
1 Reprint	"Vasomoterische Schutreflexe aus dem Stregebiet der Arteria hepatica" von Hermann Rein 1943
1 Reprint	"Die Physiologie als Ausgang.und Auswirdungsgebiet des J.R. Mayerschen Energiegesetzes" von Hermann Rein 1942

REPRINTS

1 "Physiologische Beziehungen Zwischen Der Leber Und Dem Energiestoffwechsel Des Herzens. Prof.H.Rein 1943

1 "Physiologische Grundlagen Zum Verstandnis von Warme und Kaoteschaden am menschlichen Organismus" von Rein. 1943

1 "Zur Erholung aus Sauerstoffmangel insbesondere uber den Paradoxeffekt der Sauerstoffgabe" von Noell und Roeder. 1943

1 "Uber die abhangigkeit der Energieumsetzung im Herzen von der Leber im besonderen Hinblick auf das Arbeiten im Sauerstoff-mangel." von Hermann Rein , 1942

1 "Uber Durchblutungsmessungen an Organen in situ insbesondere mit der Thermostromuhr" von Rein 1944

1 "Zur Frage der Herzinsuffizienz im Sauerstoffmangel" von H.Mercker 1942

1 "Uber Sauerstoffverbrach und Warmehaushalt im Sauerstoffmangel" von K.Jouck, 1943

1 "Die Anpassung von Durchblutung und Energieum-satz des rhythmischarbeitenden Skelemuskels bei Bllastungsanderungen" von Grosse-Brockhoff, H.Rein und W. Schoedel 1943

1 "Das Zusammenwirken von Acetylcholin Mangelstoffwechselprodukten und fegetativer Innervation als Grundlage der naturlichen Vasomotorik des Skeletmuskels" von H.Rein 1944

1 "Uber die Kaltedilatation der Extremitat des Menschen in Eiswasser" von Jurgen Aschoff. 1944

1 "Uber die Interferenz temperaturregulatorischer und kriesiauf regulatorischer vorgange in den Extremitaten des Menschen" von J.Ashoff. 1944

1 "Uber atmungserrebarkeit in der Schwangers-chaft" von H-H-l Loeschcke und H. Semmer . 1944

REPRINTS

1 "Kreislaufregulatorische Wirkungen der Kaltedilatation einer Extremitat als Folge extremer, unschriebener Abkuhlung" von J.Ashoff 1944

1 "Magnetische Oxygen-Analzse in Gasgemischen" von H.Rein. 1943

1 "Uber Durchblutungsmessungen an Organen in situ insbesondere mit der Thermostromuhr" von Butenandt , 1944

MONOGRAPHS

1 "Bericht uber die Tagung der Luftwaffenpathologen in Freiburg"
1--- Die Pathologie der Hohenkrankheit
2--- Die Absturz und Schussverletzungen beim Flieger
3--- Wehrmedizinisch wichtige Fragen der Kreislaufpathologie

1 "Hohenunfalle Hohenzwischenfalle durch Sauerstoffmangel"

2 "Bericht uber eine Besprechung am 24 und 25 July 1942 im Institut fur Luftfahrtmedizin Hamburg" uber "Hohenfestigkeit und Hohenanpassung"

✓ 1 "Physiologisch-optisch wichtige Fragen fur die Flugtatigkeit bei Nacht" von Ingeborg Schmidt 1942

✓ 1 "Tierversuche zum Fallschirmabsprung aus Uberdruckkabinen" von Wendt und Lutz

✓ 1 "Die Wiederbelebung aus dem anoxischen Scheintod" von Dr.W.Lutz 1942

1 "Die Ertraglichkeitsgrenzen bei Fliehdraftbelastung fur den sitzenden Flugzeugfuhrer" von Prof.Diringshofen-1943

✓ 1 "Gesichtsfeldmessungen mit farbigen Prufobjekten im Dammersehen" von Ingeborg Schmidt und Lotte Kitzinger 1942.

✓ 1 "Ubermudungszustande bei Fliegerm" von Dr. George von Knorre 1943

Monographs

✓ 1 "Versuche mit einem Stratospharen Uberdruckhelm" von Clamann und Luft. 1943

1 "Hilfsgerat zur Steuerung zeithlich definierter Druckschwankungen in Unterdruckkammern" von Dr.Lutz 1943

1 "Eine Unterdruckkammer zum Studium mikrowkopisch kleiner objekte" von Dr. H.G.Clamann und Dr.W.H.Denzer.

1 "Einaugige als Flugzeugfuhrer" von. Prof. Kyrieleis, 1942

✓ 1 "Flugmedizimische Grundlagen zun Bau ven Schkeudersitzen" from Deutsche Versuchsanstalt fur Luftfahrt, E.V. , Berlin-Adlersnef, Institut fur Flugmedizin. 1943

DEUTSCHE LUFTFAHRTFORSCHUNG

1 Uber die Einwirkung der Kalte auf das Zahnasystem, 1941

1 Entwurf einer Klimaanlage fur eine Unterdruck-Kaltedammer der flugmrdizinischen Abteilung der DVL. 1941

1 Zusammenhange zwischen Menstruation und Unfallen in der Frauensegelflugschulung 1942

1 Uber Zielfenier und Treffwahrseheimlichkeit beim Schiessen von langs der Flugrechtung (Schiessen auf bewegte Ziele) 1941

1 Untersuchung uber den Einfluss der Sauersteffatmung auf die alveolare Co 2 Spannung im Unterdruck. 1941

✓ 1 Ein Elektrisches Gerat zur Bestimmung der ebereb Hergrenze. 1940

✓ 1 Der Fallschirmabsprung aus grossen Hehen, 1941

1 Untersuchungen uber die Erkennung von den in der Fliegerei verwendeton farbigen Signallichtern durch Farbenuntuchtige. 1940-

Monographs

1 Untersuchungen uber den Einfluss heher Windgeschwindigkeiten auf den Kept. 1940

✓ 1 Uber die Wirkung even Schwingungen auf das vegetative Nervensystem und die Sehnenreflexe. 1940.

✓ 1 Wirkung von Belladenna -Alkaleiden auf die Leistungsfahigkeit-im Sauersteffmangel. 1940

1 Eine fahrbare Unterdruckhammer zur Hehentauglichkeits-prufung von Flugzeugbesatzungen (Bauart : DVL-Zeuzem) 1940.

1 Untersuchungen uher den Einfluss verschiefener Zuckerarten auf die Hehenfestigkeit, insbesendere bei Arbeit. 1940

✓ 1 Uber den Sauersteffverrat des Manschen nach Unterbrechung der Sauersteffatmung in gressen Hehen. no date

1 Larmeinwirkung in Flugzeug, 1939.

✓ 1 Das anatemische Bild der Blutverteilung bei Beschleunigungswirkung 1939

✓ 1 Druckstnrz-Versuche am Menschen. Druckstnrz-Selbstversuche ehne Sauersteff. no date.

✓ 1 Uber Flugversuche zur Frage der Ertraglichkeit hener Neschleunigungen bei liegander Unterbringung der Flugzeuginsassen. 1939

Monographs

DEUTSCHE LUFTFAHRTFORSCHUNG

✓ 1 Untersuchgen uber des Verhalten einiger Kreislaufgressen bei hehen Beschleunigungen in Flugversuch und uber den Einfluss CO2 Zusatz sur Atenluft auf die Beschleunigungsertraglichkeit. 1939.

✓ 1 Uber die Entstehungsursache schwerer innerer Verletzungen bei insassen von Gleitflugzeugen infolge heher Verzegerungen bei Bruchlandungen und uber Massnahmen zur Vermeidung dieser Verletzungen. 1938.

✓ 1 Uber Beschleunigungsuntersuchungen am Menschen. 1938.

1 Untersuchungen uber die Einwirkung von Schall und Erschutterungen auf den menschlishen Organisme. 1937.

1 Beschreibung einer Kaltekamner fur Hohenbedingungen mit eingebauten kleinen Windkanal. 1943

1 KATALOG DER BIBLIOTHEK ------ DEUTSCHE AKADEMIE DER LUFTFAHRTFORS - chung.

1 KATALOG ---- NACHTRAG-111

1 Verzeichnis der Unterlagen fur die Fachgruppenleiter-Bes prechung der Vereinigung fur Luftfahrtforschung am Mittwoch den 9 October 1933 anlaslich der Hauptversamnlung DVL/VLF

1 "Die technisch-wissenschaftliche Uberwachung des Luftverkehra" von E.T. Allen, 1935.

1 "Die physiolgischen Bedingungen des Hohenfluges" von Prof R. Margaria, Direkter der Forschungsstelle fur Luftmedizin. 1940.

✓ 1 "Symptomatologie des Kreislaufes bei Verminderung des Luftdruckes in Hindblick auf die Hohentauglichkeit-Prufung" von E. Koch.

Monographs

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4 vol "Untersuchungen uber die bedeutung des Kohlenoxyds in der Atemluft bei Hohenflugen" von S. Ruff. 1935.

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1 Monograph from A.Lendle and R.Scheen Beitrage zur Arzneimitteltherapie BD.1 (446 pages) "Chemotherapy of bacterial Infections" by G. Demagk and C.Hegler.

DOCUMENTS OBTAINED IN THE HYGIENE INSTITUTE OF GOTTINGEN UNIVERSITY. GOTTINGEN, GERMANY

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1 Dissertatian 1945. Experience and successes with B.C.G. in Norway.

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1 Reprint Klin.Wschr 22: 520-521, 1943 : A new method for the quantitative and qualitative determination of bacteria in fluids.

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1 Pamphlet of Membran filtergesellschaft, Sarterius werde A.G. Gottingen : A new method for determining B.Celi in water.

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1	Menograph and reprint from Veroff aus dem Gebiete des Herres-Sanitatswesens (229 pages) "Nutrition of the German people with special reference to nutrition in the Army.
1	Dissertation 1943, Hygiennic Conditions in rural Gottengen plants.
1	Dissertation 1943, Silicosis in the Hanover Carborundum Industry.

Phamplets

1	Description of Ultra-Flitering Apparatus.
1	Membrane Filters, description of new type.

ARTHUR J VORWALD
Commander (MC) USNR

Team Leader

ADDENDUM

FIELD TEAM REPORT

CIOS TARGET 27/17e

Gottingen University, Gottingen,
Germany.

The addendum herewith contains a list of documents acquired by the CIOS Team from the CIOS Target 27/17e, University of Gottingen, Gottingen, Germany.

The documents relate to Aviation Medicine. They were considered of special importance and were therefore reproduced with priority over others also acquired at the University. Documents are on file at the Air Documents Research Center, 59 Weymouth Street, London.

The documents are numbered and arranged consecutively according to the following list:

Vol. I.

1. Drucksturz auf Nenhöhen bis 17000 m Wirkung auf den Menschen.

2. Wirkung von Belladonna-Alkaloiden auf die Leistungsfähigkeit im Sauerstoffmangel.

3. Drucksturz-Versuche am Menschen.
   1. Zwischenbericht: Drucksturz-Selbstversuche ohne Sauerstoff Clamann.

4. Übermüdungszustände bei Fliegern.

5. Physiolcgisch-optisch wichtige Fragen für die Flugtätigkeit bei Nacht.

6. Die Wiederbelebung aus dem anoxischen Scheintod.

7. Erträglickeitsgrenze für weschselnde Raumtemperatur und-Feuchte.

8. Drucksturzapoplexie.

9. Der Fallschirmabsprung aus grossen Hohen.

10. Über die Entstehungsursache schwerer innerer Verletzungen bei Insassen von Gleitflugzeugen infolge hoher Verzogerungen bei Bruchlandungen und über Massnahmen zur Vermeidung dieser Verletzungen. S. Ruff.

11. Nachtsehen und Raumsehen.

12. Untersuchungen über die GesetzmäBigkeiten des Sehens und der Sichtweite. Schönwald.

13. Wärmehaushalt und Kälteschutz im Flugseug. von K. Büttner, Rechlin. Seite 3.

Das Kälteklima heutiger Flugzeug. von Th. Benziger, H. Döring und W. Hornberger, Rechlin. Seite 10.

Über die Pathologie der Kältewirkung. von H.W. Romberg, Berlin-Adlershof. Seite 13.

Ein Überblick über die Einwirkung des Höhenklimas, insbesondere der Kälte, auf das Kauorgan. von W. Freitag, Berlin-Adlershof. Seite 17.

Teilnehmerverzeichnis. Seite 21.

14. Über die Wirkung von Schwingungen auf das vegetative Nervensystem und die Sehnenreflexe. W.E. Loeckle.

15. Untersuchungen über das Verhalten einiger Kreislaufgrössen bei hohen Beschleunigungen im Flugversuch und über den Einfluss von CO_2-Zusatz zur Atemluft auf die Beschleunigungserträglichkeit. M. Matthes.

16. Sitzanlage mit Steuerungseinrichtung für hohe Flugbeschleunigungen. Stöckel.

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The documents are numbered and arranged consecutively according to the following list:

Vol. II.

17. Uber Flugversuche zur Frage der Erträglichkeit hoher Erträglichkeit hoher Beschleunigungen bei liegender Unterbringung der Flugzeuginsassen. Wieshöfer.

18. Bericht über die Sitzung "Optisch-physiologische Fragen beim Nachtfliegen am 10. Dezember 1941 in Berlin.

19. Erträglichkeitsgrenze für Wechselnde Raumtemberatur und -Feuchte bei Ruhe und Arbeit.

20. Der Fallschirmabsprung aus grossen Höhen.

21. Symptomatologie des Kreislaufes bei Verminderung des Luftdruckes im Hinblick auf die Höhentauglichkeitsprüfung.

22. Über Beschleunigungsuntersuchungen am Menschen. S. Ruff.

23. Gesichtsfeldmessungen mit farbigen Prufobjekten im Dammersehen. Zur Frage der roten Leuchtziffern am Flugzeug-instrumentenbrettern.

24. Tierversuche zum Fallschirmabsprung aus Überdruckkabinen.

25. Uber den Sauerstossvorrat des Menschen nach Unterbrechung der Sauerstossatmung in grossen Höhen. E. Opitz.

26. Schutz des Menschen gegen Brandhitze.

27. Versuche mit einem Stratospharen-Überdruckhelm.

28. Druckflurz von 3 auf 8 bis km Luftdruckhohe Wirkung auf den Menschen.

29. Tierversuche Uber Auskuhlung und Erwärmung in Wasser.

30. Das anatomosche Bild der Blutverteilung bei Beschleunigungswirkung. Romberg.

31. Flugmedizinische Grundlagen zum Bau von Schleudersitzen.

32. Ein elektrische Gerät zur Bestimmung der oberen Horgrenze. Goermann.

33. Ausschuss Segelflug.