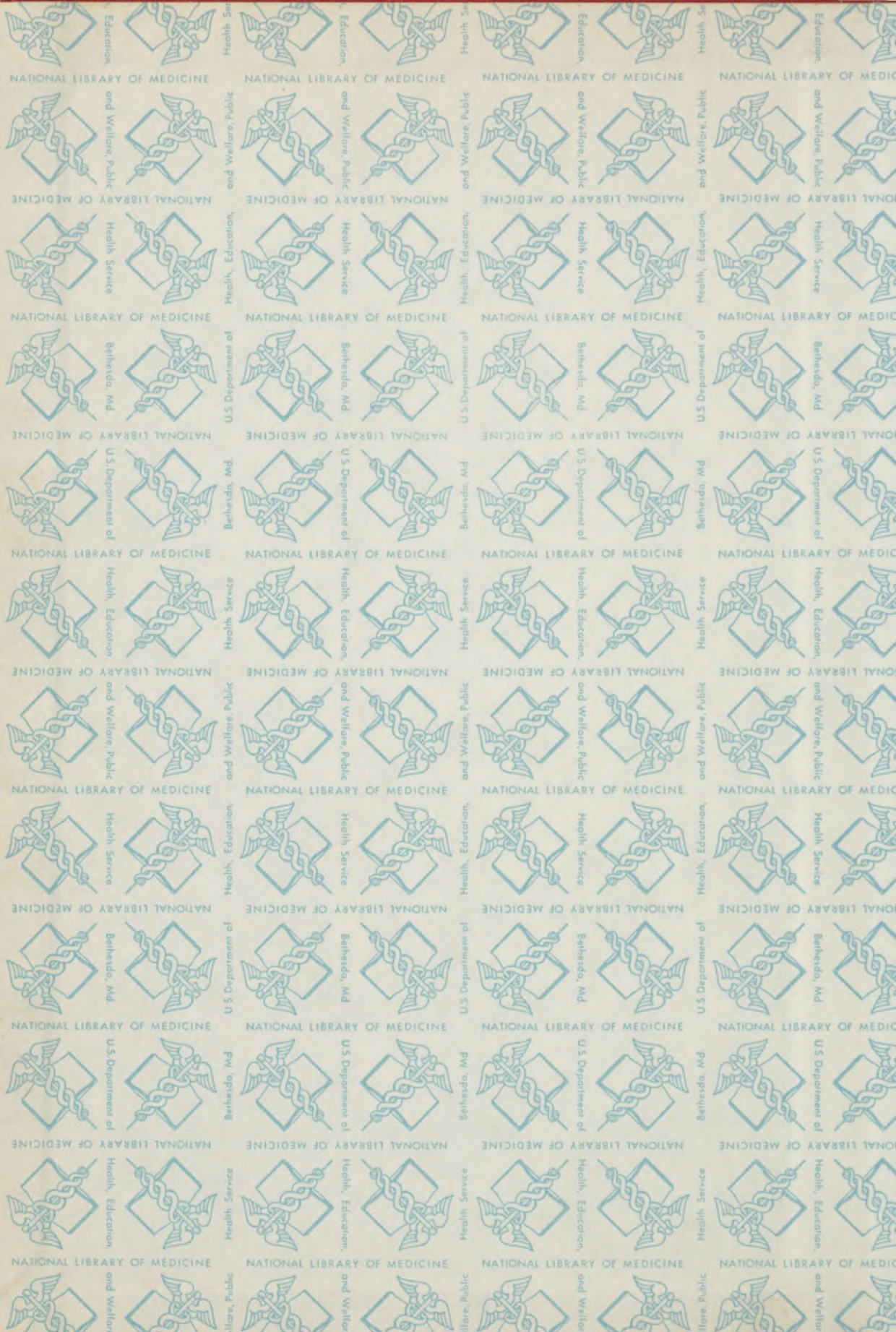
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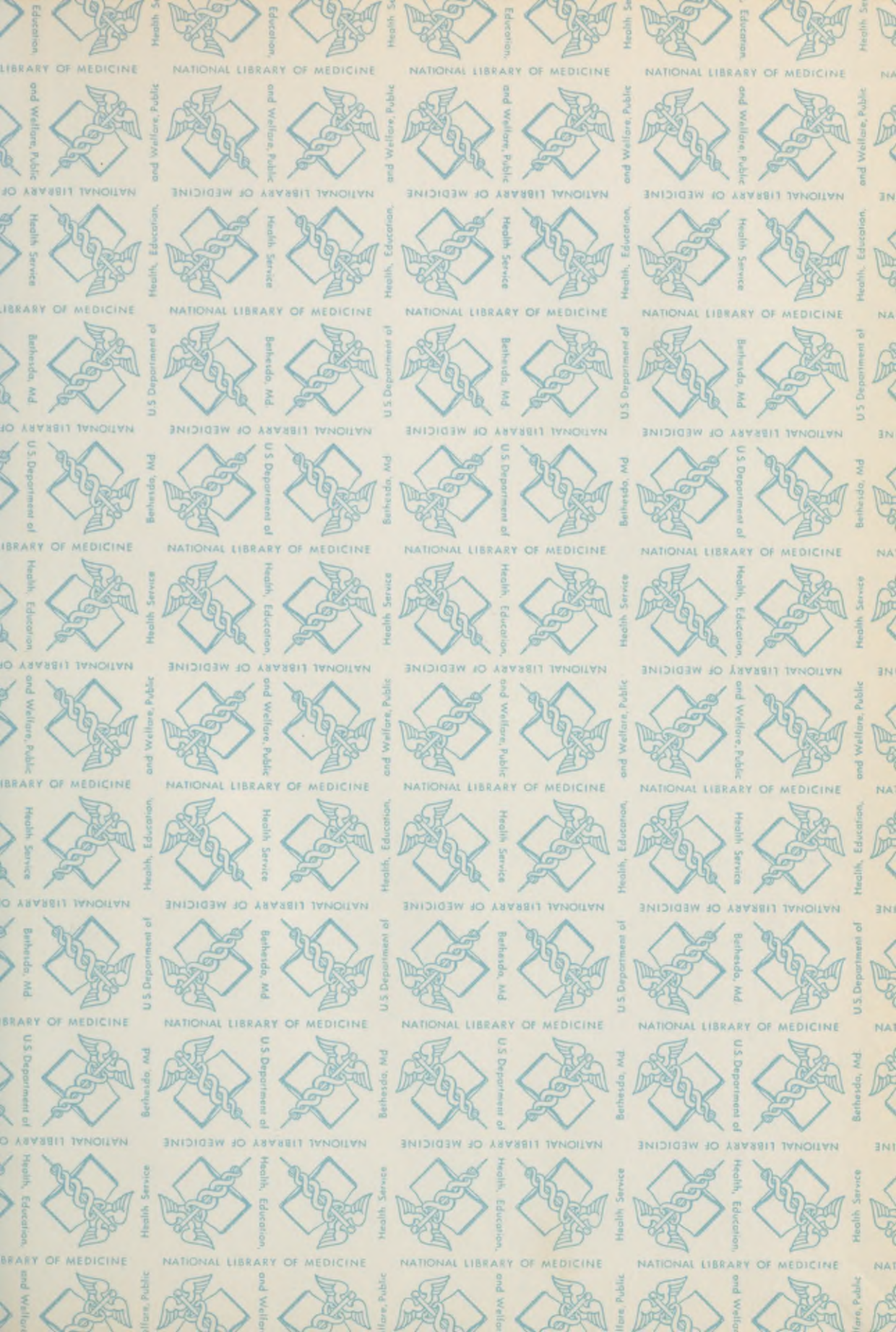
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GERMAN DENTAL INDUSTRY

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CONFIDENTIAL

COMBINED INTELLIGENCE OBJECTIVES
SUB-COMMITTEE

1945

CONFIDENTIAL

GERMAN DENTAL INDUSTRY

Reported by:

EVERETT L. HOSKINS (T.I.I.C.)
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LEADER CHRISTOFER R. HALL (B.I.O.S.)

CIOS Target No. 24/327
Medical

Allied Forces: Supreme Headquarters
COMBINED INTELLIGENCE OBJECTIVES SUB-COMMITTEE
G-2 Division, SHAEF (Rear) APO 413

CONFIDENTIAL

I N D E X

/Equipment:

SCOPE AND PERIOD OF INVESTIGATION

This report covers an investigation of German manufacturers of the Important Materials, Instruments, and Equipment produced for use by the Dental Profession, except certain products produced for dentists by Pharmaceutical manufacturers.

The investigation was made by a combined British and American team and the period of investigation was from 26th July 1945 to 28th August 1945.

The area covered by the investigation was all of Germany, except Berlin and those areas occupied by the U.S.S.R. However, as the Berlin area is the only large centre of Dental Manufacture not included, and the Dental goods produced in Berlin (with the exception of Diamond Points) are duplicated elsewhere in Germany, this report is considered by the Investigating Team to cover the complete Dental industry. One very small manufacturer of Diamond Points (Ackermann) was found at Göppingen, but the Military Government has not licensed him to manufacture, and his volume of output and production methods were not considered representative of what German Industry is able to do in this field.

As a matter of record, and for possible future investigation, the larger firms formerly in the Berlin area, who were not included in this investigation, are the following:-

Richter and Hoffman	-	Dental Cements
Bruder Fuchs.	-	Cabinets, Chairs and Equipment
Drendel & Zweiling	-	Diamond Points
R. Froeschke & Co.	-	Sterilizers and Laboratory Equipment
Kaltenboch & Voigt	-	Handpieces
Dr. Abrahams Laboratories	-	Cements
Horico	-	Diamond Points

It is not known how many of these are still active.

The original target list included the names of 57 manufacturers. Twelve of them were either no longer in operation or a visit to them was not practical. Six manufacturers not on the original list were examined and there are 51 firms here reported. That number does not include Dental Dealers interviewed for the purpose of checking findings or securing information.

It will be realised that the Dental Industry covers a wide range of specialised manufacture. The investigating team could not have a detailed technical knowledge of all kinds of manufacture and therefor attempted to secure basic information with the idea that any additional detail required in respect to any one phase of the industry can be secured if necessary through Military Government Authorities, or by a special visit to the particular target.

/Method

Method of Investigation

In making this investigation the information sought was the following:-

(1) New materials or techniques not known to, or an improvement upon those in use by, the Profession of the United States or Great Britain.

(2) Manufacturing methods not known by, or an improvement upon those practised by, the Dental Industry of the United States or Great Britain.

(3) Substitute materials used by German Dental manufacturers during the war.

(4) Present position of German manufacturers with respect to producing for domestic needs.

The accuracy of some of the information of this Report was checked in the Field with officers of the Dental Corps of the American, British and German armies, and with German dealers in dental supplies located in varying sections of the country.

Findings

No unknown materials or new techniques of major importance were uncovered. A few different methods of manufacture, or substitute materials of possible interest, are mentioned later under the report for the particular type of manufacture to which they are related.

Only one manufacturer (Siemens-Reineger at Erlangen) was found who acknowledged having shipped any dental materials for the Japanese Army. Their shipments were a small number of units in the early days of the Pacific war.

Situation with respect to specific types of manufacture

Although detailed information secured from the inspection of each manufacturer is a part of this report, the following is a summary by types of dental manufacture.

Artificial Teeth

The three principal German factories (Zahnfabrik Weinand Sohne & Co. - Vita Zahnfabrik H. Rauter O.H.G. - Standard Zahnfabrik A.G) manufacturing artificial teeth are intact in equipment, although manufacturing for the moment on a limited scale. However, given fuel

/and

and raw materials they could produce beyond pre-war capacity.

During the war, production of some types of porcelain teeth were prohibited and precious metals were not available for tooth pins. The quality of porcelain has depreciated in some cases due to the necessity of using an inferior grade of feldspar and a scarcity of certain colour oxides. To offset these handicaps all three manufacturers developed lines of Plastic (acrylic) teeth and they report an experience satisfactory enough to think that in Germany the Plastic tooth is the tooth of the future. The raw material for all of these teeth is supplied to all manufacturers by one firm (Kulzer & Co.) and is supplied in a powder form so that only the oxides for colouring need be added. It is used either wet or dry. That is, it is placed in the tooth moulds as a dry powder or in paste form.

Artificial teeth of the acrylic type are known in both Britain and America, and the German products may have no points of superiority over ours, but the Investigating Team feels that the enthusiasm of the German manufacturers about them should be mentioned.

It is a matter of interest that one tooth factory (Standard) is fully American owned, a second (Weinand) majority owned by both American and British capital.

Furniture and Equipment

Outside the Berlin area there are three large manufacturers of equipment (Ritter A.G. - Siemans-Reinger Werke A.G. - Emda, Geo.Hartman). Two of these are intact, and given materials and fuel could immediately produce at full capacity. In fact one is already producing in a limited way. The third firm (Emda) suffered damage which will take some time to repair but is already planning to resume manufacture on a reduced scale. One of the intact plants (Ritter) is also 100% American owned.

During the war these plants were required to aid in the manufacture of war materials and their output of dental equipment was restricted to Army needs only. The one unit produced was a simplified utility design. Also, the quality of equipment suffered because of the necessity to substitute for aluminium, leather and natural rubber and an inability to chrome plate. There were no improvements in design.

X-ray and X-ray Equipment

The largest manufacturer of dental X-ray equipment (Siemans-Reinger Werke A.G) is intact and has started a limited production of X-ray machines and X-ray tubes.

Here the only evidence of new developments or innovations in dental X-rays is an accessory to the standard dental X-ray machine

/which

which permits screening of the teeth while the patient is in the chair. The investigators are not certain whether a similar device has been considered by American and British manufacturers.

Forceps and Long Handled Instruments

The centre of this type of manufacturing is Tuttlingen in the French zone of occupation. In Tuttlingen there is a wealth of skilled instrument makers and two plants (Chiron-Werke G.m.b.h. - Jetter & Scheerer) alone have a complete and modern machine equipment and a combined capacity sufficient to supply dental instruments many times beyond the requirements of Germany. Both plants have well organized apprentice schools for training instrument makers.

Both firms are large producers of surgical instruments and dental instruments represent not more than 10% of the total plant production.

During the war both plants were active in the manufacture of armament materials for the German Army, one as a prime contractor and the other as a sub-contractor, and the better equipped (Chiron-Werke) was expanded about 3 times in size for that purpose. The owners now expect to utilize the equipment so secured, and the additional factory space constructed, for instrument manufacture. One plant (Chiron-Werke) suffered no war damage, while the other had only slight damage. There are other smaller plants but these two are of particular interest.

In general, the only reducing of quality of instruments during the war was through an inability to chromium plate.

In German production all blanks for forceps are drop forged and it is only special patterns, where small numbers are produced, that are hand forged.

The only innovations found in instrument manufacture were a special handle for long handled instruments for the purpose of making the completed instrument light in weight and improving the balance. This is accomplished through the use of a plastic handle or by a handle of hollow brass tubing (used in place of the orthodox steel rod) and shaped for the fingers. Instrument points are cemented into the plastic handle and are swaged into the brass handle. Both types of handle are reported to have been popular with the German dentist.

Bur manufacturers

Of the four largest bur manufacturers in Germany (Busch & Co. - Emil Lange - Hager & Meisinger G.m.b.h. - Jota Werke Gebr Funke A.G) three are practically intact and the fourth (Jota Werke) almost a complete war casualty. The equipment of the three is excellent and has

/sufficient

sufficient capacity to produce many more burs than will be needed for German requirements. Machinery is basically the same as that used in America and Britain with individual refinements made in the different plants. There are no completely automatic machines, and the German manufacturers do not consider a completely automatic machine to be practical, but most manufacturers have automatic feeds for the cutting machines and one operator can serve a battery of them.

It had been reported that a new type of steel wire for burs was developed in Germany but as far as this team could determine it is merely a change in formula of the steel previously used, this ~~change~~ being necessitated by a war shortage of Wolfram and Vanadium. This change is reported to be merely a substitution of Chrome where Wolfram is eliminated and the Vanadium content is lowered. The ~~change~~ ALTERATION apparently does not affect the quality of the bur, the method of tempering, or any part of the other manufacturing process.

The exact formula for the bur wire used by German manufacturers prior to the war is not known to the investigating team, nor is it believed that it is known to the individual bur manufacturer. Probably the exact formula would have to be secured from the steel producers and all bur wire seems to have been supplied (at least during the war) by Stahl-Werke R. Plate, Augustenthal, near Ludenscheid, Westphalia.

Rubber for dentures

During the war, natural rubber for manufacturing dental rubbers was allocated by the German Government. Towards the end of the war all such manufacture was centered in the plant of Ernst Frölich, Osterode, Harz, and on 1st January 1945 this firm was ordered to use only synthetic rubber for denture rubbers. It seems to have used it successfully. The type of synthetic rubber so employed is Buna S.S.E. (a new formula developed for use with Insulin which is reported not to contain iron and which is odourless), and the end result appears to be as good as when natural rubber is used. The vulcanising technique for the synthetic product is the same as with natural rubber and vulcanised dentures of natural rubber can be repaired with the synthetic product.

In the U.S. and Britain the value of this development is probably questionable (except in the unlikely event of an acute shortage of both rubber and acrylic denture materials) because although the end result is good, the manufacturing process when using synthetic rubber is reported to be more difficult and more costly. In the German synthetic product the pink rubbers are not satisfactory either in colour or in shelf life.

It is of interest that this development seems to have been accomplished by Mr. Holz Abfel, Chemist for Frölich, and the I.G. Farbenindustrie who developed Buna S.S.E. had no knowledge of its use for

/dental

dental rubbers. The latter, however, report that Buna S.S.E. is not toxic and has no odor.

Acrylic Denture Materials

Acrylic denture materials in Germany are in the hands of one firm (Kulzer) who in turn is dependent upon Röhm and Haas as the one source of their methyl-methacrylate. Kulzer's product (Paladon) is a polymer and monomer, and because of the stabilizer used keeping qualities for the monomer are claimed to be superior to those produced for the same type of product in England. This claim could not be verified, but the correctness of it can be proved. Whether this type of product (Polymer and monomer) is as satisfactory to the dentist as the prepared wafer used in America is probably a matter of the opinion of the individual dentist.

No evidence was found of any acrylic product suitable for filling of teeth.

Dental Cements and Filling Materials

There are a number of manufacturers of silicate and oxy-phosphate cements but no indications were found of any products superior to those known in our countries. However, at Leverkusen I.G. Farben works, a method of preparing or milling silicate powders is in use which may be of interest to American and British manufacturers. This method seems to shorten materially the time of manufacture. This apparatus is described in more detail in the report of the Leverkusen visit.

Carborundum Stones

There are several manufacturers of carborundum stones and discs, and at least one of heatless wheels. However, neither the end product nor the method of manufacture seem to differ from those that are known in America and Great Britain.

Miscellaneous Materials

Among some lesser used materials the following may have a limited interest, or be considered as of value in the event of a future shortage of certain materials in America and Britain.

(a) An impression material similar to Dentocoll where the Agar-Agar base is held together by spun glass fibres instead of cottonwool fibres.

(b) A base-plate manufactured from polystyrene instead of shellac.

(c) Waxes using mineral waxes and polyvinyl in place of beeswax.

(d) Vaduril - a product made from animal bones and used for restoring the calcium deficiency of teeth. (This product has been known experimentally in America and England)

/(e)

(e) A product for sterilising root-canals and treating Apical Cysts, consisting of a pellet and a liquid, the pellet after being placed in the pulp canal is moistened with the liquid and then releases chlorine gas. The tooth is immediately sealed with a temporary cement, the closure being allowed to remain from two to three days. The German report is that one treatment is usually sufficient for sterilization.

(f) An antiseptic solution impregnated into paper. This process might be of value in war time, when shipping space must be conserved, as a very small package of paper sheets will prepare 100 litres of antiseptic solution. One sheet to a litre of water prepares a $\frac{1}{2}\%$ solution.

(g) Nerve canal points made from a colored polystyrene material. It is claimed that the material and the color give a sharp contrast in Radiographs.

Details regarding these appear in the Target Reports following; most of them are developments at the Leverkusen plant of I.G. Farbenindustrie.

Some general impressions of the investigating team

Some general impressions of the effect of the war on the German dental industry are:-

(A) During the war the German Government restricted the production of dental rubbers and equipment. This evidently was done to

(1) Give a better control of production for war requirements.

(2) Release machinery for the direct production of munitions or materials for combat.

(B) Because of a shortage of some basic ingredients, or raw materials, the use of substitute materials was not only encouraged during the war but in certain cases made mandatory. Goods produced in this period were as a result below German pre-war standard.

(C) Most of the important plants manufacturing dental materials are not badly damaged, and in cases where buildings are

/damaged

damaged machinery and equipment is often intact. In only a few places is destruction sufficient that renovation or replacement will take a long period. The intact plants are, though, experiencing difficulty in starting manufacture again, except in a limited way, because of the shortage of coal, gas and electricity, and the disorganised transportation prevalent throughout Germany.

(D) In Germany there is at present an acute shortage of supplies for the civilian dentist. It is not known how many civilian dentists will return to practice, because a number of them seem to have served with combat troops and may have been killed or injured, and it is therefor difficult to make any reasonable estimate of the volume of supplies which will be needed for domestic use. There also must be a number of bombed-out dentists who have not yet returned to practice. However, the requirements will be great enough to keep German manufacturers busy for some period. Even the needs of those dentists now in practice are not cared for at the moment because travel handicaps and disorganisation of shipping facilities prevent the diminishing stocks of dental dealers from being replenished. At the moment, also, manufacturers can only sell to customers who are able to call at the plant and take the material or equipment with them. The shortage of equipment is reported to be particularly embarrassing and some returning dentists are forced to start practice using head rests which are attached to ordinary wooden chairs. The shortage of electric engines also necessitates considerable use of foot engines.

(E) Before the war an average of somewhere near 50% of all dental goods produced in Germany was exported to foreign countries. In spite of the acute domestic shortage of goods for domestic dentistry, the average German manufacturer asks when he is going to be permitted to export, and this seems to be of more interest to them than caring for the domestic market.

(F) Unlike American and British manufacturers, who during the war experienced many difficulties because of shortage of labour and materials and in many cases are now faced with a problem of replacing depreciated equipment, the German manufacturers up until the Allied invasion had sufficient materials (although some were ersatz), overcame a labour shortage by the use of foreign slave labour, and could renew or secure additional machine equipment. Many German dental manufacturers apparently finished the war with a greater productive capacity than they had in pre-war days, and given coal and transportation they would be able to secure materials and resume production on a larger scale than ever before.

(G) The investigating teams found no class of German Dental Manufacturers who had been dependent upon the importation of raw material, with the sole exception of the manufacturers of porcelain teeth who must import Feldspar.

/Supplementary

(H) Travel in Germany at this time subjects one to many conflicting impressions, but all of the investigators were left with a very distinct impression that any scientific progress of Dentistry was largely, if not completely, arrested during the war. The Government appears to have considered all but necessary Dentistry as a luxury. No accurate information was secured regarding the Dental Schools operating during the period of hostilities, of the number of students permitted each, or of any research activities of Dental Schools. However, judging from various statements made by unofficial individuals, all functions of Dental Schools practically ceased. This inactivity for a fairly prolonged period, coupled with the decrease in the number of dentists who will return to practice, and the conditions under which they must practise, would seem to indicate a rather dark picture of the dental care which the civilian population will receive in the next few years.

Supplementary information

During the investigation of several plants in the American zone of occupation it was reported that investigators from the U.S. Army Dental Corps, or officers of the Military Government, had previously made investigations. It is hoped that any information secured by any such other investigators is available to supplement this report.

E.L. HOSKINS
H.S. DIXEY
C.R. HALL (LEADER)

London, England.
4th September, 1945.

INTERVIEW NO.1. BY DENTAL TEAM INVESTIGATING

ON TRIP NUMBER 717

Date of Visit 27th July 1945.

Interview with Mr. Carl Rohwer of Lünebergerstrasse 4, Hamburg, Germany.

Background. Mr. Rohwer is the proprietor of a small dental depot, which has been operating in Hamburg during the War and some years prior to it. His business is to supply the requirements of civilian dentists and laboratories serving these dentists in the Hamburg area.

This interview was considered advisable in order to check the possibility of this small depot serving a cross section of the German dental profession not covered by larger concerns. Also it was thought this depot might furnish a lead to new materials, processes or techniques promoted by smaller manufacturers, with whom the larger dealer was unlikely to do business.

Supply Position

A. War Period

Of the larger apparatus such as, Chairs, Units, Dental X-Rays, Electric Engines, etc., Mr. Rohwer stated no supplies had been available for 3 years. As regards instruments and expendable commodities such as wax, teeth, denture and filling materials, supplies were sufficient for normal requirements until the end of 1943, exceptions being a few items where the needs of the Services were such that the civilian dentist was rationed. A notable example was rubber for vulcanite dentures. Since that date the supply position had declined and following February 1945, no goods were available. Deliveries of acrylic denture materials and dental rubber ceased in October 1944. Mr. Rohwer attributed this position principally to lack of transport.

B. Since VE Day

Mr. Rohwer stated he saw no promise of improvement in the position.

Substitute Materials necessitated by War-time conditions

Examination of the very limited stocks revealed they contained only three articles altered by war conditions, - bristles of tooth and lathe polishing brushes and foot engine arms of non-plated steel.

New Developments since outbreak of War

Mr. Rohwer stated he was not aware of anything of this nature.

INTERVIEW NO.2. BY DENTAL TEAM INVESTIGATING

ON TRIP 717

Date of Visit 27th July 1945.

Interview with Mr. Kretschmer, Chief Clerk of Adler Dental Depot, Werner Hentschel, Grosse Bleichen, Kaiser Gallerie IIII, Hamburg, Germany.

Background (1) Prior to 1943 the depot had been situated at Ferdinandstrasse 15, Hamburg; the premises being destroyed.

(2) As this dealer purchases supplies from the larger manufacturers it was thought advisable to investigate the supply conditions and ascertain what could be learned about new materials, processes and techniques.

(3) This appeared to be a well kept and well conducted depot of the better class, serving the civilian dentists and laboratories in the Greater Hamburg area.

Supply Position

A. War Period Mr. Kretschmer's statements indicated their experience was practically parallel with that of the smaller dealer previously interviewed, namely, no equipment during the last three years, no supplies of acrylic denture materials and dental rubber since October 1944, and from February 1945 no supplies of any kind.

B. Since VE Day This organisation was more optimistic in regard to future supplies, the proprietor Mr. Werner Hentschel being at present in the Rhineland negotiating for merchandise. Present stocks were very depleted.

Substitute Materials necessitated by War-time conditions

Mr. Kretschmer stated the only war-time substitutes he had been supplied with were relatively unimportant and presented for examination specimens of Plaster Mixers and Instrument Handles made from "Plexiglass", Impression Trays made from an unidentified transparent plastic material, and Baseplates of polystyrene.

New Developments since outbreak of War

Apart from these substitute materials, Mr. Kretschmer stated he was not aware of any new developments.

INTERVIEW NO.3. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of Visit 27th July 1945.

Interview with Mr. Rapche (Manager) interpreted by Mr. Lancz (Packing Foreman) of Hamburg branch of Siemens - Reiniger - Werke Aktiengesellschaft, Ferdinandstrasse, Hamburg.

The purpose of this visit was to establish whether the Berlin address of Siemens given on our target list still applied.

It was learned that the factory was at Erlangen, Bavaria and the Berlin address was that of the Sales Office. Owing to destruction of the Berlin premises, the Sales Office had been transferred to the Erlangen factory.

INTERVIEW NO.4. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of Visit 27th July 1945.

Interview with Mr. John Poulson and Mr. Dettmers, partners of Geo. Poulson, Hohe Bleichen 20, Hamburg, Germany.

Background. This firm is a dental depot, in addition to being concerned in the production of dental rubber for Vulcanite dentures, the rubber being sold under their own name.

Mr. Poulson stated the firm was founded in 1867 and that his son, Mr. George Poulson was also a partner in the business. The depot gave the appearance of an old established concern.

Mr. Dettmers explained that their part of the manufacture of "Geo. Poulson" rubber was confined to the mixing of the ingredients - colour dies, zinc oxide, etc. - and until 1943 these mixed ingredients had then been forwarded to the New York - Hamburger Rubber Co., 19 Maurienstrasse, Hamburg, who actually manufactured the dental rubber.

However, in July 1943 the New York - Hamburger Rubber Co. plant was destroyed. Thereafter manufacture had been carried on by Ernst Frölich G.m.b.h., Osterode. (See interview No.8)

Supply Position

A. War Period

The experiences of this firm were practically parallel to those already visited as far as supplies for their retail depot were concerned. No equipment had been delivered to them for approximately three years and the supply position of other commodities had declined progressively until February 1945 when none had been forthcoming.

However, deliveries of rubber from Osterode had been maintained until about April last, after which transport had become disorganised.

B. Since VE Day

Mr. Poulson anticipated that the New York - Hamburger plant in Hamburg would re-start manufacture of "Geo. Poulson" rubber in a few months time.

Substitute Materials necessitated by War-time conditions

Mr. Poulson stated that as far as he was aware no entirely synthetic dental rubber had been used. Pure rubber had been

made available to New York-Hamburger Co. throughout the war, with the stipulation that it should be used for repairing existing Vulcanite dentures only. Attempts had been made by the New York-Hamburger Co. to incorporate a percentage of synthetic rubber with the Crude para, but these had proved unsatisfactory.

Specimens of artificial porcelain teeth (Solo-Wipla) made by Wienand Sohne & Co. G.m.b.h. of Sprendlingen, Frankfurt, were shown. These teeth contained Stainless Steel as apart from Gold Clad pins and Mr. Poulson maintained they were as satisfactory as the Gold Clad pin tooth. (See Wienand interview No.31)

Also specimens were shown of Nerve Canal Points made from polystyrene instead of gutta percha. Mr. Dettmers stated these points were not favoured by users.

Interview with German Dental officers

The opportunity was taken of interrogating two German dental officers from the Military Clinic, Hamelwoerden, who were in the Poulson depot. They stated in answer to the questions put to them, that the general opinion of the German Army Dental Corps was that (A) acrylic denture materials were not as satisfactory as rubber; dentures made from the latter material being of a better fit, (B) Paladon was the only acrylic denture material used, being preferable to Helisdont. (C) Acrylic teeth were satisfactory for full dentures, but not for partial dentures, and porcelain teeth were preferred for all work especially those of the three colour type. (D) They confirmed Mr. Dettmers' remarks that nerve canal points made from polystyrene were not favoured, and that the Stainless Steel Pin Teeth were as satisfactory as the Gold Clad Pin Teeth.

INTERVIEW NO.5. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 28th July 1945.

Interview with The New York-Hamburger Rubber Co.,
19, Maurienstrasse, Hamburg, Germany.

Persons interviewed Mr. Traun, Mr. Von Katzler } Directors

Mr. Ebert (Secretary to Mr. Traun)
Mr. Kraetzschmar (Sales Manager)

Background The purpose of this interview was to verify statements by Geo. Poulson mentioned in Interview No.4. New York-Hamburger are the only dental rubber manufacturers in Hamburg, and Mr. Traun confirmed that until July 1943 they had produced "Geo. Poulson" dental rubber, the special colour dies and zinc oxide mixtures being supplied to them by Poulson. They also made rubber for de Trey Gesellschaft mbh, Berlin & Ubert & Co., Berlin, though Poulson was their largest dental rubber customer. All three firms had marketed the rubber under their own name, a proportion of it being exported to Scandinavia and certain European countries.

However, the manufacture of dental rubber by New York-Hamburger represented only a small proportion of their business, the major part being articles made from ebonite and synthetic rubbers. During the war period the firm also manufactured shells.

Mr. Traun confirmed that since the total destruction of their dental rubber plant, manufacture had been carried on by Ernst Frölich, Osterode. (See interview No.8)

Supply Position

A War Period Until their factory had been destroyed, Mr. Von Katzler stated natural rubber had been released to them by the German Government for production of dental rubber.

Substitute Material necessitated by War-time conditions

No substitute material was developed as natural rubber had been available. We were informed they had made unsuccessful attempts to incorporate a percentage of synthetic rubber into the natural product.

Previous Investigation

It was stated by Mr. Traun that previous interviews had taken place with Major Wright, whom we presume is the Rubber Controller, British Zone. Mr. Traun understood Major Wright had in hand the future policy for their firm.

INTERVIEW NO.6. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of Visit 28th July 1945.

Interview with Captain Thomson, A.D. Corps.,
22lst British Field Dental Centre,
94 British General Hospital,
Rubenkamp, Hamburg.

A call was made at this Field Dental Centre to ascertain if possible whether they had found any war-time developments in respect of German dental products. Captain Thomson stated he was unaware of any such developments. However, he permitted us to examine a captured German Army Dental Corps field surgery kit. Inspection of the apparatus and materials failed to reveal any items differing materially from those known in America and England.

Later we were informed that other German Army Dental Corps field kits, contained laboratory equipment including apparatus for making stainless steel dentures.

INTERVIEW NO.7. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of visit 30th July 1945.

Interview with Mr. Richard Hinrichs of Ernst Hinrichs, Osterode, Harz, Germany.

Manufacturers of Dental plaster and investments.

Partners Mr. Richard Hinrichs (in charge of office)
Mr. Ernst Hinrichs (in charge of factory)

This firm did not appear on our official target list, but we were requested to visit them by Major V. Ignatieff of G(T) & C.W. Headquarters, Bad Oeynhausen.

Background Mr. Richard Hinrichs stated his firm was founded in 1888 and maintained it was the leading dental plaster factory in Germany. They manufactured model plaster, stone plaster, impression plaster and investment plaster.

According to Mr. Hinrichs, before the war they had sold plaster to dental depots all over Europe, Scandinavia, also to South Africa: during the war to the German Services and since May last to British, U.S. and German Hospitals.

Supply Position

A War Period

Raw Materials

Mr. Hinrichs mentioned their suppliers of raw materials were as follows:-

Chalk	Messrs.	Roddewig of Bad Hausen
Gypsum	"	Röder of Walkenreid (British Zone)
	"	Burgardt of Walkenreid (one factory in British Zone another " " Russian Zone)
Rouge	"	Heinemann & Co., Gottingen.
Calcium Sulphate	"	Reidl-de-Heim, Chemical Factory Seelze, near Hanover.
Alum	"	Heinemann & Reidl-de-Heim.

Mr. Hinrichs informed us that since March last, neither raw materials or fuel had reached him due to lack of transport,

/and

and the factory had therefore been operating on a very reduced scale. He also maintained that his normal coal consumption was 5 tons per day which enabled him to produce 15 tons plaster per day. This output was maintained during the war up till March last.

Substitute Materials necessitated by War-time conditions

Mr. Hinrichs stated that throughout the war until March 1945 he had secured supplies of all the standard raw materials needed and therefore had not been compelled to develop substitutes.

New Developments since outbreak of War

According to Mr. Hinrichs, hisfactory had produced no new plasters during the war, and the general impression gained was that only dental plasters from known formulas were manufactured.

(See also Statistics ~~attached~~.)

INTERVIEW NO.8. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 30th July 1945.

Interview with Mr. Waldorf Frölich, proprietor of Ernst Frölich, G.m.b.h, Gumuni-v-Regenerierwerk, Freiheit, Osterode, Harz, Germany.

Manufacturers of Dental rubber.

Background A visit to this firm was considered desirable, following interview No.5.

Mr. Waldorf Frölich confirmed that since July 1943 he had been authorised by the German Government to produce dental rubber.

Prior to the war, he stated there had been four firms in Germany making dental rubber; (investigators were only able to secure the names of three - Frölich; New York - Hamburger and Hoechxterschen).

At the outbreak of war the German Government ordered that manufacture of dental rubber should be confined to one firm only - New York - Hamburger, - but after their plant had been destroyed Ernst Frölich G.m.b.h. were instructed to take over sole production. Since July 1943, therefore, Frölich had been supplying dental rubber for German needs.

Inspection of Dental Rubber Plant

The dental rubber plant was found to consist of one rolling and one milling machine, both of orthodox type. The method of manufacture and packaging the finished rubber conformed to that used by British and American manufacturers. Dental rubber production occupied only two rooms in a fairly large factory.

Supply Position

A. War Period

Since he re-started dental rubber manufacture, and until January 1945, Mr. Frölich stated that supplies of natural rubber, together with other raw materials, had been made available to him by the German Government in reasonably adequate quantities.

B. Since VE Day

In recent months Mr. Frölich stated the factory was only able to operate on a much reduced scale.

/Substitute

Substitute materials necessitated by War-time conditions

On 1st January 1945 the German Government instructed his firm to make dental rubber entirely from buna rubber. Prior to this development the Government had undertaken toxicity tests of synthetic rubbers, after which the order to proceed was given. His firm had never sold dental rubber which contained a mixture of pure rubber and synthetic.

According to Mr. Frölich the buna was supplied to him by I.G. Farbenindustry and this material will be investigated further at Leverkusen.

Mr. Frölich mentioned that as far as manufacture was concerned the method was, generally speaking, the same as for pure rubber, but the synthetic material was more difficult to process and required different chemicals for softening. He considered it was as good as pure rubber for base but not for pink.

Inspection of Dental Rubber Laboratory

Mr. Holst Abfel, the chemist of the plant, stated that synthetic rubber had been tested in the laboratory for 6 months, and was being produced in the full range of colours. So far they had not experimented with buna for soft lining rubbers, though quick vulcanising synthetic rubber had been produced. Synthetic rubber required the same vulcanising procedure as natural. He stated also that natural rubber dentures could be repaired with synthetic rubber and vice-versa.

Each manufacturing batch of synthetic rubber was tested and specimens vulcanised.

Mr. Abfel showed us a number of laboratory test samples of vulcanised synthetic rubber intended to indicate the lack of reaction to mouth acids and saliva.

INTERVIEW NO.9. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 30th July 1945.

Firm Gip - Schöps, Bad-Sachsa, near Osterode, Harz. Compounders of dental impression plaster and investment compounds.

On our target list the address of this firm was given as Hamburg 24. Enquiries at the headquarters of the Hamburg police failed to bring results, but Mr. John Poulson of Geo. Poulson Dental Depot, Hamburg gave us the Bad-Sachsa address.

On visiting Bad-Sachsa we found the premises were a private house. Interrogation of members of Mr. Schöps' family revealed that he was no longer carrying on business on his own account, but was employed by another concern altogether.

INTERVIEW NO.10. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of Visit 1st August 1945.

Interview with Mr. Stolberg, General Manager of Wilhelm Richter, Bothfelderstrasse 23, Hanover-N, Germany.

Manufacturers of Dental handpieces (straight and contra angle) and dental foot engines.

Background Mr. Stolberg informed us the firm was founded in 1911. Prior to the war their agent in England was Mr. F.C. Reiser, London, and those in America - A. Pfingst, New York, I. Silverman, Philadelphia and The Frank S. Betz Co., Hammond, Indiana. Before the war, exports represented 60 to 70% of their output.

Condition of Premises

Mr. Stolberg mentioned that their offices and one storehouse had been destroyed, but the offices had been rebuilt and inspection of the premises confirmed this.

The factory was, however, completely undamaged and bore every indication of being in an immediate position to produce considerable quantities of handpieces.

Production Figures (for full details see form attached)

Mr. Stolberg stated their pre-war output had been 10,000 straight handpieces and 6,000 contra angle per year, and these figures had been maintained throughout the war, until March 1945. Manufacture had been re-started in May 1945 and the output was now 75% of the war-time figures.

Supply Position

A. War Period

According to Mr. Stolberg there had been no shortage of raw materials throughout the war, their applications being sponsored by the German Ministry of Health.

B. Since VE Day

The supply position had been difficult. Mr. Stolberg explained that Mr. Wilhelm Richter, the proprietor, was on a visit to West Germany with a list of 20 to 30 firms from whom he was planning to purchase raw materials. This visit had been sanctioned by Major Fink, Allied Military Government, Hanover.

/Substitute

Substitute materials necessitated by War-time conditions

Mr. Stolberg stated his firm had not been compelled to use any substitute materials, in fact the quality of their handpieces had been fully maintained. They had, however, been unable to continue chromium plating and had resorted to nickel plating.

New Developments

Mr. Stolberg informed us they had no new developments or designs in mind; their last improvement to the straight handpiece was in 1936 and this is well known to the British and American dental trade.

Inspection of Factory

The plant was exceptionally well equipped for the manufacture of dental handpieces and consisted of 300 odd machines, including automatics and a large battery of semi-automatics.

It was interesting to note that nine new and modern direct drive machines had been installed during the war, two being of Swiss manufacture.

General Remarks

In addition to handpiece manufacture it transpired this firm were producing dental foot engines. Mr. Stolberg explained that these were to be issued to dental depot for sale to dentists whose surgeries had been destroyed or who were being demobilised from the Services. He said Richter had manufactured foot engines until 1929. It had been re-started three weeks ago.

These foot engines, considered by British and American standards, were very inferior but Mr. Stolberg maintained Richter sold them for 98½ marks each. The bases were of cast iron, roughly white enamelled, the upright was of zinc and the telescopic rod was carbon steel, nickel plated. No brass had been used.

It was found that the miniature handpiece produced by this firm before the war had been discontinued, and no immediate arrangements had been made for recommencement.

Mr. Stolberg stated during the war his firm had manufactured air pressure gauges for the Luftwaffe and showed us specimens.

It was obvious the production volume of this concern could not be maintained without export business, and the firm undoubtedly have plans in this connection.

(See also Statistics)

INTERVIEW NO.11. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 1st August 1945

Firms Dentalwerk Paul Odge, Hanover.
(manufacturers of dental atomisers)

Paul Odze (Goralix-Werk, Hanover.
(manufacturers of dental rubber
specialities and denture material)

Enquiries at Allied Military Government Headquarters, Hanover failed to trace these two firms.

Mr. Stolberg of Wilhelm Richter (see interview No.10) informed us that the above two firms were the same concern. He stated Mr. Odze, a refugee, emigrated about 1936 to Holland and thence to Paris and South America.

The firm was then taken over by the German Government and continued to function until 1943, when the premises were entirely destroyed. Since then it ceased to operate.

He mentioned that Paul Odze manufactured Goralix denture material.

We believe that Paul Odze, at present making diamond points in England, may have been connected with this firm.

INTERVIEW NO.12. BY DENTAL TEAM INVESTIGATING

ON TRIP NO. 717

Date of Visit 3rd August 1945.

Interview with Mr. Wilhelm Anton Tussing (Manager) and
Mr. Anacker (Works Manager) of:-
A. Tussing, Lindenstrasse 230, Dusseldorf, Germany.

Manufacturers of Dental Nerve Canal Drills (Beutlerock's type)

Background Mr. Tussing explained that the business was founded 35 years ago by his father and it was now the property of his mother. He had been a prisoner of War in Russia, and had returned home only the previous day.

Inspection of the factory confirmed his statement that a considerable part of it had been destroyed - only one comparatively small shop being fit for housing machinery. Mr. Anacker - recently released from service in the Volkstrum - was overhauling the salvaged machines.

Mr. Anacker stated the firm manufactured Beutlerock type nerve canal drills, spiral reamers, and a special line of contra angle and straight pulp canal files with long shanks known as Dr. Hedström pattern. Examination of these products revealed a high standard of workmanship.

According to Mr. Tussing, prior to the war a small export business was carried on with Sweden and France.

Mr. Anacker informed us that in addition to selling their products in their own packing, they manufactured drills and reamers for Jota-Werk Gebr. Funk A.G. Leichlingen near Dusseldorf, Hager & Meisinger G.m.b.h., Kronprinzenstrasse 5/9, Dusseldorf and Busch & Co., Engelkuchen, near Cologne. Tussing supplied the drills in packets bearing the firm's name in each case. It is probable that a good proportion of this material supplied to these other firms was exported.

Mr. Anacker also stated the shanks of the drills and reamers were of iron, zinc coated, the actual drills and reamers being of spring tempered carbon steel.

Supply Position

War Period

The securing of raw materials, according to Mr. Anacker had never been difficult, and as they had always been able to obtain the types of steel used pre-war, there had been no deterioration in the quality of their products.

New Developments

Mr. Tussing stated they had no new developments in mind.

INTERVIEW NO.13. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 3rd August 1945.

Firm Holl & Co., Behrenstrasse Be
Dusseldorf, Germany.

Listed as manufacturers of dental burs.

Town Mayor's Office (Industrial Section) Dusseldorf were unable to trace this firm.

Upon interrogating Mr. Tussing of A. Tussing, Lindenstrasse 230, Dusseldorf (see interview No.12) were informed that Holl & Co. had closed down some time ago. The firm was owned by two brothers who had left the dental business altogether, and left Dusseldorf.

INTERVIEW NO.14. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 3rd August 1945.

Firm Aug. Vormstein & Co.,
Oststrasse Be 13,
Dusseldorf, Germany.

Listed as manufacturers of Gold Amalgams.

Found relatively small premises severely bomb damaged and no trace of firm's name on door plates. Upon enquiring at next house was informed no firm of that name had occupied building in question for last eleven years.

Town Mayor's Office (Industrial Section) Dusseldorf unable to help.

INTERVIEW NO.15. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit — 4th August 1945.

Firm — Hager & Meisinger G.m.b.h.,
Kronprinzenstrasse 5 to 9,
Dusseldorf, Germany.

Manufacturers of — Dental Burs, Dental Abrasives, and Dental Drills.

Interview with — Mr. Wilhelm Noack (Proprietor)
Mr. Wilhelm Noack junr. (Sales & Advertising Manager)
Mr. Mathias Noack (Works Manager)

Background

Mr. Noack junr. informed us that the firm of Hager & Meisinger had been founded in 1924, when Irving Hager & Co. (Dusseldorf bur makers, established 1912) had bought up the Meisinger bur manufacturing concern, an old firm which had started business in Dusseldorf in 1887.

In 1943, one shop of the present factory had sustained considerable damage, resulting in the loss of 102 bur machines. These were completely unusable and attempts to utilise spare parts from them for other machines had not proved satisfactory.

Apart from this, the operational side of this modern factory (building completed 1940) had remained unaffected, and examination of the plant confirmed this statement.

On the occupation of Dusseldorf by the Allies, Hager & Meisinger were instructed to cease production, but two days later on 24th April last, they were permitted to re-start, approval being obtained from the Public Health Department, Allied Military Government, Dusseldorf.

Prior to the war, Mr. Noack junr. stated 50% of their output had been exported; 10% to U.S.A. and 40% to Europe and South America. Miniature Burs had been exported to U.S.A. principally. Their British agents were Watson Dental Co., London, and their American agents were Hans Ostermann of New York, operating the Meisinger Sales Co., of which Hager & Meisinger held an interest amounting to 50 Marks*. The third American agent was Gustav Schaman of 1181, Broadway, New York.

/Mr. Noack

* 50,000 marks.

Mr. Noack expressed the opinion that of the other German bur manufacturers, Busch & Co., Engelskirchen, exported 70% of their output to their U.S. agent, Pfingst; Lange, Engelskirchen exported 90% of his output to his U.S. agent, Charlestein of Philadelphia, and Jota-Werke, Dusseldorf also exported a high percentage of their production.

During the war, Mr. Noack junr. stated the German Army Medical Store depots had purchased burs direct from his firm at the rate of 250,000 to 300,000 per month.

He maintained that all the products listed in his catalogue were actually manufactured by his firm, with the exception of certain root fillers, beutlerock's drills, and pulp canal files, which were supplied to him by A. Tussing, Dusseldorf (see interview No.12).

Supply Position

A. War Period

Mr. Noack junr. informed us there had been no shortage of bur steel, which they obtained from Stahlwerke R. Plate of Augustenthal, Westphalia. The war-time steel had contained slightly less wolfram and vanadium than previously, but this had in no way affected the high quality of their burs and no alteration whatsoever was necessary in the manufacturing process. Raw material supplies for their other products had also been satisfactory.

B. Since VE Day

He stated the supply position had been maintained. Deliveries of bur steel had been made in June and July last.

New Developments since outbreak of War

Both Mr. Noack junr. and Mr. Mathias Noack said there had been no new developments in bur steel, in the raw materials used for their other products, in manufacturing processes, or in the way of additions to their range of products.

Inspection of Factory

The workshops and offices were of modern construction and apart from the severely damaged third floor shop the building showed signs of blast damage only.

The entire plant was well equipped for the production of dental cavity burs, miniature, surgical and vulcanite burs, dental abrasives, lathe wheels, and drills.

/Bur Plant

Bur Plant

Mr. Noack junr. mentioned that no new bur machines had been acquired since the war, the last purchase being in 1936. In all, there were 95 bur forming machines and 130 bur cutting machines. The forming machines were of a type well known in U.S.A. and Mr. Noack junr. stated they were all at least 15 years old.

A feature of the cutting machines was the automatic feed attachment, consisting of a small magazine holding 600 bur blanks.

The machinery and manufacturing process for the abrasives, lathe wheels, and drills was well known in England and U.S.A.

During the war, the firm emphatically maintained they employed no slave labour.

A firm, Friedrich Mass, have their small dental mandrel factory housed in one shop in the Meisinger plant. We were informed they produced 30/40,000 mandrels per year - Huey & Sach type - with a staff of three. The plant consisted of four forming machines.

INTERVIEW NO.16. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 4th August 1945.

Interview with Mr. Julius Rohde.

Listed as of: Heinrichstrasse,
Dusseldorf, Germany.

Moved to: Prussenstrasse 11,
Hösel, near Ratingen, Germany.

This concern proved to be a small wholesale agent selling to German dental depots. His stocks were limited and disorderly, and he was obviously only in a small way of business.

INTERVIEW NO.17. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 6th August 1945.

Interview with Mr. Otto Funke of Jota- Werke Gebr. Funke A.G. Manufacturers of Dental Burs, Abrasives and Cements.

Addresses Repair Shop Aachenerstrasse 71/73, Dusseldorf, Germany.

Factory Am - Hammer 1-3, Leichlingen, near Dusseldorf, Germany.

Directors Mr. Otto Funke (in charge of Office)
Mr. Rudolph Funke (" " " Works)

Background After ascertaining that this firm had been bombed-out twice and their factories destroyed, a visit was paid to their repair shop which consisted of temporary premises in another factory.

Mr. Funke explained that bombing of their factories had severely damaged all 600 of their machines, and these salvaged machines were being transferred in small quantities from the temporary factory at Leichlingen to the repair shop, for reconditioning. He hoped to have twenty-five machines re-assembled by the end of the year, but out of the 600 damaged machines, he considered it unlikely he would reclaim more than 30%. He stated ever since the foundation of the firm in 1909 they had made all their own bur machines; their cutting machines having an automatic feed from a magazine chamber holding 2,000 bur blanks. Their forming machines produced 600 bur blanks per hour and their cutting machines 400 to 500 burs per hour, depending on the size.

Mr. Funke mentioned he had set up a small office at Rottachegem, Tegernzee, Am- Schorm 98, to which all office documents had been evacuated, including, blue prints and specifications.

General Remarks

Prior to the war Mr. Funke estimated his firm exported 30 to 40% of their bur output, 40% of their dental cement output, and 25% of their abrasive output. Their British agent was Henry Courtin & Sons, London, who have a branch in Paris, and their American agent was Patterson, St.Paul, Minnesota.

/General

General Remarks (Cont'd.)

The Jota "Diasilic" silicate cement, Mr. Funke stated, contained a percentage of diamond stone with the silicate. The specification records were at Rottachegem.

Supply Position

A. War Period

Until his bur plant had been destroyed Mr. Funke said he had experienced no difficulty in securing his bur steel from Stahlwerke, Westig Unna, Westphalia, and the quality of the steel had been fully maintained. Raw material supplies for his other products had also been adequate. He knew of no new developments in the way of bur steel, nor had he in mind manufacturing any new products, concentrating entirely at present on reconditioning his machinery.

Mr. Funke did not appear to be certain of the accuracy of much of his information, and as all records had been evacuated, none of it could be confirmed.

A visit was made to the Leichligen factory where a considerable number of severely damaged bur cutting and forming machines were seen, in addition to two damaged abrasive ovens and a damaged furnace for tempering burs electrically.

The factory was operating only in respect of abrasive manufacture - considerable quantities of industrial, and to a lesser extent, dental abrasives being produced by the usual method.

(See also Statistics)

INTERVIEW NO.18. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 6th August 1945.

Firm K. Englemann, Numgstenerstrasse 14.

Listed as:- Solingen.

Enquiries at Military Government, Solingen, and subsequent local enquiries failed to trace this firm or the address given.

Military Government referred us to Carl Martin, Solingen (see interview No.19).

INTERVIEW NO.19. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 6th August 1945.

Interview with Mr. Carl Martin, Sole Proprietor of Carl Martin, Solingen-Höhscheid, near Dusseldorf, Germany.

Manufacture of Dental forceps, tweezers, elevators, scissors, long handled instruments and special instruments.

Background Mr. Martin stated his firm was founded 30 years ago. He manufactured standard patterns of Forceps, elevators, tweezers, pliers and scissors from drop forgings, etc. supplied by various firms. Special forceps and a few instruments of special design will be forged on his own premises as soon as his two forgers have been trained. Plating, both nickel and chrome, was done for him by other factories.

We were informed his pre-war American agents were: William Dixon, Inc., Newark, L. Silverman, Philadelphia (in both cases instruments supplied were marked with the agent's name), also Friedman Specialty Co., Chicago. He had no British agent.

During the war, he estimated that 25% of his production went to the German Army.

(See also Statistics)

INTERVIEW NO.20. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visits — 7th and 8th August 1945.

Firm — I.G. Farbenindustrie, Leverkusen, Germany.

Interview with — Dr. Wingler (I.G. Farben Liaison Office for Allied Forces)
Dr. Neubert (in charge of Dental Manufacturing Section)
Dr. Löwen (Dental Surgeon in charge of Dental Products Research Section)

New Developments

Interest in this plant was particularly from the angle of dental research and the development of new dental products.

The I.G. Farbenindustrie representatives were requested to detail to us information concerning any development since 1940 and any products used extensively by the German Army Dental Corps. The particulars given being as follows:-

Elastopren

An impression material first produced in 1943, manufactured from agar-agar base and similar to Amalgamated Dental Co's. Dentocoll. However, whereas Dentocoll material is held together by cotton wool fibre, spun glass fibre is used for Elastopren. According to Dr. Lowen Elastopren was a slightly inferior material to Dentocoll. Elastopren should be warmed at 100°C for 5 minutes, then worked in syringe, followed by re-warming for another 2 minutes. Sales figure for 1943 - 535 Kilos.

Baseplates

First manufactured in 1943 from polystyrene, instead of shellac. Considered by Dr. Löwen to be better than shellac, but cannot be softened in water, bunsen heating being required.

Dr. Neubert stated baseplate raw material had been produced at Leverkusen and then forwarded for baseplate manufacture to the Deutchecelluloidfabrik, Eilenburg, Saxony. Complete manufacture returning to Leverkusen shortly.

Production figure for 1943 total of 120,000 upper and lower
Sales figures " " 3,554 Kilos upper, 1,154 lower

/Waxes

Waxes

Copal resin base used pre-war, replaced by natural rosin base during the war. No beeswax used for modelling waxes. Modelling wax production evacuated to Czechoslovakia during war; returning shortly to Leverkusen. Sales in 1943 - 4,913 Kilos.

Sticky Wax

Manufactured from natural resin base and Vinyl resin. Considered by Dr. Löwen to be exceptionally good ersartz product. Production figure 2,000 Kilos per month.

Impression Composition (Stents type)

Natural resin base treated with malonic(?) acid.

Dental Cements

Silicate New Bayer silicate cement produced in 1943.
Sales figures:- 1943 3360 pkts. 1944 (1st Qtr.) 1636 pkts.

Stone Cement - A mixture of silicate and oxyphosphate.

Oxyphosphate Cements and Temporary Cement (Manufactured pre-war).
Quick and normal settings (Oxyphosphate)
Sales figures:- 1938 47,700 pkts. 1943 77,248 pkts.

With all these cements, no claims were made for superiority over the corresponding American and British products.

Dr. Löwen stated they had no development in way of acrylic resin synthetic filling material.

Vaduril

A product made from animal bones for restoring calcium deficiency in teeth.

Production figures :- Ampoules 30,000 per month
Tablets 200 Kilos" "

Prior to the war, this product was known both in America and England, but these German sales figures are of interest.

/M.P. Dent

M.P. Dent For post operative treatment of dry sockets.

Marfanil-Prontalbin- Salbe

First manufactured in 1942

Sales figures:- 1943 50 Kilos 1944 200 Kilos

Similar sulfa products are known in our countries.

Perpulpin First manufactured in 1944.

For sterilising pulp canals and cysts on root apex.

Liquid stated by Dr. Wingler to be formic acid, and when applied to cotton wool, and moistened wool placed on the small tablet, chlorine gas is given off. Sealed with temporary cement, left for 2 or 3 days - one treatment necessary only. Kept in ampoules protected against air.

Zephirol An antiseptic solution impregnated into paper. 1 sheet of paper in one litre of water produces ½% solution. Solution from raw material 33⅓% Zephirol.

Sales figures of Zephirol for all purposes

1938	136,000 Kilos	1941	172,000 Kilos		
1942	83,000 Kilos	1943	47,000 Kilos	1944	48,000 Kilos

This is a known product, but this method of use was unknown to the investigators.

Bayer Dental Local Anaesthetics (No new developments since war)

Were informed that I.G. Farben had been unable to obtain pure rubber for anaesthetic cartridge diaphragms. The buna rubber used was not satisfactory and was stated to be cause of the solution discolouring. Cartridge filling plant evacuated to Becker and Bernhard, Textile factory at Langenfeldt, near Leverkusen, also to Preussisch-Stargard, East Prussia.

The plant at Langenfeldt was inspected; the production methods employed being those known in England and America.

War-time Production Figures:-

Langenfeldt One million cartridges per month.

Stargard ½ million cartridges per month.

Manufacture returning to Leverkusen shortly.

Ampoules Filled at Hoechst (near Frankfurt).

Sales Figures (including South American production)

1938	9,193,000 Cartridges	1943	20,000,000 Cartridges
1938	489 Kilos Ampoules (Novocaine)	1943	1443 Kilos Ampoules (Novocaine)

Nerve Canal Points These stated now to be made from polystyrene and plasticiser - colouring matter being "Cinnebar". These points give sharp contrast in X-Ray photos. Manufacture of points takes place at Fischbach & Müller, Engelskirchen, from materials supplied by Leverkusen.

Production Figures of Dental Plasters

Moldano (model plaster)	170,000/200,000 Kilos per month
Duroterm (embedding plaster)	40,000 Kilos per month
Xanthano (impression plaster)	10,000 Kilos per month

Sales Figures Moldano:- 1938 372,259 Kilos 1943 1,342,975 Kilos

Damage to Leverkusen Plant

Dr. Wingler stated that damage to the entire plant was estimated at 25% to 30% of the factory and 10% to 15% of the laboratories. In the dental manufacturing plant alone it was apparent that an extensive de-centralisation scheme had been put into operation.

Inspection of Dental Manufacturing Plant

Dr. Neubert mentioned that during the war 30 people had been employed at the Leverkusen dental manufacturing plant. Now the number was 5 only, but reinforcements could be drafted from other sections, when supply of raw materials and demand for the finished products made such action advisable. At present the plant was working 40 hours per week, night shifts being sometimes necessary. There was a shortage of raw materials due to transport difficulties.

/Of

Of the machinery seen, the following were noted particularly:-

Dental Cement Manufacture

After fusing ingredients by similar methods to those used in America and England, breaking down is accomplished by rotating milling machines of the usual type, the material being milled for one day.

The material is then placed in a large and specially designed milling and separating apparatus which is electrically controlled. The mills of this machine operate at 4000 r.p.m., and materials are fed to them through large hoppers at the top. After passing through the mills, the powder is separated into that suitable for immediate use, and that which requires further milling, the coarser powder dropping immediately through to a large glass container and the finer powder being blown over to a second chute, where it issimilarly handled. The powder unsuitable for immediate use is placed in a porcelain revolving mill equipped with boxwood balls for another 2 hours, whence it is returned again to the large separating machine.

It should be noted that if statements regarding milling times are correct, this process probably manufactures in 2 days as much, if not more powder, than is produced in 4-6 weeks by methods used in England.

Manufacture of Zephirol

A 33⅓ solution is prepared and poured into a vat where it is heatad and carefully held at 135°C. By means of mechanical rollers, paper is then passed through this solution. It then travels through a drying chamber and is re-wound at the opposite side. The impregnated paper is wound with a non-adhesive paper to avoid sticking. These completed rolls are then moved to another machine which automatically cuts them into sheets 3½" x 2½". Five sheets are cut simultaneously and deposited onto a section of a conveyor. As each section receives 20 sheets (4 lots of 5) the conveyor automatically moves on to the next section.

Manufacture of Impression Composition

The prepared ingredients are fed into an electric controlled heating chamber and ejected onto two water-cooled die plates forming two cakes simultaneously. The two cakes are dropped and trimmed at the edges on a buff, With the exception of the final edge buffing, the whole of this process is automatic, the machine producing 120 to 160 cakes per hour.

The machine, originally designed for the production of Bakelite articles has been converted for this particular production.

/Manufacture

Manufacture of Sticky Wax

The wax is ejected in stick form onto a conveyor, upon which it is cut to the correct length and finally cooled. As with Impression Composition, the machine used was originally designed for another purpose.

Ampoule Marking, Filling and Sealing Machine

This machine made by Makro-Rota D.R.P. Aachen, Germany, is automatic for the whole process. The empty ampoule is taken onto a rotating pin on a rotating disc of approximately 15" diameter. The ampoule passes against a rubber roller, upon which the inked marking stamp prints the name of the article. The ampoule then continues past heated elements which dry and bake on the print, the ampoules then passing on to be filled. The solution passes from a bulk container and is needle-fed into the ampoule. The still-revolving ampoule then passes through four gas/air jets which melt and seal the top. Production was estimated at 8/10,000 per day.

This apparatus, although it has probably been covered by a pharmaceutical team, is mentioned because it was installed in the dental section of the factory.

Visit to Buna Rubber Research Department

Specimens of crepe used, and of dental rubber manufactured from it, by Ernst Frölich, Osterode (see interview No.8) and stated by that firm to be "buna" rubber, were handed to the I.G.F. Research Department for identification. After testing, we were informed the material was buna S.S.E. and although I.G. Farben had not considered this material for dental rubber, it was said to be non-toxic and non-staining, and to have other properties which make it suitable for the production of dental rubber.

It would appear, therefore, the German Government, after testing this material for non-toxicity, instructed Frölich in January last to proceed to make dental rubber, solely from buna S.S.E., without reference to I.G. Farbenindustrie.

INTERVIEW NO.21. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 9th August 1945.

Interview with Mr. Fritz Lange of Emil Lange, Zalmborerfabrik, Engelskirchen, Germany.

Manufacturers of Dental burs and nerve canal drills.

Background Mr. Lange stated the firm was founded in 1919 by him and his brother. Their pre-war production figure had been 2½ million burs per year, out of which 70% to 80% had been exported. Their British agents were the Dental Manufacturing Company, London, whose Newman burs, Lange supplied in packets bearing that name. Special packing was also used for supplies to their American agent, Premier Dental Products. Burs had also been exported to Sweden, Italy and Yugoslavia. During the war his firm had supplied the German Army direct.

Supply Position

A. Pre-war Mr. Lange stated that until 1942 he purchased Swedish-made bur steel through Plate of Augustenthal, near Ludenscheid, Westphalia. He still purchased German bur steel from the same firm but the steel was vanadium-chrome, containing no wolfram. He still had 250 kilos of the Swedish steel.

Inspection of Plant

The plant consisted of one shop only, containing 9 forming machines and 25 cutting machines, the latter fitted with an automatic feed of the magazine type, similar to that seen at Hager & Meisinger (see interview No.15). Mr. Lange stated all his machines were built by Heinrich Wolfe of Dusseldorf and he maintained the forming machines were 12 years old and the cutting 15.

General Remarks

According to Mr. Lange certain special drills illustrated in his catalogue were manufactured for him by A. Tussing, Dusseldorf (see interview No.12), also the mandrels shown were made for him by Freidrich Masse, Dusseldorf (see interview No.15).

Allied Military Government, Cologne, informed us that Emil Lange had been allowed by them to re-start manufacture for the period 1st August to 31st October 1945, but had only been permitted to consume 50% of the electrical power used formerly.

(See also statistics)

INTERVIEW NO.22. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 9th August 1945.

Interview with Mr. Ernst Busch of Busch & Co., Engelskirchen, near Cologne.

Manufacturers of Dental burs, Dental Abrasives and Lathe Wheels, "Heatless" Wheels and Mandrels.

Background Mr. Busch stated the firm was founded in 1905, the shares being privately owned.

Prior to the War, 60% of their production had been exported to 37 different countries. Their British agent was F.C.Reiser, London, and their American, Mr. Busch's brother-in-law - Pfingst of New York. Other export countries had been Canada, Australia, South America and Scandinavia.

Supply Position

A. War Period Bur steel was purchased from Plate, Augustenthal, near Ludenscheid, Westphalia, Mr. Busch mentioning the silver still now delivered was vanadium chrome and not wolfram vanadium previously supplied. However, he was confident the quality of Busch burs had remained unaffected, and the manufacturing process was unaltered.

B. Since VE Day

Since Allied Military Government had assumed authority the works had been closed, though a permit to restart work for the period 1st August to 31st October 1945 had just been procured from A.M.G. Cologne. Mr. Busch mentioned, however, they were only permitted to use 50% of their previous electricity consumption.

Inspection of Plant

The factory had entirely escaped bomb damage and blast damage was negligible.

The plant was equipped with well designed machinery for the production of burs and drills on a considerable scale.

Mr. Busch explained that the 43 bur forming and 143 bur cutting machines were principally a combination of machinery made by Hauser, Switzerland, together with sections built in his own shops. All machinery was over eight years old.

The cutting machines each possessed an automatic feed of the magazine type, the fully cut bur being automatically removed from the cutting machine and replaced by a bur blank released from the magazine. Vulcanite bur cutting machines were hand fed.

Mr. Busch stated this attachment was made in his own works and each magazine held 200 burs. On occasions, however, Hauser had been requested to make the auto-feed attachment from a pattern supplied by Busch. He emphasised no blue prints of the attachment had ever been made - the design was purely the outcome of practical experience and the attachments were not interchangeable.

Mr. Busch stated that one girl attended to 7 cutting machines, the same operative being also responsible for examining the burs.

Bur Packing

Prior to the War, Busch & Co. supplied a plastic packet of six burs, in addition to the usual plastic containers for ½ and 1 gross lots.

Mr. Busch stated the plastic packaging was obtained from Fischbach & Müller, Engelskirchen, who purchased the raw material from I.G. Farbenindustrie. He added that plastic packets to hold 6 burs cost his firm 25 marks 50 pfg per 100 for quantities of 100,000 upwards comprising 50% of H.P. & R.A. packets, with an increase of 30% in the above price if H.P. packets only were ordered.

Owing to bomb damage at Fischbach & Müller, Busch had reverted temporarily to wood and cardboard packets of 6, but hoped to resume the plastic packing shortly.

(See also Statistics)

INTERVIEW NO.23. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 12th August 1945.

Firm Velox Fabrik Elektro - Dentaler - Maschinen und Apparate G.m.b.h., Blucherstrasse 25, Frankfurt/Main Germany.

The premises of this firm were found to be completely gutted. Mr. Kegel of Emda Co. (see interview No.26) stated Velox Fabrik had disappeared entirely from the dental manufacturing business.

INTERVIEW NO.24. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 12th August 1945.

Firm Chem. Institute Apotheker Freudenburg.

Address on target list only Frankfurt/Main.

Enquiries at Town Mayor's office Frankfurt, a search through the telephone directory, and interrogation of Mr. Kegel, Emda Co. (see interview No.26), all failed to trace the whereabouts of this concern.

INTERVIEW NO.25. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 12th August 1945.

Firm Asepsia - Werke, Bayer & Kitz,
Furstenburgerstrasse 147, Frankfurt/Main, Germany.

A visit to the bomb-damaged premises of this firm, a private house, revealed that the building had been vacated by military order.

INTERVIEW NO.26. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 13th August 1945.

Interview with Mr. Alexander Kegel, Sales Manager, of Emda, Geo. Hartmann, Hanauer Landstrasse 139/145, Frankfurt/Main Germany.

Manufacturers of Dental units, compressors, electric engines, chairs, cabinets, lights, spittoons, operating stools, lathes and unit attachments for X-ray machines.

Background The high grade dental equipment manufactured by this firm was well known to the British dental trade prior to the war, and the interview with Mr. Kegel revealed he had long-standing acquaintance with not only British dental manufacturers and dealers but also with others in Europe and Scandinavia.

Mr. Kegel explained that with the exception of units and compressors, the manufacture of which was prohibited by the German Government at the outbreak of war, his firm were permitted to continue producing Emda dental equipment, in addition to making wireless accessories.

In October 1943 their premises had been severely damaged and Mr. Kegel estimated 50% of their plant had been affected.

Since October 1943 a small plant had been established at Lorsbach, near Frankfurt, for re-conditioning machinery and this plant had now begun early stage production of small quantities of units, compressors, chairs, stools, cabinets and lathes.

In the meantime, energetic efforts were being made to reconstruct their Hanauer-Landstrasse factory. Mr. Kegel stated removal of machinery from Lorsbach back to the main factory had already started and by the end of the year it was hoped to close down the Lorsbach temporary premises. He considered that six months was the maximum period the firm could continue to maintain their present staff of 40 without accomplishing any sales. 90% of their labour was at present employed on reconstructing their factory premises.

Prior to the war, Mr. Kegel stated their British agents were Henry Courtin & Sons Ltd., London, and they exported also to Europe and South America. He estimated 25% of their pre-war production was exported, 90% of this being to Europe and 10% overseas.

New Developments

Mr. Kegel stated their whole energies were being concentrated at present upon the reconstruction of their factory and the production of their standard items.

/Inspection

Inspection of the Plant

Only one shop was in operation - producing dental lathes only.

General Remarks

The impression gained was that Mr. Kegel had been successful in convincing Allied Military Government that dental equipment was urgently needed all over Europe and that he was securing the necessary co-operation to permit the plant to restart large-scale manufacture when reconstructed.

(See also Statistics)

INTERVIEW NO.27. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 13th August 1945.

Firm Ernst Kratz, Burgstrasse 106, Frankfurt/Main Germany.

Manufacturers of Hypodermic Needles.

Were informed by Mr. Kegel of Emda (see interview No.27) that the factory of Kratz had been very severely damaged and it was no longer operating. He stated that Kratz had acquired small temporary premises at Worms for reconditioning machinery and that reconstruction of the Frankfurt plant had commenced. It was unlikely, however, that production would be re-started for six months.

Mr. Kegel maintained he was well acquainted with the Kratz concern.

INTERVIEW NO.28. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit — 13th August 1945.

Interview with — Mr. Hirtes, Director responsible for dental section of:-

Dentsches Gold und Silber - Scheideanstalt "DEGUSSA"

Offices (temporary) — Gutlentstrasse 31, Frankfurt/Main

Factories — " " 215 " "
Pforzheim and Berlin

Background — Mr. Hirtes explained that the dental manufacturing section represented a small part only of the firm's activities. They were concerned largely with the chemical manufacturing industry and the production of precious metal alloys. He stated there were ten other directors in addition to himself.

In the dental manufacturing sphere he informed us the firm had manufactured at Pforzheim, dental cements (Silicate, oxyphosphate, stone and temporary), precious metal and white metal alloys, and at Berlin, dental handpieces, foot and electric engines and certain hand instruments. At the factory at 215 Gutlentstrasse they had produced their oxyphosphate cement "Ontophos". This last information confirmed interview earlier in the day with Dr. Kohl at the Gutlentstrasse 215 factory which was not operating in respect of dental cement manufacture.

Mr. Hirtes added that the Pforzheim plant had been destroyed. The Berlin plant, whose "W & H" products were well known to the British dental trade prior to the war had been recently evacuated to Bürmoos, near Salzburg. A limited production of handpieces, foot and electric engines had been started there.

It appeared this dental instrument section operated somewhat independently from the other part of the dental manufacturing organisation.

He informed us the intention was to reconstruct the dental manufacturing plants formerly at Pforzheim and Gutlentstrasse 215, Frankfurt at Degussa - Sibert, Hanau, near Frankfurt, but he estimated it would be some considerable time before this was completed.

As regards export trade, he stated in the case of dental golds and white metal alloys, reciprocal agreements had been entered into not to compete in certain foreign countries.

/He

He mentioned that at all times the export of gold and precious metal alloys had been very difficult, but since September 1944 the German Government had forbidden them to supply dental golds anywhere.

Watson Dental Supply Co., London, are the British agents for their "W & H" dental instrument products.

Substitute Material necessitated by War-time conditions

Mr. Hirtes stated that owing to the difficulty of gold supply and the competition from vitallium steel used as a denture material, the firm had electro plated cast dentures of their Standard silver alloy. This process, known in England, had proved successful, the durability of the plating being satisfactory and the appearance of the finished denture, good. The same dental laboratory casting apparatus was used as for pure gold.

New Developments

Mr. Hirtes said they had nothing in mind at the present time.

(See also Statistics)

INTERVIEW NO.29. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit — 14th August 1945

Interview with — Mr. Kasper, Chief Clerk of:-

Zahnfabrik Bad Nauheim, Stisser & Co.
Kom- Ges.
Bad Nauheim, near Frankfurt/Main, Germany.

(Formerly Zahnfabrik Hoddes at above address)

Manufacturers of — Artificial Teeth (porcelain and acrylic) and Dental Cements.

Background

Mr. Kasper stated the firm was founded in 1911 by Dr. Hoddes, a dentist who went to England prior to the war. The partners of the firm were now Mr. Stisser, who was absent, and Mr. Weber, who did not participate actively in the firm.

The products they manufactured were anterior teeth made from acrylic resin, three colour porcelain teeth and two colour porcelain teeth, the latter having stainless steel instead of gold clad pins (a war-time necessity), also standard porcelain diatoric posterior teeth.

Prior to the war, the firm made gold clad anterior pin teeth and small quantities of facings, crowns and gum sections.

Their range of cements consisted of silicate, oxyphosphate, stone, copper and temporary cement.

Mr. Kasper estimated that export trade represented 70/80% of their pre-war teeth output. They exported to Britain, Scandinavia, and Europe, and a little to U.S.A. Their British agent was the Cosmo Dental Co., now of Ludlow, Shropshire, and their American, Mr. Charles Schwed, New York. Their cements had not been exported.

Supply Position

A. War Period

Mr. Kasper mentioned that their feldspar for teeth manufacture came from Norway and their silica from Berlinaquartzmills, Berlin. Teeth colouring material came from Degussa of Frankfurt/Main. The acrylic teeth methyl methacrylate powder was supplied to them by Kulzer & Co., Friedrichsdorf, near Frankfurt/Main.

/He

He stated throughout the war, raw material was difficult to obtain. In fact the last supplies of feldspar reached them in 1944 and the stock was now reduced to 15 tons. They had porcelain stocks for 2/3 months.

Stocks of raw materials for cements were also low. They were continuing to mill cement powder, but could not complete manufacture due to lack of gas.

Inspection of Plant

Acrylic Teeth Manufacture

No liquid was used, the moulds being filled with dry powder, whilst the mould was being heated to 150°C on an electric plate. One girl filled 9 to 10 moulds per hour, each mould holding two sets of six teeth. After filling the mould was cooled under a normal flask press for 3 minutes.

The teeth were hand trimmed with a sculptor and carborundum files at the rate of 160 per hour.

Porcelain Teeth Manufacture

The manufacture of porcelain teeth followed orthodox methods. The porcelain is prepared from raw materials and applied to the moulds in the form of a paste and then fired in an electric furnace at three temperatures - (a) 700°C, (b) 900°C, (c) 1350°C (glazing). Each stage in the furnace took approximately 15 minutes.

Manufacture of Dental Cements

This was done by the usual methods known in England and America, the ingredients being milled in standard rotating millers for 5/6 days.

(See also statistics)

INTERVIEW NO.30. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 14th August 1945.

Firm Kulzer & Co. G.m.b.h.,
Hauptstrasse 119,
Friedrichsdorf,
near Frankfurt/Main, Germany.

(Formerly of Hanauer Landstrasse, Frankfurt)

Manufacturers of Dental acrylic materials, Paladon and Palapont.

Interview with Miss Lafontaine (Secretary) and Miss Caesar (Stenographer)

Background Miss Caesar explained that since 1938, 50% of the shares of the Company had been held by Degussa of Frankfurt (see interview No.28) and by W.C. Heraeus G.m.b.h., Hanau, near Frankfurt. The two Directors of Kulzer were Mr. Hirtes (Degussa) and Dr. Reinhart Heraeus (Heraeus).

The products they manufactured were Paladon, an acrylic denture material known to the British and American dental trade prior to the war, also Palapont, an acrylic material for making Crowns inlays, and laboratory produced artificial teeth. Palapont was first marketed in December 1940.

Miss Caesar stated the only source of raw material for these two products (methyl methacrylate) was Röhm & Haas of Darmstadt. Kulzer held a patent for the processing of methyl-methacrylate for dental purposes.

Miss Lafontaine stated, prior to the war Kulzer exported 44% of their Paladon output to 36 different countries. There had been no British agent since 1938: their U.S. agent was Mr. Jakob of Detroit. The South American Paladon agent was Leventhal, Rio de Janeiro, and the Australian, the Drug Houses of Australia. Paladon had been produced in South America since 1940.

In October 1943 the Kulzer factory in Frankfurt had been entirely destroyed. From photographs produced it was apparent the premises were modern, well equipped, and relatively large.

Supply Position - Raw Material

During the war Röhm & Haas did not supply all the raw material needed and it was maintained that with adequate materials, the existing plant could produce sufficient Paladon and Palapont to fulfil the needs of most of Europe.

/During

During the war, 20% of their output was supplied direct to the German Army.

Since February last, Miss Lafontaine stated Röhm & Haas had altered the methyl methacrylate supplied to them. Paladon made from the new raw material remained plastic for a longer time when being processed in the dental laboratory.

Miss Caesar stated the Paladon Monomer (liquid) contained a stabiliser and plasticiser which ensured an indefinite shelf life. The stabiliser was "Hydrochynon"; the monomer itself was unaltered.

New Developments

Prior to October 1943, Miss Lafontaine mentioned they had plans for producing a plastic dental filling material, but the development of that material had been interrupted since their premises had been destroyed. The new material was also to have been manufactured from methyl methacrylate supplied by Röhm & Haas.

Also, for 1½ years prior to October 1943, they had marketed a range of stains used with Palapont liquid for staining laboratory-made teeth.

General Remarks

Miss Caesar stated they supplied the acrylic powder to all German tooth manufacturers.

Inspection of Factory

The small factory was found to contain 13 milling machines of standard types for milling the Paladon, Palapont and acrylic teeth powders. Its appearance did not seem to confirm Miss Lafontaine's statements regarding present productive capacity.

(See also Statistics)

INTERVIEW NO.31 BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 15th August 1945.

Firm Zahnfabrik Weinand Sohne & Co. G.m.b.h., Eisenbahnstrasse, Sprendlingen, Kreis Offenbach/Main.

Interview with Mr. Fritz Weinand, Mr. Harry Weinand } Directors

Mr. Fritz Weinand stated the shares of the firm were held as follows:-

Dentists' Supply Company of New York	45%
Amalgamated Dental Co. Ltd., London	31%
Weinand	24%

They manufactured artificial teeth from acrylic resin (the methyl methacrylate powder being supplied to them by Kulzer & Co. (see interview No.30), also porcelain artificial teeth and porcelain for dental ceramic work. However, at present they could only manufacture acrylic teeth, owing to lack of gas and coal.

He mentioned their raw materials for porcelain teeth were purchased from Bauer, Berlin, and despite the fact the feldspar came from Norway there had been no supply difficulties, and they had stocks to last about one year.

During the War, Mr. Weinand stated they had continued to produce their full range of products, with the exception of crowns and facings. However, in 1942 the German Government had prohibited the use of gold for gold clad pins, since when, the manufacture of gold clad pin teeth had been largely superseded by anterior teeth, which had soldered stainless steel pins. Mr. Harry Weinand considered stainless steel pins were better than gold clad.

Mr. Weinand estimated that prior to the war 35% to 40% of their output was exported. The British agent was Dentema Co., London; they had no U.S. agent, import duty being too high.

New Developments

There were no new developments and Mr. Fritz Weinand stated they had none in mind.

Inspection of Factory

The factory has suffered slight bomb damage only, and was well equipped for the large-scale production of artificial teeth.

Teeth Moulds

All moulds were cast on the premises from bronze, the moulds for acrylic teeth being nickel coated. Mr. Harry Weinand mentioned that 7 men were employed on the production and repair of moulds, the condition of which had been fully maintained throughout the war.

Manufacture of Acrylic Teeth

These were made in moulds holding 2 sets of six teeth. The acrylic material was placed in the moulds in paste form. In the front half of the oiled mould the translucent white material was placed by hand, and compressed with a plastic former which ensures the correct shaping of the material. The balance of the material for the front and all material for the back is basic colour. The moulds were closed and placed in one of fifty clamps mounted on a circular, rotating table. A complete circuit of this table carried the mould through four operations which are accomplished by two operatives.

(a) A heat of 550°C.
(b) Compression by tightening the mould
(c) Water cooling chamber
(d) Removal of mould

Mr. Fritz Weinand stated the process took 9 minutes from beginning to end, an average of 30 moulds passing round the table at a time.

Excess material squeezed out by the plastic former was used again for making diatorics.

The teeth were then removed from the moulds and trimmed by hand. Output of acrylic teeth by this firm was stated to be 200 per hour.

The moulds were cleaned with benzine, under pressure.

Manufacture of Porcelain Teeth and Dental Ceramic Porcelain

These Weinand products known in England before the war, were not in manufacture due to lack of gas. However, inspection of the manufacturing equipment, together with interrogation, revealed that the process was the same as that employed in England and America.

(See also Statistics)

INTERVIEW NO.32. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm Ritter A.G., Karlsruhe-Durlach/Baden, Germany.

Manufacturers of Dental Equipment.

Interviews with Dr. Werner (General Manager)
Mr. Goyert (Production Manager)

Background This Company is owned by Ritter Co. Inc., Rochester, New York, and the high grade dental equipment produced by both the American and German factories is well known to dentists throughout the World.

Prior to the war, the Durlach factory manufactured dental chairs, X-Ray machines, units, electric engines, electric lathes, compressors, folding bracket tables, operating lights, operating stools, sterilisers, spittoons, and at their Pforzheim factory, dental cabinets and desks. Most of these items were produced in several different patterns.

Mr. Goyert explained that during the war they had ceased to produce any of their former range of units, replacing them with a utility unit model D.141, which was sold to the dentist for 1,705 marks. 300 of these units had also been purchased by the German Army. Production of other equipment items had also been restricted to one pattern only. In addition to dental equipment, during the war Mr. Goyert mentioned the Government had required them to make parts for torpedos, airplane generators and anti-aircraft shells. Prior to the war they had exported to Europe 33% of their output.

Supply Position

War Period and since VE Day

Dr. Werner stated throughout the war the raw material supply position had been difficult and since VE Day, particularly, transport delays had been so considerable that stocks were now very low. Owing to lack of coal the factory was scarcely operating at present, as they were unable to produce castings, and thus the whole manufacturing procedure was affected. There was no wire, oil or tubes available for the manufacture of X-Ray machines.

/Substitute

Substitute materials necessitated by War-time conditions

There was evidence of these during inspection of the factory. The few chairs in production had plywood, instead of rubber-covered foot-rests; the sectional head-rests were wooden blocks and the upholstery an inferior type of rexine material, instead of leather. Bright parts were either nickel, instead of chromium plated, or in the case of electric engine trombone arms and foot controllers, black enamelled. The same finish applied to electric lathes.

Mr. Goyert stated that early in the war for a short time they had been permitted to use aluminium where required. Aluminium had then been superseded by zinc, which had been followed by magnesium. Finally, they were instructed to use scrap aluminium. He mentioned the casing of the D.141 unit was now sheet iron. They had also been instructed to substitute zinc for brass.

Inspection of Factory

This confirmed statements mentioned above concerning shortage of raw materials and partial operation. Only a few chairs, D.141 units and lathes were in course of production. Otherwise, this relatively large plant, capable of producing dental equipment on a considerable scale, was idle.

War Damage Dr. Werner stated this was estimated at 10% at Durlach. However, their factory at Pforzheim had sustained substantial blast damage though it was still able to produce a small number of cabinets.

(See also Statistics)

INTERVIEW NO.33. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Interview with Dr. J. Hutt of Badenia Dental Industrie, Vorholzstrasse 24, Karlsruhe/Baden.

Background local anaesthetic in ampoules and cartridges, silicate and oxyphosphate cements, amalgams and medicaments.

It was found this small concern manufactured dental

The factory, containing also a small laboratory, had suffered severe bomb damage, and was only partially operating, production being also carried on in a private house opposite.

The methods of local anaesthetic manufacture were inferior to those employed by the principal U.S. and British firms, nor did the cement and medicament production procedure offer anything not already well known.

Dr. Hutt, a dentist, stated he was sole owner of the business, and his present output of local anaesthetic was 4,000 ampoules and 2,000 cartridges per day. After viewing the manufacturing equipment and process it was considered these figures were over-estimated.

INTERVIEW NO.34. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Interview with Mr. Winkelstroeter, Owner of Dentaurum.
Formerly of:- Guterstrasse 44, Pforzheim, Germany.
Now of:- Hohenzollenstrasse " "

Background Mr. Winkelstroeter stated his factory at Guterstrasse 44, had been entirely destroyed but he hoped to retrieve and recondition 50% of the machinery. It was found that two wire rolling machines and dies for matrix bands had already been set up in the considerably damaged premises at Hohenzollenstrasse.

Prior to the war, and up till 1933, Mr. Winkelstroeter stated his firm manufactured gold Lingual and Palatal burs, clasps, cusps, wire and plate. Thereafter, owing to gold being prohibited by the German Government, he turned over to production of these items in stainless steel.

He also produced up till 1940 an acrylic resin denture material "Heliodont" from methyl methacrylate supplied to him by Röhm & Hasse, Darmstadt.

In addition to these products, Mr. Winkelstroeter maintained he had also manufactured impression composition, baseplates, temporary stopping, matrix bands, wax and orthodontic appliances.

General Remarks

It is hoped the background of the management and staff of this firm has been carefully investigated.

It would appear this firm will not be operating again for some months.

INTERVIEW NO.35. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945.

Interview with Mr. Bohn, Works Manager of:-
F. Haaga G.m.b.h.,
Teinacherstrasse 1/3,
Bad Constaadt, Stuttgart, Germany.

Manufacturers of Water sterilisers and dry heat sterilisers.

Details of Interview and Factory Inspection

This firm markets its products under the name of "EFAGA" and production is mainly of medical, rather than dental, sterilisers.

The premises were old and war damaged but the plant was well equipped and included 3 stamping presses for stamping steriliser boilers, 3 plating baths and 2 polishing lathes.

Electric, gas and spirit sterilisers were manufactured. The electric sterilisers were fitted with a plug which would operate on two voltages. The dental sterilisers output estimated by Mr. Bohn to be 4/5,000 per year.

Manufacturing procedure followed orthodox methods.

The finished sterilisers showed some signs of rough workmanship but this was probably attributable to war conditions.

Mr. Bohn stated as no chrome had been available they were compelled to revert to nickel plating. They had sufficient raw materials for another 1,000 sterilisers.

In addition to sterilisers this firm manufactured dental elevator handles and dental waste receivers. Mr. Bohn stated the handles were for Jetter & Scheerer, Tutlingen.

He also estimated that pre-war exports to Europe and Scandinavia, Britain and U.S.A. represented 50% of their output.

General Remarks

This concern would probably be of more interest to a medical instrument investigating team.

INTERVIEW NO.36. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945

Interview with Mr. Julius Gussmann, of:-

Julius Gussman,
Schmidenerstrasse,
Bad Constaadt, Stuttgart, Germany.

Manufacturers of Water sterilisers and dry heat sterilisers.

Details of Interview and Factory Inspection

The sterilisers produced, together with the plant, were almost identical to those examined previously at F. Haaga, Bad Constaadt (See interview No.35).

Mr. Gussmann stated his stock of sheet brass was sufficient for 3 months only, after which, unless replacement was forthcoming, he would have to use cast iron. He stated he had been able to continue chrome plating sterilisers from his stock of chrome for a time during the war. No chrome was now available.

He estimated his output of sterilisers was 300 per month.

He stated he employed prior to, and during the war, 45 men, including a total of six French and Dutchmen. Now he employed 22. Prior to the war Mr. Gussman reckoned he exported, in all, 50% of his output to Europe and Scandinavia, also to his son, Julius Frederick Gussman of West Philadelphia, U.S.A.

He stated his wage rates were 1 mark per hour, plus bonus system.

The factory had sustained slight damage.

INTERVIEW NO.37. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm C. Hafner - Scheide, Pforzheim, Germany.

There was no trace of this firm at Pforzheim, approximately 90% of which is destroyed.

Mr. Winkelstroeter of Dentaurum, Pforzheim (see interview No.34) stated Hafner - Scheide's premises had been entirely demolished, and his whereabouts were unknown.

INTERVIEW NO.38. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm Walter Pfening- Zahntechnisches, Laboratorium, Pforzheim, Germany.

There was no trace of this firm at Pforzheim, approximately 90% of which was destroyed.

Mr. Winkelstroeter of Dentaurum, Pforzheim (see interview No.34) stated this firm had been a dental laboratory, not a manufacturer. Its premises were destroyed and there was no trace of the owners.

INTERVIEW NO.39. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm Given on Target List as:-
Hch. Hippert, Pforzheim, Germany.

(Manufacturers of polishing brushes)

Neither Allied Military Government, Stuttgart, or Mr. Winkelstroeter, Dentaurum, Pforzheim, knew of this firm, and other local enquiries failed to trace them.

INTERVIEW NO.40 BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm Dr. Th. Wieland, Museumstrasse 8, Pforzheim, Germany.

Both enquiries at Ritter A.G., Durlach and Dentaurum (see interviews Nos.32 & 34) revealed the premises of this firm had been entirely destroyed, and their whereabouts were unknown.

INTERVIEW NO.41. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 16th August 1945.

Firm Heinerle & Meurle A.G., Pforzheim, Germany.

The factory of this firm was located but found to be entirely destroyed.

Mr. Winkelstroeter, Dentaurum, Pforzheim (see interview No.34) stated the whereabouts of the concern were now unknown.

INTERVIEW NO.42. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945.

Firm Stibe Company, Stuttgart.
(According to Target List)

Enquiries at Allied Military Government, Stuttgart, and at F. Haaga G.m.b.h., Bad Constaadt, Stuttgart (see interview No.35) also in 'phone directory, failed to trace this firm.

INTERVIEW NO.43. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945.

Firm L. Haller, Stuttgart, Gerokstrasse, 10.

The small premises of this firm were located but found to be almost completely destroyed.

Enquiries at Allied Military Government, Stuttgart at a F. Haaga - Bad Constaadt, Stuttgart (see interview No.35) failed to trace the whereabouts of this concern.

INTERVIEW NO.44. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945.

Interview with Mr. A. Ackermann, Proprietor of
A. Ackermann Dental Werkstatten,
Kantstrasse 16, Göppingen, Germany.

Background It was found this small firm manufactured dental mouth mirrors and mirror handles, barbed nerve broaches, diamond points and metal-backed carborundum discs (Lightning type).

Mr. Ackermann stated prior to the war he exported 80% of his output to Holland, Denmark and S.America. Also, he sold his carborundum discs to Pfingst of New York, U.S.A.

Inspection of Plant

Bearing in mind the small nature of the whole concern, the plant was relatively well equipped. However, three employees only were at work.

The mirrors, mirror handles and barbed broaches were produced by orthodox methods.

The shanks for the diamond points (manufactured for straight handpiece only) were formed on an automatic machine of a standard type, as were the metal shapes for the points.

Owing to lack of diamond dust and nickel it was not possible to see the actual manufacturing process, but the method employed appeared to be the dipping of the shaped core into a molten mixture of diamond dust and nickel. This method seemed crude.

Mr. Ackermann maintained he had not manufactured diamond points since the war.

The process of manufacture for the "Lightning" type discs was similar to that of U.S. manufacturers - none were actually being produced at the time of our visit.

Mr. Ackermann had not secured a permit from Allied Military Government for the manufacture he was conducting.

INTERVIEW NO.45. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 17th August 1945

Firm Automaton Vertriebs - Gesellschaft
Fred. B. Eggler
Cöppingen, Poststrasse 54, Germany.

Details of Interview

This firm was found to be a very small concern producing, principally, the "Automaton" tongue holder, an accessory for similar use as the Guttmann tongue holder, known in England.

In addition, they partially manufactured a few other small items, such as celluloid strips in a holder.

We were informed a staff of three only were employed, the plant comprising one drilling and one stamping machine.

INTERVIEW NO.46. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 20th August 1945.

Interview with Mr. H. Rauter, Director of:-

Vita Zahnfabrik H. Rauter o.H.G.,
Baslestrasse, Säckingen, near Basle, Germany.

Manufacturers of Artificial teeth (acrylic and porcelain), and dental ceramic porcelain.

Background Mr. Rauter stated the firm was founded in 1924 and it was owned by himself and three other members of his family.

Until April 1943 they had carried on business in Essen. Part of their factory had then been damaged, and consequently they had moved to Säckingen, taking over part of a silk factory. He considered 50% of their machinery had been damaged at Essen.

Prior to the war, Mr. Rauter estimated the firm exported 33% of their output. Until 1936 their British agent had been Henry Courtin & Sons, London, after which the agency had been transferred to F.C. Reiser, London. However, in 1938 they had established their own London sales organisation - Vita Tooth Manufacturing Co. Ltd., Berners Street, W.1. They also sold teeth all over Europe: there was no American agent.

Supply Position of Raw Materials

Mr. Rauter mentioned that practically their entire stock of raw materials for ceramic porcelain had been lost at Essen. Furthermore, no deliveries of methyl methacrylate from Kulzer & Co., Friedrichsdorf, had been received since December 1944, so that he had been compelled to cease manufacture of his acrylic anterior and posterior teeth.

However, he still had reasonable stocks of gold clad pins, and these, together with regular supplies from Bauer, Berlin, of quartz, kaolin and Norwegian feldspar, had enabled him to continue the production of porcelain teeth. He estimated he had sufficient stocks of porcelain teeth materials to last 6/9 months with the factory working its present hours with existing labour.

/War-time

War-time Manufacturing Programme

According to Mr. Rauter, the German Government had, during the war, restricted the manufacture of his highest grade anterior porcelain tooth - Lumine - to 15% of the previous production figure, it being considered a luxury product. Manufacture had, therefore, been principally concentrated upon Vita Gold Clad Pin Teeth and Diatorics and Lumine Diatorics.

Inspection of Plant

The premises were of very modern construction and the whole factory showed evidences of unusually efficient management. The plant equipment was of modern design, well maintained, and capable of producing artificial teeth on a considerable scale.

Owing to cessation of manufacture of acrylic teeth, it was not possible to examine the process in detail. However, Mr. Rauter stated that their bronze acrylic teeth moulds were coated with nickel and the teeth were pressed in paste, not powder form.

The porcelain teeth were manufactured by orthodox methods, the material being pressed into the moulds and the moulds heated electrically for the biscuit bake on a large steel plate, to a temperature of 200°C. The teeth were fired in electric furnaces built to their own design, the glazing temperature being 1350°C.

Mr. Rauter maintained their present output was 20,000 teeth per day.

They also produced their teeth pins and coils on specially designed automatics.

The ingredients for the porcelain teeth were prepared in a small factory nearby, which Mr. Rauter had also acquired. Orthodox methods were adopted.

(See also Statistics)
(75)

INTERVIEW NO.47. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 20th August 1945.

Firm De Trey G.m.b.h.,
Waldshut, South Germany.

This factory was found to be closed. The caretaker stated the manager was absent in Switzerland and conducted us briefly round the plant. As anticipated, it was discovered that Dentocoll, Paribar and Stents, Impression Materials, Syntrex, Solila and Fixodont Cements, and certain other products made by the Amalgamated Dental Co. Ltd., London, were produced.

INTERVIEW NO.48. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 21st August 1945.

Interview with Mr. Kreuchen, Works Manager of:-

Standard Zahnfabrik A.G.,
Reichenaustrasse 150,
Constance, South Germany.

Background Mr. Kreuchen explained that 96% of the shares of the firm were held by The Dentists' Supply Company of New York, and the remaining 4% by Mr. John E. Frey, a Swiss citizen.

Prior to, and during the war until April last, the entire production of Standard Zahnfabrik had been sent to their wholesale distributing company, de Trey Gesellschaft, who were in Berlin until 1943 and had then evacuated to Kaufbeuren. As Kaufbeuren was in the American zone and Constance in the French, since May last they had been cut off completely from de Trey Gesellschaft.

During the war their activities had been confined to artificial teeth manufacture solely, no munitions or munition components having been made. One third of their production had been taken by the German Army through de Trey Gesellschaft.

Supply Position - Raw Materials

Mr. Kreuchen stated prior to the war all their raw materials for porcelain teeth had been obtained from America. War conditions had, however, compelled them to purchase the quartz, kaolin, and Norwegian feldspar from Bauer of Berlin and in his view the materials supplied by Germany were inferior to those from America, particularly the colouring materials for the teeth shades.

He estimated raw materials for porcelain teeth would last another 5 to 6 months based upon the present 5 hour working day. After that, supplies of solder and coils would become exhausted.

As regards supplies of methyl methacrylate for acrylic teeth, delivered to them from Kulzer & Co., Friedrichsdorf, Frankfurt, Mr. Kreuchen stated that owing to continual shortage their war-time production had been concentrated mainly upon porcelain teeth.

He estimated stocks of Gold Clad Pins were sufficient for 5 months and they would produce 2 million teeth.

/Requisitioning

Requisitioning of Precious Metal Stocks

According to Mr. Kreuchen, on 23rd May last, representatives of the French Service Economique, Constance, confiscated 4 kilos palladium and 3.37 kilos gold, despite assurances from Mr. Frey and Mr. Kreuchen that this precious metal was the property of an American firm. The total value was RM.18,845.36. A provisional receipt had been obtained but the question of compensation was still unsettled.

Inspection of Plant

The factory was undamaged and of modern construction. There was evidence of efficient management.

Manufacture of both acrylic and porcelain teeth followed orthodox methods, the acrylic powder being placed into the moulds dry. The output rate of acrylic anterior teeth was 300 per hour. Acrylic diatorics were not in production owing to lack of raw materials. Specimens of finished acrylic anterior teeth were examined and found to be of high grade quality.

General Remarks

In the opinion of Mr. Kreuchen, acrylic teeth had come to stay, though the demand for porcelain teeth would continue.

He mentioned that as their stocks of gold clad pins had remained adequate throughout the war, they had not manufactured porcelain teeth with stainless steel pins, which he considered an inferior product.

(See also Statistics)

INTERVIEW NO.49. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 22nd August 1945.

Interview with Mr. Fritz Scheerer, Director of:-

Ahtiengesellschaft fur Feinmechanik,
Vormals Jetter & Scheerer,
Tuttlingen, South Germany.

This well known firm of surgical, dental and veterinary instrument manufacturers will, no doubt, be covered in more detail by a surgical instrument investigators' team.

Mr. Scheerer stated dental instruments represented 8% only of their production and this report deals principally with the dental instrument section of this Company.

Background

Mr. Scheerer mentioned the firm was founded in 1867.

Prior to the war, export trade had accounted for 35% to 45% of their output, and he estimated they secured 50% to 60% of the German home trade in dental instruments.

Though they exported to countries all over the World, for some years before the war they had had no agents in America and Great Britain. They had sold their shares in Jetter & Scheerer Products Inc., New York, to the Manager, Mr. Beck, Mr. Scheerer considering it was not possible to control the American company satisfactorily from Germany. During the war they had sold direct to the German Army.

Supply Position during War Period

Mr. Scheerer stated that all raw material supplies had been satisfactory throughout the war and there had been no reduction in the quality of steel. They purchased steel from about fifty firms. Chrome salts had been permitted but their dental instruments were principally stainless steel. He estimated raw material stocks were sufficient for 6 months.

In addition to their normal instrument production, the drop forging plant had been used for producing airplane components.

/Inspection

Inspection of Factory

The premises had suffered some blast damage but the machinery was unaffected. The relatively large plant was operating only partially and a proportion of the production was manufacture of tools to replace those requisitioned by the French Authorities.

The regular patterns of dental forceps were all drop forged, only special patterns being hand forged. The manufacture of dental hand instruments, tweezers and impression trays followed the methods known in America and Great Britain. Dental scissors, pliers and steriliser boilers were drop forged. All dental instrument products were hand finished.

There was a factory training shop for apprentices, Mr. Scheerer stating that the period of apprenticeship was 3 years.

"Handform" Instruments

These dental hand instruments, though marketed before the war, are perhaps worthy of mention, owing to their increasing demand. Instead of using the usual octagon or hexagon steel rod, the Handform instrument handles are hollow aluminium and are shaped anatomically to give what is claimed to be additional hand grip and ease of operation.

General Remarks

Mr. Scheerer stated the main problem now confronting his factory was sales, and doubtless he will take energetic measures towards possible early resumption of export trade.

He maintained 90% of their finished stock of surgical and dental instruments had been transported to Strasbourg by French authorities; also a considerable number of factory tools.

He estimated the total value of goods requisitioned by French to be 4 million marks. The question of compensation had not yet been settled, but a figure of 1½ million marks had been mentioned.

(See also Statistics)

INTERVIEW NO.50. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of visit 22nd August 1945.

Interview with Mr. Knauss (Director), Mr. Hahn (Works Manager), and Dr. Rothert (Chief Designer) of Chiron-Werke, G.m.b.h., Thalstrasse, Tuttlingen, South Germany.

Background From the information secured during the interview it was apparent this firm had had a modern but comparatively small plant prior to the war, for the manufacture of surgical and dental instruments. However, during the war facilities had been made available for rapid expansion, so that now the whole plant was four or five times its former size.

Though the production of surgical and dental instruments continued, it was obvious that the main war-time activities of this concern had been the production of other items which we were informed constituted, principally, airplane components and switch-gears.

It was also learnt that neither Mr. Hahn nor Dr.Rothert had been attached to the firm for more than three years, and during the war both worked in a number of other factories, including the Heinkel Airplane Works, designing important war equipment, some of which was tested in the Chiron-Werke plant.

Mr. Knauss stated the firm had been founded by Mr. Otto Staebler in 1922 and prior to the war had exported 90% of their output, principally to Europe and U.S.A. Their U.S. agent had been Abele-Brooklyn who had also taken care of their Canadian business. They had no agent in England.

Mr. Knauss estimated 15% to 20% of their pre-war output had been dental instruments.

Dr. Rothert explained the factory had recently been manufacturing solely for the French authorities, the French Army occupying part of the plant. All finished surgical and dental instruments had been requisitioned, the total value being approximately 100,000 marks.

Supply Position - Raw Materials

Raw material stocks, generally, were sufficient for 2 to 3 months, but steel stocks were almost exhausted owing to transport difficulty and the fact their steel suppliers were also occupied by the French Army. Supplies of chrome had ceased.

Dr. Rothert stated that their coal stock was 10 tons only, against a normal consumption of 300 tons per month, the factory therefore being almost at a standstill. There was no electricity or gas.

New Developments

No new developments were observed.

Inspection of Plant

The factory buildings were undamaged and very modern and spacious.

Mr. Hahn mentioned that 50% of their plant had been new machinery acquired during the war. In March 1945 they had employed 542 men and 238 women, out of which 431 men and 163 women were foreign labour.

The plant was almost completely idle. It included large batteries of modern automatic machines for drilling and milling, finishing, plating shops (principally nickel plating), and assembly shops. The drop forging plant contained 5, 6 and 12 ton hammers.

There was a modern training school for apprentices, the period of training being 2-3 years.

INTERVIEW NO.51. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 22nd August 1945.

Interview with Mr. Adolf Schweickhardt, of:-

Adolf Schweickhardt,
Bahnhofstrasse,
Tuttlingen, South Germany.

Manufacturers of Surgical and dental instruments.

Background Mr. Schweickhardt stated the business was owned by his mother. Prior to the war 60% of the output had been exported, principally to Europe. Their British agent was F.C. Reiser, London, small supplies also being sent to Hugh-Friedy & Silverman, U.S.A. There was no official U.S. agent.

During the war, 80% of production had still been surgical and dental instruments, the remaining 20% airplane components and small accessories.

Raw Materials and Labour

It was learnt these had been adequate until the last few months. Now the factory was working a 5 hour day only, owing to labour transferring to agricultural work and material shortage due to transport difficulties.

Inspection of Plant

The range of goods produced by this firm corresponded, generally speaking, to that manufactured by Jetter & Scheerer and Chiron-Werke (see interviews Nos.49 & 50). However, production was on a very much smaller scale, and both machinery and premises were old and unimpressive.

INTERVIEW NO.52. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 22nd August 1945.

Firm Given on target list as:-

Gebrudder Martin,
Tuttlingen.

Unable to trace this firm at Military Government, Tuttlingen.

Enquiries at Jetter & Scheerer and Chiron-Werke, Tuttlingen (see interviews 49 & 50) revealed above firm was export agent only, not a manufacturer.

INTERVIEW NO.53. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 22nd August 1945.

Firm Walter Storz am Mark,
Tuttlingen, Germany.

Found this firm was a one-man concern making a few dental accessories in basement of his small private house.

INTERVIEW NO.54. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 24th August 1945.

Interview with Mr. Wilhelm Röder, Works Manager of:-

Antaeos-Werke G.m.b.H.,
Hansastrasse 25,
Munich 12, Germany.

Background Mr. Röder stated the business was owned by Mr. Alphons Ehrler, the Director, and his family. The range of goods manufactured consisted of Dental Nerve Broaches and Pluggers, Broach Holders, Tweezers, Mirror and Handles, Matrix Retainers, Amalgam Carriers Mandrels, and a selection of Hand Instruments. Mr. Ehrler also owned another firm, Martin Bauer, Berlin, who manufactured handpieces and foot engines exclusively for Antaeos-Werke. However, it was believed Russian authorities had removed the machinery from the Bauer plant.

Prior to the war Mr. Röder estimated export trade represented 60% of their output. Europe, Scandinavia, South America, and to a lesser extent Australia and South Africa, were their export territories. They had exported a small amount to England, but had no British or U.S. agent.

New Developments

Owing to the preoccupation of their war work - fulfilling requirements of the German Army and German civil dentistry - and the reconstructing of their war-damaged plant, Mr. Röder stated they had developed no new products and had no new developments in mind.

Supply Position - Raw Materials

Mr. Röder estimated raw material stocks were sufficient to last 3 months. Several items were out of production owing to shortage of raw materials. He explained that operation of the plant was seriously handicapped owing to lack of coal, gas and special benzine for tempering.

Inspection of Plant

According to a statement made by Antaeos to Military Government, Munich, war damage was estimated at 15%. Manufacture of all items followed methods well known in U.S.A. and England. Machinery was of an old type and hand fed. Tempering was by gas. A few bur forming and cutting machines (all uninstalled) were examined. They were of an old type, the cutting machines being hand fed.

/Plastic

Plastic Packing

The firm supply their Nerve Broaches in plastic packets of six. Mr. Röder stated the packets were obtained from Fischbach & Muller, of Engelskirchen, Cologne.

INTERVIEW NO.55. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 24th August 1945.

Firm Given on target list as:-
Fuwa Munchen.
Manufacturers of units, engines and lathes.

Enquiries at Military Government, Munich, and at Antaeos - Werke, Munich, failed to trace this firm.

This confirmed statement of Mr. Kegel, Emda, Frankfurt, who stated they were unknown to him.

INTERVIEW NO.56. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 24th August 1945.

Firm Ostner & Pohlmann,
Georgenstrasse 61,
Munich.

This concern was found to have a small plant only, at present employed upon the repair of dental units and dental accessories for the U.S. Army.

Prior to the war they had apparently manufactured diathermy equipment in a small way, in addition to a few dental accessories.

INTERVIEW NO.57. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 24th August 1945.

Firm Given on Target List as:-

Spiess Dentalis Gerate,
Munich, Nymphenburgerstrasse 127.

This firm was unknown at Military Government, Munich, also by Antaeos - Werke, Munich. No such firm existed in 'phone directory or at address given.

INTERVIEW NO.58. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 24th August 1945.

Firms Given on target list as:-

C.W. Zipperer G.m.b.h. } Munich.
J. Beutelrock & Sohn }

Military Government, Munich, traced them both to Wolfrathauserstrasse 27, Munich.

Found these premises were entirely destroyed and at Antaeos - Werke, Munich, we were informed both firms had gone out of business. They had previously been amalgamated.

INTERVIEW NO.59. BY DENTAL TEAM INVESTIGATING

ON TRIP NO.717

Date of Visit 27th August 1945.

Firm Siemens-Reiniger Werke A.G.
(Dental Section)
Luipoldstrasse, Erlangen, near Munich.

Manufacturers of Dental X-Ray Apparatus, Dental Units, Chairs, Engines and Lathes.

Interview with Mr. Oefele (in charge of Dental Department)
Dr. Ritzmann (Dental Department)

Background

This report and accompanying statistics refer solely to the dental section of this large concern.

Dr. Ritzmann explained that throughout the war the German Government had permitted this part of the Siemens organisation to continue its normal activities and their section of the Erlangen plant had concentrated very largely upon the production of medical X-ray apparatus for the German Army and for hospitals.

In consequence, their production of dental X-ray apparatus and units had been curtailed to some extent.

Prior to the war Mr. Oefele estimated 50% of the X-Ray machines and 40% of the Units, engines, lathes and chairs sold to the German dental profession were of Siemens manufacture. Also, export trade constituted 40% to 50% of their output, the principal export territories being Scandinavia and Europe, and to a lesser extent, Britain (agent Dentema Co., London) and South America. A small export business was carried on with Japan, but none with America.

In addition to selling their equipment through German retail dental dealers unconnected with their organisation, they had 25 dental depots of their own.

Supply Position

A. War Period

Throughout the war it was considered the supply position had been satisfactory, though refinements in the finish of their dental equipment had had to be sacrificed owing to lack of chrome for plating. Either white enamel or dull nickel plating had been used.

B. Since VE Day

Generally speaking, Dr. Ritzmann considered the position satisfactory in that stocks of most materials were sufficient for 1½ years and adequate supplies of fuel and power were available. However, there was an acute shortage of copper, chrome and wiring, and these, together with transport difficulties, were restricting present production of units.

Inspection of Dental Equipment Assembly and Testing Plant

Units There was considerable evidence of manufacturing activity 23 units being under test and a number of dental X-Ray machines and units were in the assembly shop.

These 23 units were the Triumph model, a simplified war-time utility appliance first produced in 1939, according to Dr. Ritzmann. They contained no spittoon. (The compressor was built in.) All other models of units inspected were the pre-war types known in England. None of these were at present in production.

Electric Engines The main feature of these was two series of speeds, controlled by a switch button. The first series consisted of 4 speeds varying from 400 up to 1200 r.p.m. in both forward and reverse. The second series gave a range of 4000 to 9000 r.p.m. in both forward and reverse positions. These higher speeds had been designed just before the war for use with diamond points and wheels.

Electric Lathes Two types were produced:-

(1) The standard type 4 speed 1700, 2300, 2800 & 3300 r.p.m.

(2) The induction type 2 speed 1500 & 3000 r.p.m.

Dental X-Ray Apparatus The "Heliosphere" X-Ray unit known in England was unaltered, except for external finish. A new accessory, however, was the "Dr. Staudenraus" radioscopic mirror with shield for the purpose of screening the teeth.

Chairs Since June 1944, when the factory of Schneider, Berlin, had sustained bomb damage, Dr. Ritzmann explained that no chairs had been produced. He hoped, however, to commence manufacture at Erlangen shortly.

/Compressors

Compressors Mr. Oefele stated they were no longer producing the tank compressor, all their units being equipped with a practically silent, built in compressor.

General Remarks

The whole Erlangen plant has sustained no war damage, and when materials and labour are fully available, the dental equipment section will be able to produce on a considerable scale.

DATE OF INVESTIGATION: 16th August, 1945

NAME OF FIRM: A.Ackermann

REG. OFFICE AND FACTORY ADDRESS: Kantstrasse 16 Göppingen

MANUFACTURERS OF: Dental mouth mirrors and handles, nerve broaches Diamond Points and Carbo-coated steel discs

TYPE OF ORGANISATION: Individual proprietorship

ARTICLE	REGISTERED OR TRADE NAME	PRE-WAR PER MONTH	OUTPUT WAR TIME PER MONTH	OUTPUT PRESENT PER MONTH	POSSIBLE
Barbed Broaches Hand	A.D.A.Co.	2,400 gross	1,800 gross	Not in operation. Has to get Mil. Gov. permit	Same as pre-war when labour available
Mouth Mirror Tops	"	20,000	20,000		
Mouth Mirror Handles	"	2,000	1,500		
Diamond Points	"	3,000	nil - could not get diamonds		
Carbo-Coated Steel Discs	"	2,000	not in production		

REMARKS (See interview No. 44)

It appeared this factory was operating without the sanction of Allied Military Government, Göppingen.

(96)

Continued

PERSONNEL ETC.

OWNER Mr. Ackermann
DIRECTOR Mr. Ackermann

WORKS MANAGER	NUMBER EMPLOYED MALES	FEMALE		WAGE RATES - MARKS PER HOUR MINIMUM MALE	MINIMUM FEMALE	MAXIMUM MALE	MAXIMUM FEMALE	HOURS WORKED PREWAR	WARTIME	PRESENT
Mr. Ackermann	25	5	Pre War	.80	.30	1	.30	48	48	48
	25*	5	Wartime							
	4	2	Now							

* 1 Czech
1 Serb

MACHINERY & EQUIPMENT

1 Automatic for cutting shanks of diamond points
1 Automatic for forming cores of diamond points
1 Spot welder
12 Lathes for poishing mirrors

PREMISES

Very small factory, undamaged

DATE OF INVESTIGATION
24th August, 1945.

NAME OF FIRM Antaeos-Werke G.m.b.h.

REG. OFFICE AND FACTORY

ADDRESSES
Munich 12, Hansastrasse 25
In addition Martin Bauer of Berlin (see interview No.54)

MANUFACTURERS OF
Dental, Nerve Instruments Mirrors, Tweezers and Hand Instruments

TYPE OF ORGANISATION
Family business

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR 1938	OUTPUT WARTIME PER YEAR	OUTPUT PRESENT PER MONTH	POSSIBLE
Nerve Canal Instruments	Antaeos	4 million	$3\frac{1}{2}$ million average	125,000	4 million
Broach Holders	"			Nil+	
Tweezers*	"			Nil+	
Nerve Canal Pluggers	"			Nil+	
Mirrors & Handles	"			Nil+	
Matrice Retainers	"			Nil+	
Amalgam Carriers	"			Nil+	
L.H.Instruments	"			7,000	
Mandrels	"			10,000	

* Finished from blanks
+ Insufficient Material

REMARKS (See interview No.54)

This firm are not manufacturing burs at present.
Net profit estimated at approximately 20% of Selling prices to depot.

/Continued

PERSONNEL ETC.

OWNER Ehrler family
DIRECTOR Alphons Ehrler

WORKS MANAGER	NUMBERS EMPLOYED		WAGE RATES - MARKS PER HOUR				HOURS WORKED		
			MINIMUM		MAXIMUM				
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Mr. Wilhelm Röder	20 20 15	60 in 1938 60 during war 30 at present	.90	.45	1	.60	48	48	45

(86)

MACHINERY & EQUIPMENT

Automatics all hand fed and belt driven.
Plant generally of an old type.

PREMISES

15% bomb damage.

DATE OF INVESTIGATION
9th August, 1945.

NAME OF FIRM Busch & Co.

ADDRESS REG. OFFICE AND FACTORY Engelskirchen

MANUFACTURERS OF
Dental burs, abrasives and mandrels

TYPE OF ORGANISATION
Family business

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER MONTH	OUTPUT WARTIME PER MONTH	OUTPUT PRESENT PER MONTH	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS	COST PRICES (MARKS PER 100 BURS)
Burs							(Plain cut 3 marks
Cavity	Busch	7/800,000	1 million		Same as		(Fissure 4½ marks
Surgical & Vulcanite	"				Wartime figures	20,000,000	
Drills	"	2/3,000		Dependent			
Abrasives				upon			
Mounted	"	30/40,000	48,000	power			
Unmounted	"	75,000	75,000			Unknown	
Heatless	"	75,000	75,000				
Lathe Wheels	"	3/4,000	3,000				
Minature Burs	"	2/3,000	not in production		2/3,000		
Huey Mandrels	"	8,000	8,000		8,000		

REMARKS (See interview No.22)

The firm manufactures the "Heatless" Wheels well known in America. Mr. Busch stated material used was "Chlormagnesiumlange"

/Continued

PERSONNEL ETC.

OWNERS AND DIRECTORS — Mr. Ernst Busch (Office)
Mr. Otto Busch (Factory)

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED			WAGES RATES - MARKS PER HOUR				HOURS WORKED		
					MINIMUM		MAXIMUM				
		MALES	FEMALES		MALE	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
9 Shops	Mr.Otto Busch	40	40	Prewar	.65	.50	.97	.70	48	60 men 54 women	30+
		40	100*	During War							
		40	40	Now							

* including 16 Ukranian woment and 8 prisoners of war.

+ due to shortage of electricity

(100)

MACHINERY & EQUIPMENT

43 Forming machines
143 Cutting machines
20 machines for cutting R.A.bur shanks
2 Bur trueing machines with auto feed
1 Auto forming lathe
2 gas tempering furnaces
2 auto polishers with magazine auto feed
1 lathe for brush-cleaning burs (hand feed)
5 Lathe wheel presses made by Vogel & Co.Polliwitz 6 Zeutenroda
2 Gas and 1 electric abrasive owens made by Degussa, Frankfurt - 1400°C

PREMISES

No bomb damage; blast damage negligible.
Plant well equipped for making dental.
burs and abrasives on considerable scale.
Has own printing plant.

DATE OF INVESTIGATION
22nd August, 1945.

NAME OF FIRM Chiron-Werke G.m.b.h.

ADDRESS
REG.OFFICE AND FACTORY Thalstrasse, Tuttlingen

MANUFACTURERS OF
Dental & Surgical instruments

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	PREWAR 1938	OUTPUT WARTIME PER YEAR	OUTPUT PRESENT PER YEAR	OUTPUT POSSIBLE PER YEAR	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Long Handled Instruments	Chiron	½ million	1 million	Nil	1 million)	
Forceps	"	50,000	30,000	Nil	50,000)	Consider
Elevators	"	5,000	1,000	Nil	10,000 +)	capacity
Pliers	"	5,000	300	Nil	15,000 +)	greater
Scissors	"	5,000	1,000	Nil	10,000 +)	than
Tweezers	"	20/25,000	20/25,000	Nil	100,000 +)	probable requirements
Suture Needles	"		any quantity			

(101)

REMARKS (See interview No.50)

Factory cost price of all the above items was estimated by Mr.Knauss to be 60% of Selling prices to dental depots.

/Continued

PERSONNEL ETC.

OWNER Mr.Otto Staebler
DIRECTORS Mr. Otto Staebler and Mr. Knauss

NUMBERS EMPLOYED			WAGE RATES - MARKS PER HOUR				HOURS WORKED		
			MINIMUM		MAXIMUM				
MALES	FEMALES		MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
300	(men and women)	before war	.80	.40	1.20	.60	48	48/72	30
542	238*	during war							
80	-	at present							

* Foreign labour March 1945 - 431 men
163 women

(102)

MACHINERY & EQUIPMENT

Large batteries of modern drilling and milling automatics.
Finishing, plating and assembling shops.
Training school for apprentices.

PREMISES

Undamaged. All buildings very modern and spacious.
Plant very well equipped for operation on a large scale

DATE OF INVESTIGATION
13th August, 1945.

NAME OF FIRM Deutsches Gold und Silber - Scheideanstalt "Degussa"

ADDRESSES
REF.OFFICE 31 Gutleutstrasse, Frankfurt
DENTAL (Pforzheim Derrennerstrasse 23
MANUFACTURING (271 Gutleutstrasse, Frankfurt
FACTORIES

MANUFACTURERS OF
Dental Cements & Alloys

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	PREWAR 1939	OUTPUT WARTIME YEARLY AVERAGE	PRESENT	POSSIBLE
Silicate Cement	Degussa		8,000 pkts	None	Almost
Oxyphosphate Cement	"	No	14,000 "	plants	unlimited
Stone & Model Cement	"	record	17,000 "	severely	when
Temporary Cement	"		14,4000tubes	damaged	plants
Precious Metal Alloys	"	3,750 Kilos	5,500 Kilos		reconstructed
Silver Alloys	"	3/4,000 Kilos	10,500 Kilos		
Handpieces and Instruments Foot & Electric Engines	Made in Berlin	No figures available			

REMARKS (See interview No.28)

Now Reconstructing dental plant

/Continued

PERSONNEL ETC.

OWNERS / DIRECTORS — Limited Company, 11 Directors

NUMBERS EMPLOYED			HOURS WORKED		
MALES	FEMALES		PREWAR	WARTIME	PRESENT
60 to 70	before and during war		48	up to 55	30

MACHINERY & EQUIPMENT

Dental manufacturing equipment almost entirely destroyed.

PREMISES

Temporary offices only

DATE OF INVESTIGATION
13th August, 1945.

NAME OF FIRM Emda, Geo. Hartmann

ADDRESSES
REG.OFFICE AND FACTORY 139/145 Hanauer Landstrasse, Frankfurt as above
EVACUATION Lorsbach, near Frankfurt

MANUFACTURERS OF
Dental Equipment

TYPE OF ORGANISATION
Private company

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER YEAR	OUTPUT WARTIME PER YEAR UP TILL OCT.1943	PRESENT	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
With compressors Dental Units	Emda	1,000	400	Part production only	Machinery position	
Electric Engines	"	2,000	600	"	satisfactory	
Chairs	"	6/800	300	"	Prewar	3/4,000
Cabinets	"	500	300	"	figures	complete
Lights	"	1/2000	1,000	Nil	of raw	dental
Spittoons	"	500	100	Nil	materials	equipments
Stools	"	500	2/300	Part	and labour	
Lathes	"	1,000	500	Production only	available	

REMARKS (See interview No.26)

90% of present labour concentrating on reconstruction of damaged premises. Undoubtedly endeavouring to resume large scale manufacture as soon as possible under existing difficult conditions.
Net profit estimated at 20% approximately.

/Continued

PERSONNEL ETC.

OWNER Geo. Hartmann.

SALES MANAGER Mr.Alexander Kegel.

DIRECTOR Geo. Hartmann.

WORKS MANAGER	NUMBERS EMPLOYED			WAGE RATES - MARKS PER HOUR				HOURS WORKED		
				MINIMUM		MAXIMUM				
	MALES	FEMALES		MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Mr.Treutel	320	80	Prewar	.45	.45	1.10	.75	48	54 and 60	40
	320	80	Until October 1943*							
	200	50	Now							

* Including 30 Russian men
10 " women

(106)

MACHINERY & EQUIPMENT

Total 150 machines
Including 40 Lathes and automatic drilling and turning machines.
A few of these apparently operating at small temporary plant at Lorsbach

PREMISES

Severely damaged. At present one shop only operating, making dental lathes. Energetic reconstruction of premises in hand. Gained impression that Allied Military Government are co-operating in this respect.

DATE OF INVESTIGATION
30th July, 1945

NAME OF FIRM Ernest Frolich G.m.b.h.

ADDRESS REG.OFFICE AND FACTORY Gummi - u - Regenerierwerk Freiheit, Osterode, Harz, Germany.

MANUFACTURERS OF
Dental Rubber

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER MONTH	OUTPUT WARTIME PER MONTH (after July 1943)	OUTPUT PRESENT PER MONTH	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS (per month)	COST PRICES (MARKS PER 100 BURS)
Dental Rubber	Frolich	1,000 Kilos	750 Kilos	1,000 Kilos	1,000 Kilos dependent upon raw material and fuel.	2,000 Kilos	

(107)

REMARKS (See interview No. 8)

Mr. Frolich stated that, as from January, 1945, he had been instructed by the German Government to produce dental rubber from buna. Took specimens with a view to getting them identified. (See interview No.20).

/Continued

PERSONNEL ETC.

DIRECTORS Waldorf Frolich

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED		WAGES RATES - MARKS PER HOUR				HOURS WORKED		
				MINIMUM		MAXIMUM				
		MALES	FEMALES	MALE	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Dental rubber section consists of one shop only.	Waldorf Frolich	2 2	3 - pre-war 3 - now					48	48 and upwards where necessary.	48

(108)

MACHINERY & EQUIPMENT

1 Milling Machine
1 Small Calendar
Both Standard types.

PREMISES

Premises undamaged.

DATE OF INVESTIGATION
4th August, 1945.

NAME OF FIRM Hager & Meisinger G.m.b.h.

ADDRESS

REG. OFFICE AND FACTORY Kromprintzenstrasse 5/9 Dusseldorf, Germar

MANUFACTURERS OF
Dental Burs, Dental Abrasives and lathe wheels, Dental drills and mandrels

TYPE OF ORGANISATION
Family business

ARTICLE	REGISTERED OR TRADE NAME	PREWAR PER YEAR	OUTPUT WARTIME PER YEAR	OUTPUT PRESENT PER YEAR	OUTPUT POSSIBLE PER YEAR	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Burs						
Cavity	Meisinger	10 Million	12 Million	2,040,000 °	7,200,000 *	11 million
Vulcanite	"	¼ "	¼ "	12,000 °	120,000 "	125,000
Surgical	"	¼ "	¾ "	increasing not at present °	depends on demand	5,000
Miniature	"	1 "	none	none	" " "	small
Abrasives						
Mounted	"	3 "	700,000 °	none +	500,000 °	1 million
Unmounted	"	4¼ "	700,000 °	none +	400,000 °	1 "
Lathe Wheels	"	8/10,000	8/10,000	none +	dependent on demand	unknown
Drills	"	¼ million	none	none °	" " " °	unknown

* On one shift + No gas. ° Labour shortage

REMARKS (See interview No.15)

Bur cutting and forming machines each turn out one bur per minute. Each batch of 15 machines attended to by one mechanic, one machine operator and one bur remover. Cost price of cavity burs is (Plain cut / Crossent Fissure) 3 to 3½ marks per 100

/Continued

PERSONNEL ETC. OWNER Wilhelm Noack Senr.
DIRECTORS Wilhelm Noack Senr.)
Wilhelm Noack Jnr.)
Mathias Noack)

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED			WAGE RATES - MARKS PER MONTH				HOURS WORKED		
					MINIMUM		MAXIMUM				
		MALES	FEMALES		MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Forming machine shops	Mr.Mathias	40	80	Prewar	200	100	250	120	48	72	48
Cutting " "	Noack	*20	70	During war	plus bonus scheme						
Bur tempering room											
Packing room											
Despatch (Shipping) Dept.											
Stone Forming room											
" Mounting "											
Polishing room											
Furnace room											
Repair shop											
Shipping Dept.											
Office											

* No slave labour employed

(110)

MACHINERY & EQUIPMENT

95 Bur Forming machines
130 Bur Cutting machines with auto feed *
2 Autos for tool cogs for cutting shanks of R.A.Burs
1 Shank marking machine auto feed
6 Cleaning machines auto feed
2 Polishing machines auto feed
2 Polishing Lathes
80 Abrasives Moulds (Mounted and Unmounted)
4 Lathe Wheel Moulds
2 Abrasive Ovens

* This figure does not include 102 damaged machines

PREMISES

One bur shop containing 102 cutting machines severely bomb damaged. Remainder of premises blast damaged only.
Premises consist of four floors and are of modern construction being completed in 1940.

PERSONNEL ETC.

OWNERS AND DIRECTORS — Mr. Ernst Hürrichs (incharge of factory)
Mr. Richard Hürrichs (in charge of office)

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED		WAGES RATES - MARKS PER HOUR				HOURS WORKED		
				MINIMUM		MAXIMUM				
		MALES	FEMALES	MALE	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
1 Plaster Shop	Ernst Hürrichs	10	8 - Prewar in office							Normally 48 hours but dependent on receipt of orders.
1 Packing Room	"	5	4 Wartime in office & now							

(III)

MACHINERY & EQUIPMENT

3 Plaster Mills of standard type, and quantities of wooden containers for prepared material.

PREMISES

Slight blast damage only. Adequately equipped for producing dental plaster.

DATE OF INVESTIGATION
30th July, 1945.

NAME OF FIRM Ernst Hinrichs

ADDRESS REG. OFFICE AND FACTORY Osterode, Harz, Germany.

MANUFACTURERS OF
Dental Plaster
Investments

TYPE OF ORGANISATION
Private Ownership

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER DAY	OUTPUT WARTIME PER DAY	OUTPUT PRESENT	POSSIBLE PER DAY	ESTIMATED GERMAN ANNUAL REQUIREMENTS	COST PRICES (MARKS PER 100 BURS)
Dental Plaster and Dental Investments	Hinrichs	15 tons	15 tons	None no fuel	15 tons		

(112)

REMARKS (See interview No.7)

Mr. Hinrichs stated he had no fuel, also very little raw material, owing to transport difficulties.

DATE OF INVESTIGATION
22nd August, 1945.

NAME OF FIRM Aktiengesellschaft fur Feinmechanik Vormals Jetter & Scheerer.

ADDRESS
REG.OFFICE AND FACTORY Tuttlingen

MANUFACTURERS OF
Dental Forceps, hand instruments.
Surgical instruments.

TYPE OF ORGANISATION
Limited Company

ARTICIE	REGISTERED OR TRADE NAME	OUTPUT PREWAR 1938	OUTPUT WARTIME 1944	OUTPUT PRESENT 1945 1st Qtr.	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS APPROX.
Forceps	Aesculap	55,000	64,000	12,000)		60,000
Dental Scissors	"	7,200	9,500	1,050)		8,500
Elevators	"	9,750	11,400	850)	At least	12,000
L.H.Instruments	"	85,000	147,500	13,400)	1944	90,000
Pliers	"	7,100	28,000	4,000)	figures	8,000
Tweezers	"	17,500	46,700	500)		19,000
Impression Trays	"	26,000	32,000	4,500)		29,000
Special Handform Instruments	"	79,500	104,700	8,350)		85,000

(113)

REMARKS (See interview No.49)

Firm will make strenuous efforts to resume export trade.

/Continued

PERSONNEL ETC. DIRECTORS (Mr.Fritz Scheerer
(Mr.Hans Scheerer

WORKS MANAGER	NUMBERS EMPLOYED		WAGES RATES - MARKS PER HOUR				HOURS WORKED		
			MINIMUM		MAXIMUM				
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Mr.Hans Scheerer	200	Negligible Dental Section 1939	.80	-	1	-	48	48/52	30
	*200	" " "(during war)							
	50	" " "now							

* 80 French P.O.W's employed in entire factory

(114)

MACHINERY & EQUIPMENT

A large drop forging plant and automatic shop.
Lathes for hand finishing instruments, plating assembly and polishing plants.
Also training school.
Whole organisation capable of production very large quantities of surgical, dental and veterinary instruments.

PREMISES

Blast damage but plant unaffected.

DATE OF INVESTIGATION
6th August, 1945.

NAME OF FIRM Jota-Werke Gebr. Funke A.G.

ADDRESSES

REG.OFFICES AND FACTORY (Temporary Premises) Rottachegem, Tegernzee, Am-Schom 98 near Munich
Am-Hammer 1/3 Leichlingen near Dusseldorf.

REPAIR SHOP Auchenerstrasse 71/73, Dusseldorf

MANUFACTURERS OF
Dental Burs
Dental Abrasives
Dental Cements

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	PREWAR PER YEAR	OUTPUT WARTIME	PRESENT	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Burs Cavity	Jota	12 Million	The same until bombing in 1942	Nil	Unknown	35 million
Bur Vulcanite Miniature	"	2½ "	"	"	"	
Bur Surgical	"					
Abrasive Mounted	"	480,000	"	"	"	3½ "
" Unmounted		600,000	"	"	"	3½ "
Lathe Wheels	"	60,000	"	"	"	3½ "
Cements all types	"powders	150,000/ 200,000	"	"	"	Unknown
	liquids	100,000	"	"	"	Unknown

(115)

REMARKS (See interview No.17)

At present concentrating on trying to recondition all his salvaged machinery - 600 machines in all. Factory making dental and industrial abrasives only at present.
Average cost per 100 Cavity burs 3.50 marks

/Continued

PERSONNEL ETC.

DIRECTORS Mr. Otto Funke
Mr. Rudolph Funke

NUMBERS EMPLOYED				WAGE RATES - MARKS PER HOUR				HOURS WORKED		
				MINIMUM		MAXIMUM				
	Total	Men	Women	MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Pre War	170*	50	120	1	.60	1.40	1	52	52 until bombed	35

* Including 10 in office

During War Same as above including 6 Belgians at Leichlingen

At Present 20 men and women

(116)

MACHINERY & EQUIPMENT PREWAR

Bur Forming Machines	156	
Bur Cutting "	131	
X Cut & End Cutting	36	
Vulcanite & Surgical machinery cutting	30	
Polishing Machines autofed (Magazine holds 2,000 burs. Machine polishers 1,200 burs per hour)	6	
Automatics for shaping, drilling, cutting, sawing and forming	65	
Hand drills various	126	
Stamp machines	6	
Electric tempering furnace	1	
Abrasive Ovens	2	

PREMISES

Factory entirely destroyed
Now has repair shop in Dusseldorf and factory at Leichlingen
Both these are temporary premises only, pending finding another factory. They both are part of two other factories not connected with dental-production.

DATE OF INVESTIGATION
14th August, 1945.

NAME OF FIRM
Kulzer & Co. G.m.b.h.

ADDRESS

REG. OFFICES AND EVACUATED FACTORY
Friedrichsdorf Hauptstrasse 119

MANUFACTURERS OF
Acrylic Denture Material
Acrylic Material for Crowns inlays and teeth

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	PRE-WAR 1939 approx.	OUTPUT WAR TIME Average war years	OUTPUT PRESENT	OUTPUT POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Acrylic Denture Material	Paladon	7,000 Kilos	40/50,000 Kilos	30/50,000 Kilos*	12,000 Kilos	30/50,000 Kilos
Acrylic Material for production of artificial teeth jacket crown and bridges	Palapont	not made	1941 onwards average 8,000 Kilos	1,500 Kilos	6/8000 Kilos	10,000 Kilos

* Subject to raw material being available

REMARKS (See interview No.30)

Stabiliser added to Paladon liquid is "Hydrochynon". A small quantity of this is included by Röhm & Hass with the raw material, Kulzer adding more without informing Haas. Kulzer also add colouring matter to the raw material powders.

Continued

(Hulger & Co cont.)

PERSONNEL ETC.

OWNERS (Degussa, Gutlentstrasse 31, Frankfurt - 50% shares
(W.C.Heraeus, Hanua near Frankfurt - 50% shares
DIRECTOR (Mr.Hirtes
(Dr. Rheinhart Heraeus

NUMBERS EMPLOYED			HOURS WORKED		
MALES	FEMALES		PREWAR	WARTIME	PRESENT
	40	Prewar	48	48	30/36
	100	During war			
8	17	Now			

MACHINERY & EQUIPMENT

7 Milling Machines for Paladon
4 " " for Palapont
2 " " for Artificial teeth
material for Vita and Weinand

PREMISES

Evacuation premises only. Rather unsuited for factory. Will obviously find better premises when possible.

DATE OF INVESTIGATION
9th August, 1945.

NAME OF FIRM Emil Lange

ADDRESS REG. OFFICE AND FACTORY Engelskirchen (Cologne district) Germany.

MANUFACTURERS OF
Dental burs and nerve canal drills

TYPE OF ORGANISATION
Joint Proprietorship.
Emil Lange and Fritz Lange

ARTICLE	REGISTERED OR TRADE NAME	PREWAR PER YEAR	OUTPUT WAR TIME PER YEAR	OUTPUT PRESENT	OUTPUT POSSIBLE	COST PRICE PER 100
Cavity Burs	E.L.A.	1½ million	2½ million	2 million	2 million	(Plain cut 3 marks (Cross cut fisture 4½ marks
Vulcanite Burs	"	2 million	2,400,000	2 million	2 million	
Surgical Burs	"					
Nerve Canal Drills	"					

(119)

REMARKS (See interview No. 21)

At present has no gas for tempering

/Continued

PERSONNEL ETC.

OWNERS)
DIRECTORS) Emil Lange & Fritz Lange

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED MALES	FEMALES		WAGE RATES - MARKS PER HOUR MINIMUM MALES	MINIMUM FEMALES	MAXIMUM MALES	MAXIMUM FEMALES	HOURS WORKED PREWAR	WARTIME	PRESENT
One shop only	Emil Lange	9	9	PreWar	1	.50	1.20	.70	48	72 men 60 women	48
		10	15*	War time							
		10	15	Now		plus bonus scheme					

* Including 4 Russian Women

(120)

MACHINERY & EQUIPMENT

9 bur forming machines
25 bur cutting machines with automatic feed
Various automatic and capstan type lathes, drills
1 name stamping machine
2 shank polishing machines
2 gas tempering ovens

PREMISES

Offices formerly private house
with one workshop added at rear
Slight blast damage.

DATE OF INVESTIGATION
6th August, 1945.

NAME OF FIRM Carl Martin

ADDRESSES

REG.OFFICES & FACTORY Solingen-Höhscheid, near Dusseldorf, Germany

MANUFACTURERS OF
Dental Forceps, instruments & scissors

TYPE OF ORGANISATION
Individual proprietorship

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER YEAR	OUTPUT WARTIME	OUTPUT 3 MONTHS 1945	POSSIBLE	COST PRICE (EACH)
Forceps & Pliers	Crown over Tooth	16,000	16,000	*3,000	Unknown	Forceps 3.20 marks
Tweezers & Solder Tweezers all types	"	81,000	81,000	21,000		
Scissors	"	15/16,000	15/16,000	1,800		
Elevators	"	No record	75/80,000	9,000		
Hand & Special Instruments	"					

REMARKS (See interview No.19)

* Fall in production due to training of two new forgers

(121)

/Continued

PERSONNEL ETC.

OWNER — Mr.Carl Martin
DIRECTOR — Sole proprietor

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED			WAGE RATES - MARKS PER HOUR				HOURS WORKED		
					MINIMUM		MAXIMUM				
		MALES	FEMALES		MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Small factory only	Carl Martin	11	5	During war	1	.45	1.15	.60	48	60	48
		13	4	Now							

(122)

MACHINERY & EQUIPMENT

Small plant consists of:-
1 Forcep forge
1 Small drilling machine (hand operated)
4 belt driven polishing lathes
1 oil tempering bath

PREMISES

The factory and office is of modern construction

DATE OF INVESTIGATION
2nd August, 1945.

NAME OF FIRM Wilhelm Richter

ADDRESS REG. OFFICE AND FACTORY Bothfelderstrasse 23, Hanover, N.

MANUFACTURERS OF
Dental Handpieces and foot engines

TYPE OF ORGANISATION
Individual proprietorship not limited company

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR	OUTPUT WARTIME	OUTPUT PRESENT	OUTPUT POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Handpieces Straight	W R H	10,000	10,000	7,500	10,000	Maximum 10,000
Handpieces Contra	"	6,000	6,000	4,500	6,000	
" Miniature	"	not stated	out of production		up to 1,000	Unknown
Foot Engines	-	not made	see remarks			Unknown

(123)

REMARKS (See interview No.10)

Firm just commenced production of inferior quality foot engine, to offset lack of electric engines needed for bombed-out and demobilised dentists

/Continued

PERSONNEL ETC.

OWNERS Wilhelm Richter
DIRECTOR Wilhelm Richter

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED MALES	NUMBERS EMPLOYED FEMALES	HOURS WORKED PREWAR PER WEEK	HOURS WORKED WARTIME PER WEEK	HOURS WORKED PRESENT PER WEEK
All Departments	Mr.Stolberg	90	60 Prewar	50 Hours	60 Hours	40 Hours
		+100	320* Wartime			
			✱			
		60	40			

* This includes 220 part time workers
✱ Mr. Stolberg stated slave labour was employed
Used principally for making the aeroplane pressure gauges

(124)

MACHINERY & EQUIPMENT

Automatic Shop 80 Belt driven
8 direct drive
Semi Automatic Shop 125 belt driven
2 de-oiling machines
Grinding & Polishing Shop 4 Lathes
Drilling Shop 60 (Various sizes)
Casting Drilling) 14 capstan
& Finishing Shop) type lathes
for Foot Engines)
Plating Shop 8 nickel plating vats
All above machines were in good working condition and of designs similar to those used in British and U.S. factories

PREMISES

Undamaged:consisting of a brick built, four storey building with basement, housing stock room, auto and semi auto, drilling, grinding and plating shops.
Another smaller brick built building houses, ~~cast~~ drilling and finishing shop with offices attached.

DATE OF INVESTIGATION: 16th August, 1945

NAME OF FIRM: Ritter A.G.

REG.OFFICE AND FACTORY ADDRESS: Karlsruhe - Durlach/Baden, Germany

MANUFACTURERS OF: Dental Equipment

TYPE OF ORGANISATION: Limited Company

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR 1938	OUTPUT WARTIME YEARLY AVERAGE	OUTPUT PRESENT MAY/JULY 1945	OUTPUT POSSIBLE PER YEAR	ESTIMATED GERMAN ANNUAL REQUIREMENTS	COST PRICES (in marks) Factory Cost with factory and general overheads
Chairs	Ritter types D2 & D3	1050	501	66	2,400		D2 - 382. D3 346
Units	Ritter	863	270	24	1,800		500 (average all types)
Electric Engines	"	600	460	66	2,400	Approximately	120 " " "
" Lathes	"	284	350	24	1,800	5,000	-
Compressors	"	464	161	Nil	1,800	complete	170 " " "
Dental X-Rays	"	1071	450	36	960	dental	450 " " "
Cuspidors	"	249	310	28	1,200	surgery	112 " " "
Reflectors	"	579	505	7	1,800	equipments	48 (average both types)
Operating Lights	"	693	120	Nil	1,800		95 " " "
Cabinets	"	192	450	Nil	1,800		

(126)

REMARKS (See interview No.32)

Factory at present scarcely operating owing to shortage of fuel, raw materials and labour.

/Continued

PERSONNEL ETC.

OWNER Ritter & Co. (Inc.) Rochester, New York.

PRODUCTION MANAGER	NUMBERS EMPLOYED MALES	FEMALES	WAGE RATES - MARKS PER HOUR MINIMUM MALES	MINIMUM FEMALES	MAXIMUM MALES	MAXIMUM FEMALES	1938 PREWAR PER YEAR	HOURS WORKED WARTIME YEARLY AVERAGE	PRESENT
Mr.Goyert	533	77 (1938 Dec)	.70	.55	1.25	.75	1,467,928 hours	1,200,312 hours	Factory almost at a standstill
	430	65 (average wartime)							
	33	13 (now)							

MACHINERY & EQUIPMENT

Large numbers of automatic drilling machines, lathes grinding machines. Also foundry and plating shop.

PREMISES

Virtually undamaged capable of producing equipment on considerable scale.

DATE OF INVESTIGATION
22nd August, 1945.

NAME OF FIRM Adolf Schweickhardt

ADDRESS
REG.OFFICE AND FACTORY Bahnhofstrasse, Tuttlingen

MANUFACTURERS OF
Dental Forceps and Instruments

TYPE OF ORGANISATION
Individual proprietorship

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER YEAR	OUTPUT WARTIME PER YEAR	OUTPUT PRESENT	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Forceps	Schwert	20,000	20,000	Negligible*	10/15,000	40/50,000 pairs
Tweezers	"	60/70,000	60/70,000	Negligible* +	60/70,000)	
Elevators	"	5/6,000	5/6,000	Negligible* +	5/6,000)	
Hand Instruments	"	70,000	70,000	15/20,000	70,000)	Unknown
Pliers	"	10/14,000	4,000	Negligible*	10/14,000)	
Impression Trays (14 patterns only)	"	5,000	10/13,000	Nil*	5,000)	

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* Labour shortage
+ Cannot get blanks from suppliers at Solingen

REMARKS (See interview No.51)

Cost price of forceps estimated at 2 marks per pair

/Continued

PERSONNEL ETC.

OWNER Mrs. Schweickhardt
DIRECTORS (Adolf Schweickhardt
(Erich Schweickhardt

MANAGER	NUMBERS EMPLOYED		WAGE RATES - MARKS PER HOUR				HOURS WORKED		
			MINIMUM		MAXIMUM				
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
Mr.Schweickhardt	50	10 Prewar	.80	.45	1.20	.65	48	60	35
	68*	7 During war							
	27	5 Now							

* Including 22 Russians

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MACHINERY & EQUIPMENT

Drop forging, automatic, plating, finishing and assembly plant.
Machinery and equipment all old.

PREMISES

Undamaged. Old and unimpressive.

DATE OF INVESTIGATION
27th August, 1945.

NAME OF FIRM
Siemens-Reiniger Werke A.G.
(Dental Section)

ADDRESSES
REG. OFFICE AND FACTORY
Luipoldstrasse, Erlangen, near Nuremburg

MANUFACTURERS OF
Dental Equipment

TYPE OF ORGANISATION
Limited Company

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR 1939	OUTPUT WARTIME 1944	OUTPUT PRESENT	POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS
Electric Engines	Siemens	400	770	200	At least 770	1500 Engines
" Lathes	"	200	250	350*	" " 250	(1500 Lathes
Tank Compressors	"	100	70	No longer producing	" " 100	(1000 Lathes (small)
X-Ray (Dental	"	700	265	400	" " 700	1000 X-Ray (Dental)
Units	"	600	200	200	" " 60	1200 Units

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*including small 2 speed lathe

REMARKS (See interview No.59)

/Continued

PERSONNEL ETC. OWNER) Limited Company
DIRECTOR)

NUMBERS EMPLOYED	HOURS WORKED		
MALE AND FEMALES Dental Section Only	PREWAR	WARTIME	PRESENT
140 before war 220+during war 55 at present	48	up to 72 (2 shifts	50

+ whole factory employed about 300 foreign labour including Russians, French and Czech

MACHINERY & EQUIPMENT

Modern assembly and testing shops for producing dental equipment

PREMISES

Entirely undamaged and capable of producing considerable quantities of dental equipment

DATE OF INVESTIGATION	NAME OF FIRM		ADDRESS
21st August, 1945.	Standard Zahnfabrik A.G.	REG. OFFICES AND FACTORY	Reichenanstrasse 150 Constance
MANUFACTURERS OF	**TYPE OF ORGANISATION**		
Artificial Teeth	Limited Company		

ARTICLE	REGISTERED OR TRADE NAME	1938 PRE WAR PER YEAR	OUTPUT WARTIME 1943	OUTPUT PRESENT	OUTPUT POSSIBLE	ESTIMATED GERMAN ANNUAL REQUIREMENTS	COST PRICE PER 100
Acrylic Anteriors	Anatoform Kunststoff	Nil	600,000	600,000	1½ million	15/20 million	-
Acrylic Diatorics	Kunststoff Diatorics	Nil	Nil	Nil			-
Porcelain Anteriors	Anatoform	2 million	2 million	1½ million	As 1938		14.35 marks
" "	Solila	2 "	1¼ million	Nil			14.35 marks
" Crowns	De Trey	90,000	126,000	Nil			-
" Diatorics	Revelation	3,700,000	3,400,000	3,600,000			-
" "	Anatoform	85,000	200,000	Nil			-
Porcelain Pin Teeth	(Special German Shades)	540,000	868,000	Nil	1 million		-

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REMARKS (See interview No. 48)

Anatoform Kunststoff Teeth supplied in
35 upper and 16 lower moulds.
Cast bronze moulds and finish them on premises

Continued

PERSONNEL ETC.

OWNERS Dentists Supply Co. of New York. 96% Shares ; and Mr. John E. Frey. 4 % Shares
DIRECTOR Mr. Frey

WORKS MANAGER	NUMBERS EMPLOYED MALES	FEMALES	WAGE RATES - MARKS PER HOUR MINIMUM MALES	MINIMUM FEMALES	MAXIMUM MALES	MAXIMUM FEMALES	HOURS WORKED PRE WAR	WARTIME	PRESENT
Mr. Kreuchen	27	116 - 1938	.65	.45	1.35	1	48	50	25
	18	152 - 1943							
	18	98 - 1945 (Aug)	plus bonus scheme						

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MACHINERY & EQUIPMENT

1 Grinding machine for quartz and Feldspar
6 Milling machines
1 Mechanical agitated sifter for porcelain
1 Pin making automatic machine
1 Coil " " "
Various lathes for drilling diatorics
6 Electric furnaces for fusing porcelain teeth
Rotating pin soldering machine

PREMISES

Undamaged, Modern plant, showing evidences of efficient management

DATE OF INVESTIGATION: 14th August, 1945.

NAME OF FIRM: Zahnfabrik Bad Nauheim Stisser & Co. Kom-Ges

REG. OFFICE ADDRESS: Bad Nauheim, Near Frankfurt/Main

MANUFACTURERS OF: Artifical Teeth & Dental Cements

TYPE OF ORGANISATION: Partnership

ARTICLE	REGISTERED OR TRADE NAME	PRE WAR	OUTPUT WAR TIME 1944	OUTPUT PRESENT PER MONTH	POSSIBLE	TEETH DETAILS
Teeth						
Acrylic	"Stiocpal"	not made	6½ million teeth ALL types	120/130,000	Maximum figures in preceding columns if materials and labour available	5 upper) 4 lower) moulds - 6 shades
Translucent Porcelain	"Luxor"	not made				10 shades
S.S.Pin	"Natura Wipla"	not made				15 shades
Porcelain Diatoric		Total 5½ million including G Natura				10 shades
Cements						
Silicate	"Koh-i-Noor"	4 Kilos powder	8 Kilos powder	10% increase on 1944 production		-
Oxyphosphate	"Pontofix"	9 Kilos powder	50 Kilos powder			-
Stone	"Silphat"	½ Kilo powder	2¾ Kilos powder			-
Copper	"Cuprodent"	½ Kilo powder	2 Kilos powder			-
Temporary	"Temporit"	3 Kilos powder	2 Kilos powder			

REMARKS (See interview No. 29)

PRE-WAR made also "Golda-Natura" 2 colour pin teeth and facings, crowns and gum sections

Continued

PERSONNEL ETC.

OWNER Mr.Stisser)
DIRECTOR Mr. Weber) Partners

NUMBERS EMPLOYED			WAGE RATES - MARKS PER HOUR				HOURS WORKED		
MALE	FEMALE		MINIMUM		MAXIMUM		PREWAR	WARTIME	PRESENT
			MALE	FEMALE	MALE	FEMALE			
50	100/130	Pre-War	.40	.40	.70	.70	48	56	48
30	182*	During war							

* Including
(18 Ukranian Women
(2 Polish "

MACHINERY & EQUIPMENT

Mould repair and tool shop
2 Lathes for polishing Vipla Steel pins
500/600 brass moulds
(Pressed moulds not poured)
1 Tooth powder store room
4 Units of 20 Gas presses (Not in use (no gas
8 Electric presses
12 Hand Mould Presses for Acrylic Teeth
7 Milling Machines for porcelain teeth
1 Hand magnetic extractor
7 Cement milling machines
1 Electric Teeth firing furnace
2 Gas cement furnace 1350° C

PREMISES

Undamaged

DATE OF INVESTIGATION
3rd August, 1945.

NAME OF FIRM A. Tussing.

ADDRESS REG.OFFICE AND FACTORY 230, Lindenstrasse, Dusseldorf.

MANUFACTURERS OF
Nerve Canal Drills, Reamers and Files.

TYPE OF ORGANISATION
Individual proprietorship.

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR PER YEAR	OUTPUT WARTIME PER YEAR	OUTPUT PRESENT PER YEAR	POSSIBLE PER YEAR	ESTIMATED GERMAN ANNUAL REQUIREMENTS	COST PRICES (MARKS PER 100 BURS)
Nerve Canal Drills and Spiral Reamers.	Tussing	400,000 to 500,000	As prewar until June 1943.	not in operation	240,000		
Dr.Hedstrom P.C.Files	Dr.Hedstrom	150,000	as above.				

REMARKS (See interview No.12)

Examination of products revealed high standard. Mr. Tussing stated the Dr. Hedstrom files were a speciality of his firm and ~~Antales~~ ANTAEOS - Werke, Munich.

PERSONNEL ETC.

OWNERS AND DIRECTORS — Mrs. A. Tussing.
Mr. W.A. Tussing.

DEPARTMENT OR SHOP	MANAGER	NUMBERS EMPLOYED		WAGES RATES - MARKS PER HOUR				HOURS WORKED		
				MINIMUM		MAXIMUM				
		MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	PREWAR	WARTIME	PRESENT
								per week	per week	
Only one shop at present	Mr. Anacker	9 Prewar 4 Wartime	Nil Nil					48	48	not working

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MACHINERY & EQUIPMENT

1 Capstan type lathe and several jewellers lathes have been salvaged from bombing of main factory and are now being overhauled by the works manager. The machines are to be worked by overhead belting from the main electricity supply. Several small Hand Drills and Taps and Dies were also salvaged and usable.

PREMISES

Main premises unusable owing to bomb damage. Salvaged machinery being re-installed in single floor workshop at rear of main premises with small office attached.

DATE OF INVESTIGATION: 20th August, 1945

NAME OF FIRM: Vita Zahnfabrik H.Rauter o.H.G.

ADDRESS — REG. OFFICES AND FACTORY: Baslestrasse Sackingen near Basle

MANUFACTURERS OF: Artificial Teeth and Dental Ceramic Porcelain

TYPE OF ORGANISATION: Private ownership

ARTICLE	REGISTERED OR TRADE NAME	OUTPUT PREWAR YEARLY	OUTPUT WARTIME YEARLY	OUTPUT PRESENT YEARLY RATE	POSSIBLE YEARLY	ESTIMATED GERMAL ANNUAL REQUIREMENTS
Acrylic Anteriors	Vita Pal	Nil	1 million	Nil°	1½ million all types	40 million all types
" Diatorics	" "	Nil	not yet made			
Porcelain G.C.Pins 3 colour	Lumine	Nil	1 million	Nil+		
Porcelain G.C.Pins 3 colour	Vita	3½ million	3 "	1½ million		
Porcelain G.C.Pins 2 shades	Orbis	1½ "	1½ "	discontinued		
Porcelain Diatorics	Lumine	3½ "	3½ "	3 million	6 million	
" "	Vita	3½ "	3½ "	3 "		
Ceramic Porcelain	Vita	out of production				

REMARKS (See interview No.46)

° Crowns. Tube teeth discontinued during war.
° No raw material received since end of 1944.
+ Restarting soon. German Government restricted production to 15% of pre-war output

Mr.Rauter estimated average factory cost was 50% of Selling price to the dental depots.

/Continued

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PERSONNEL ETC. OWNER) H.Rauter. Mrs.Rauter, Helena Rauter, Fritz Johan Rauter
DIRECTOR) Private Ownership

WORKS MANAGER	NUMBERS EMPLOYED MALES	FEMALES		WAGES RATES MARKS PER HOUR MINIMUM MALES	MINIMUM FEMALES	MAXIMUM MALES	MAXIMUM FEMALES	HOURS WORKED PREWAR	WARTIME	PRESENT
Mr. Hael	90	280	Pre-war	1	.50	1.40	.80	48	52½	47
	100	300	During war at Essen*							
	70	180	" " " Sackingen °							
	50	100	Now							

* 6 Dutch
° 18 Ukranian

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MACHINERY & EQUIPMENT

5 Electric Furnaces for fusing porcelain teeth
6 Electric Furnaces for teeth pins
4 Automatics for making teeth pins
2 " " " crown posts
1 Wood pin making automatic for diatorics
1 Electric grinding machine for feldspar
24 Milling machines standard type
1 Electric oven for fusing porcelain ingredients

PREMISES

Undamged and very modern construction.
Whole plant showed evidences of unusually ~~modern construction.~~ EFFICIENT MANAGEMENT

DATE OF INVESTIGATION
15th August, 1945.

NAME OF FIRM
Zahnfabrik Weinand Solme & Co. G.m.b.h.

ADDRESSES
REG. OFFICES Sprendligen Eisenbahnstrasse
AND FACTORY Kreis Offenbach/Main

MANUFACTURERS OF
Artificial Teeth and Dental Ceramic Porcelain

TYPE OF ORGANISATION Limited Company.

ARTICLE	REGISTERED OR TRADE NAME	PRE WAR 1938	OUTPUT WAR TIME 1944	OUTPUT PRESENT 1945 till July	POSSIBLE YEARLY	COST PRICES PER 100
Teeth						
Acrylic	Artima	12,400,000	1,693,942	Acrylic Teeth production 2,893,408	At least 1944 figures when gas and coal are again available	148 marks
Translucent	Verotranspa		See remarks in columns below Total production of all porcelain teeth 13½ million			-
Porcelain 3 colour						-
Porcelain 2 colour	Solo					-
Acrylic Diatoric	Kusto		1,108,144			38 marks
Porcelain Diatoric	Barkzahne					-
Crowns	Verodens					127 marks
S.S.Pin	Solo Wipla					

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REMARKS (See interview No.31)

Can only make acrylic teeth at present owing to lack of gas and coal

Continued

PERSONNEL ETC.

OWNERS Dentists Supply Co., New York. 45% of Shares
Amalgamated Dental Co. Ltd., London. 31" of Shares
Fritz & Harry Weinand. 24% of Shares

DIRECTORS Mr. Fritz Weinand
Mr. Harry Weinand

WORKS MANAGER	NUMBERS EMPLOYED MAIES	FEMAIES	WAGE RATES - MARKS PER HOUR MINIMUM MAIES	MINIMUM FEMALES	MAXIMUM MAIES	MAXIMUM FEMAIES	HOURS WORKED PREWAR	WARTIME	PRESENT
Harry Weinand	74	234 in 1939 (August)	.90	.70	1.30	.80	48	50/52*	30
	51	235* in 1944 (March)							
	48	138 in 1945 (August)							

* No Foreign labour

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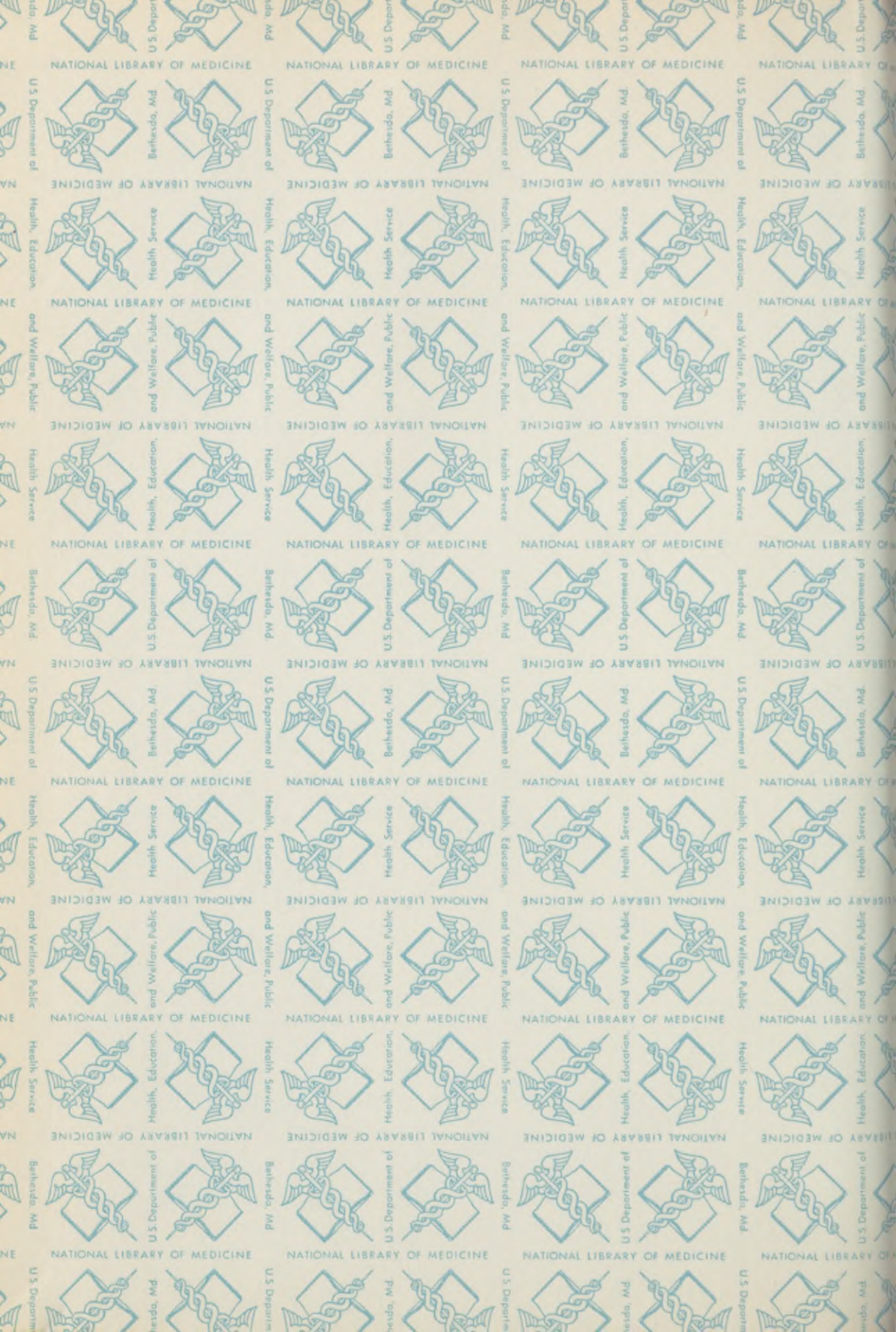
MACHINERY & EQUIPMENT

24 Electric lathes for polishing pins
1 Electric stamping machines for stamping bakelite shade guides
12 Milling machines for teeth porcelain
2 Large Milling machines for grinding quartz
1 Grinding machine for feldspar
3 Rotating machines with magnets for extracting iron from porcelain
1 Wire drawing machine for pins
1 " flattening machine for pins
2 Machines for making gold clad pins
2 Machines for making S.S.Pins
3 Machines for making coils
3 Gas furnaces for fusing porcelain teeth (temperature 900° and 1300° (glazing))

PREMISES

Very slight bomb damage
Will operate fully as soon as gas and coal are available

8092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