TEXTILE REPROCESSING

IN EUROPE

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ACKNOWLEDGEMENTS

I should like to thank the Kings Fund College and Blackpool, Wyre & Fylde Health Authority for the offer of a travel fellowship and the study leave required to undertake the trip.

I am most grateful to Mr. Peter Scott, Senior Lecturer at Derby College of Higher Education for all the hard work he put into making the trip both enjoyable and informative.

Also during my trip I was helped by many people who were generous with their time and advice and I am particularly grateful to the following individuals:-

Herr Kurz of the Hohensteiner Institute
Herr Klug of Vollreinigung & Washerei Klug
Herr Krebbs of Konzepta Textilreinigung
Mr. S.N. Hemmes, Lever Industrial, Maarsden
Mr. W.M. Giezeman, Varobo, Den Haag

2. REASONS FOR THE TOUR

As explained in my application for a Travelling Fellowship my main interests were to study and compare production techniques in launderies which were reputed to be far less labour intensive than those in Britain. As well as to attempt to determine problems which have materialised in launderies processing both Hospital and private work side by side.

The latter would be impractical in Britain as no health service laundry has undertaken processing of private work on such a large scale and those commercial company's which have taken in Hospital work alongside their hotel work are reluctant to discuss problems for fear of bad publicity.

A third interest, of personal nature was to compare conditions in European launderies in light of local legislation and to see some of the problems possibly facing British launderies after 1992 when common standards are introduced throughout Europe.

SYNOPSIS

The trip whilst being totally enjoyable and beneficial to me personally was a little disappointing with regards to my initial aims & objectives.

In Holland where the majority of hospital linen is processed in purpose built plants by commercial operators, the management fear little competition and appear to be content with the service that they provide.

It was interesting to note that they avoid non-medical work which is seen as a different type of operation. For example Restaurant and Hotel Linen is difficult to handle and different colours add complexity. The equipment available could cope but the overall management process would become more complicated.

The high productivity that we hear about in the U.K. as occuring in Europe cannot be viewed on a like for like basis.

The high standards as proclaimed by German launderies are no longer better than those in several NHS launderies in the U.K. In fact, some U.K. launderies have higher standards.

It was also noticable that when hospital work and private work are undertaken within the same factory, then the overall performance of that factory decreases.

Certainly the greatest benefit I have gained from the trip is with regards to environmental problems that we in the U.K. will be faced with during the next decade.

4. METHODOLOGY

This report is based upon informal discussions undertaken with owners, managers and other officials of the factories/laboratories visited.

All visits had been agreed with all members of the group, who, as individuals had many varied interests in making the tour. Hence the diversity of the places visited and the large geographical area covered.

One of the largest problems experienced was the language barrier when applied to "technical" matters. Many of the German and Dutch whom we came into contact with could speak excellent conversational English but had many different names and methods of expressing standard data which made evaluation extremely difficult.

As many hours were spent "on the road" I decided that the best way of recording information was by making brief notes during the actual factory/site visits and by transferring them onto tape immediately our journey had continued. I had considered using a tape recorder during the actual visit but decided against it on the grounds that it may intimidate our hosts.

The group consisted of two Senior Lecturers from Derby College, two students part way through a Higher National Diploma Course in Laundry and Drycleaning Technology, and three ex-students who were all Production Managers in Commercial Launderies.

The combined interests of the others included:-

a) Laundry effluent and the effect on the environment.

b) Solvents discharge into the atmosphere.

c) Quality - BS 5750

d) Drycleaning - improving the image.

e) Higher Production.

5. THE ROUTE

We met at the small village of Holloway, North Derbyshire on the afternoon of Friday 16th June 1989 and proceeded south via the M1, M25 and M2 to Dover where we had booked on P&O European Ferries for the channel crossing.

Once in France we drove north into Belgium.

Arriving at our first base at Heidelberg late Saturday evening. Sunday was a day of rest after our long drive from Britain in weather conditions that could only be described as "Hot". The day was spent ambling around Heidelberg which is situated in a valley surrounded by picturesque castles and enjoying some of the German hospitality and good beer's of which they are renowned.

After breakfast on Monday we drove approximately 40 miles to Bonnigheim, where our first visit was arranged with Herr Kurz, Director of Research at the Die Hohensteiner Institute.

Our next port of call was at Heilbronn, some 30 miles from Bonnigheim where we met Herr Egieloff for lunch prior to looking around his factory and unit shops.

Evening saw us heading back to Heidelberg for our evening meal and further tour of German Beer Gardens.

After an early breakfast (6.45am) we left Heidelberg for the 65 mile drive to Wiesbaden where Herr Kasper Hasenclever showed us around the factory of Kreusler, a large chemical supplier to the laundry industry both in Europe and U.K. as well as manufacturing many well known pharmaceuticals.

After leaving Herr Hasenclever we chose a slightly longer route (105 miles) to Koln which followed through the Rhine valley. The River Rhine, whilst being possibly the most polluted in Europe is none the less very scenic with its riverboats, castles and adjoining vineyards.

We arrived Koln after sunset and therefore did not have time to appreciate some of the sights apart from the magnificent cathedral in the city centre which was illuminated by floodlights.

Wednesday, 9.30am we met with Herr Klug, who was Managing Director of his families business Vollreinigung & Washerei. After lunch we continued our trek northwards to Alsdorf, near Aachen some 40 miles from Koln, where we were welcomed by Herr Krebbs, who, with his son had built up a very succesful business providing a quality drycleaning service.

Late afternoon saw us back on the road again, heading north for over 160 miles drive to the Hague in Holland. We arrived at our destination tired, but hungry and determined to eat "Dutch", however, the only restaurant open was Italian with a Spanish waiter who answered to the name of Manuel, fortunately our accommodation was no "Fawlty Towers".

Thursday, 45 mile drive to Lever Industrial's Developement and Application Centre at Maarsen where our host for the day was Simon Hemmes. Thursday evening was spent in Amsterdam.

An early start on Friday for the drive to Den Haag where Mr. Giezeman of Varobo BV and his son Jos guided us on a tour of five of Varobo's plants, following which we enjoyed a barbeque dinner at his home with several members of his family and senior management team.

Saturday, all our visits completed we set a course through Holland into Belgium finally arriving late evening at Calais, France, from where we caught our early Sunday morning return ferry to Dover, England.

6. DIE HOHENSTEINER INSTITUTE

The institute, the German equivalent of our own "Fabric Care Research Association" is situated in a castle, on the outskirts of Bonnigheim is Germany's foremost Textile Research & Testing Laboratories.

Herr Kurz, the Director of Research commenced our tour with a short introduction on how the institute had been formed including in his presentation his thanks to our R.A.F who, during the second world war destroyed the previous research laboratories and in 1946, the government allocated the use of a castle. The castle built in 1260 is in magnificent grounds and has been extensively modernised inside but retains its historical appearance from the outside.

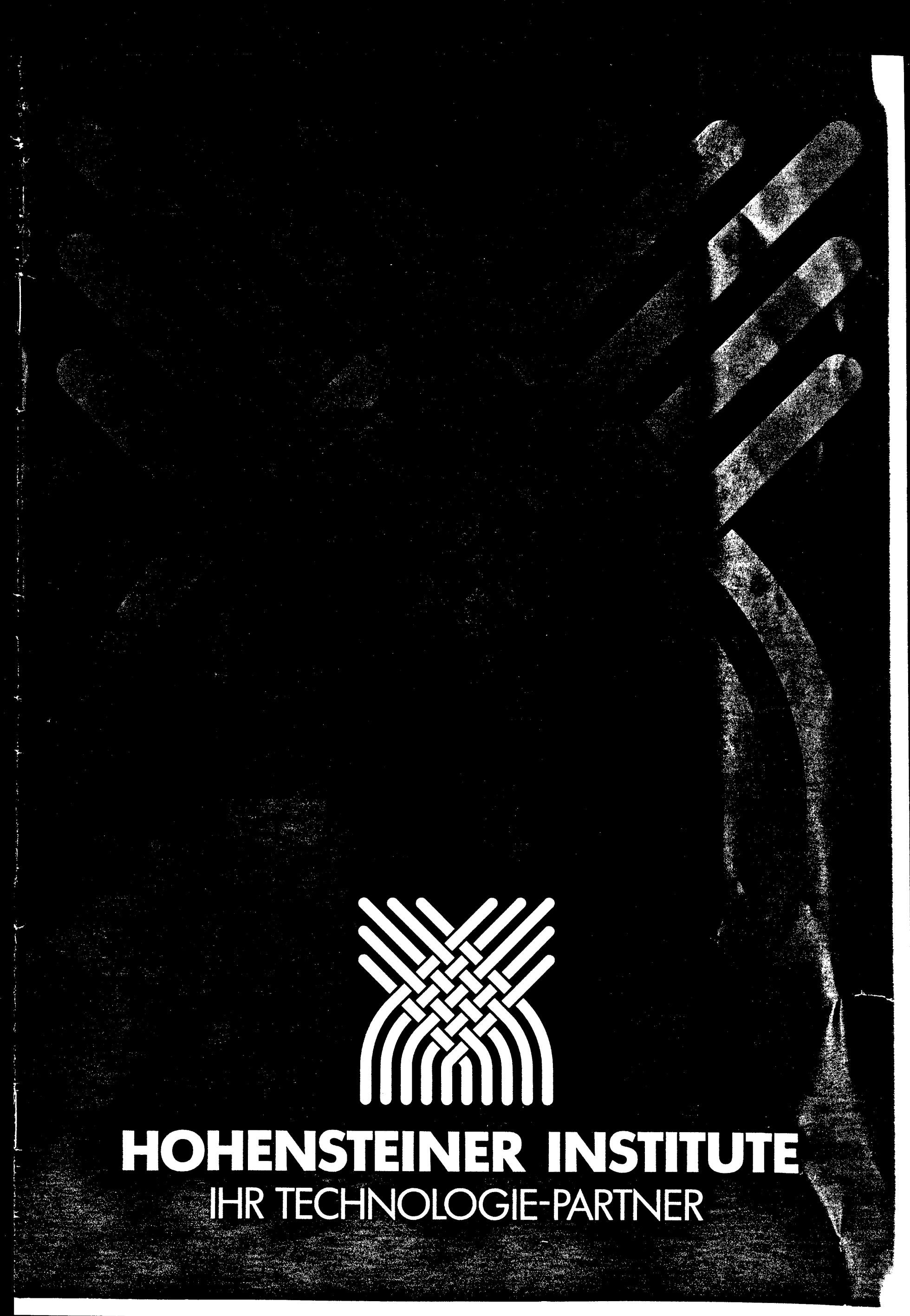
In Germany there are strict laws concerning the use of "harmful" chemicals such as solvents used in drycleaning. All drycleaning shop operators must be technically qualified (unlike the U.K. where anyone can call themselves a drycleaner). This has led to structured training courses, attracting in excess of 200 students/year on 4 week courses. A major part of these courses deal with safety and it was reassuring to know that great emphasis was placed on containing solvents such as R113/R111 in totally enclosed working areas and that extensive research was being undertaken to develope means of early detection of leaks of these extremely volatile chemicals (solvents 113/111 contain C.F.C.'s which effect the earths ozone layer).

Another area of research being carried out was into the use of chemical disinfection by use of Peroxy Acids as opposed to chlorinated bleaches as now accepted by the D.H.S.S for use on heat labile articles. These would be far more reliable as a disinfectant and would not present the same chemical damage or flame retardent destroying properties as related to chlorine.

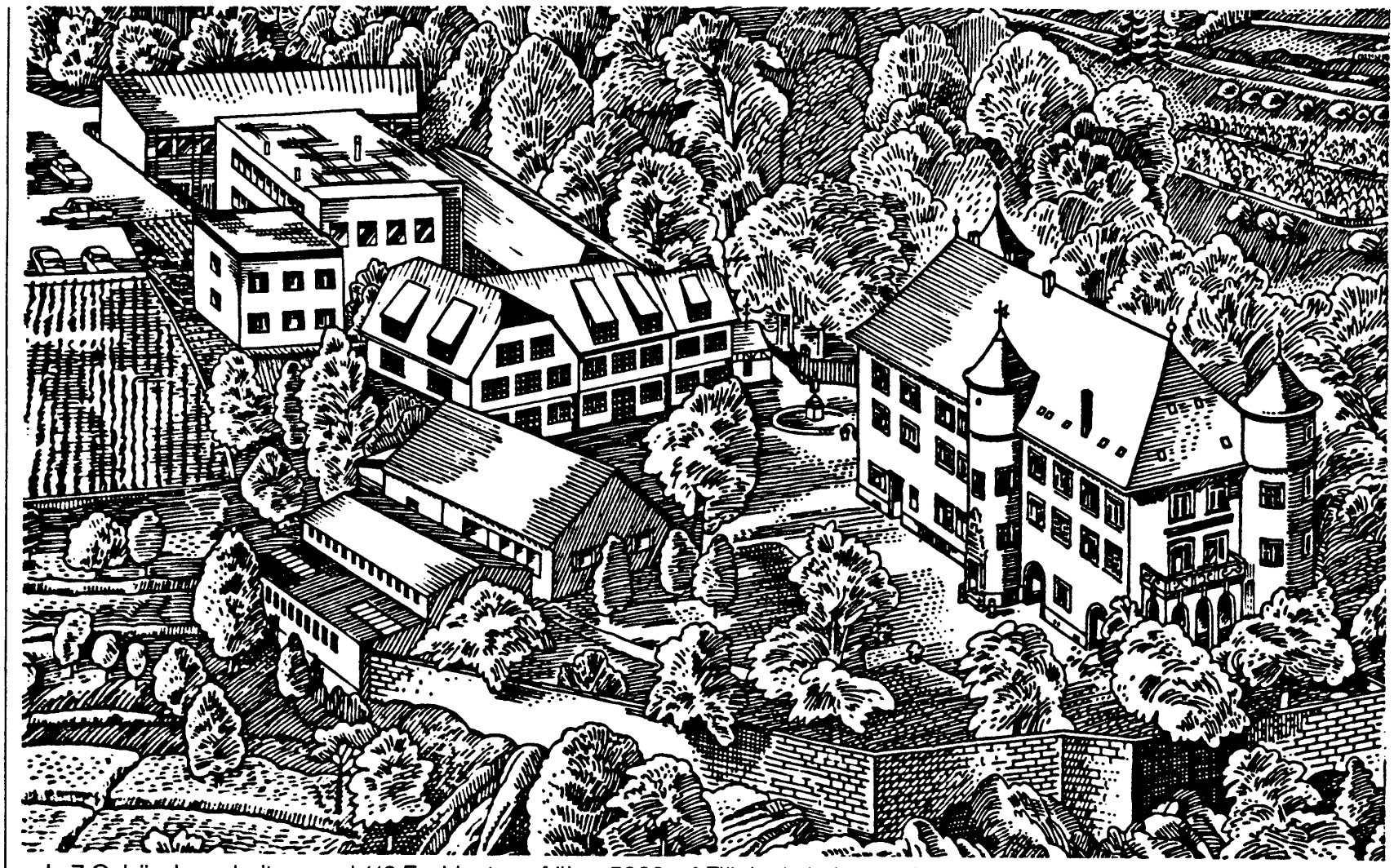
The institute worked together with industry to detail Quality Control standards for laundering and a document "Hospital Quality Control" was now in existence. However, whilst it was not compulsory to adher to this document it was nontheless, desirable, if the contractor was to enter into providing a service to hospitals.

Over the years, as in the U.K. the textile industry had gained a poor image and problems were now experienced in recruiting professionally competant managers. Several plants were now managed by Finance Managers with relaince placed upon machine and chemical supplies to provide technical backup and guidance.

It was stated by Herr Kurz that the decline in hospital owned launderies had now bottomed out, and as a result of poor quality and inadequate service caused by market forces, hospitals were now returning to building their own plants over which they could exert greater control.


HOHENSTEINER INSTITUTE
IHR TECHNOLOGIE-PARTNER

TEXTILFORSCHUNGSZENTRUM HOHENSTEIN



In 7 Gebäuden arbeiten rund 110 Fachleute auf über 5000 m² Fläche in Laboratorien, Werkstätten, Textilprüfräumen, Büros, Seminarräumen und Hörsälen für den technologischen Fortschritt und die technische Information.

HOHENSTEIN – TECHNOLOGIEPARTNER VON

Textilindustrie · Bekleidungsindustrie · Textilreinigung · Wäscherei

öffentliche und gewerbliche Beschaffung · Textilhandel

Verbraucherorganisationen · Behörden

FORSCHUNGSINSTITUT HOHENSTEIN

BEKLEIDUNGSPHYSIOLOGISCHES INSTITUT HOHENSTEIN E.V.

TECHNISCHE AKADEMIE HOHENSTEIN E.V.

Gesamtleitung: Dr. rer. nat. Jürgen Mecheels

Schloß Hohenstein · 7124 Bönnigheim

HOHENSTEINER INSTITUTE
DIE IDEE

Im textilen Technologiezentrum HOHENSTEIN kooperieren zwei Einrichtungen der Forschung mit der Technischen Akademie als Träger der Fortbildungsmaßnahmen. Qualifizierte Arbeitsteams, jedes unter der Leitung eines in der Branche angesehenen Spezialisten, betreiben Gemeinschaftsforschung, Entwicklung, Prüfung, Beratung und Schulung. Das „Geheimnis" des Hohensteiner Erfolgs ruht auf vier Säulen. Sie wurden schon 1946 vom Gründer der Institute, Prof. Dr.-Ing. Otto Mecheels, ausgesprochen und seit 25 Jahren von Dr. rer. nat. Jürgen Mecheels auf die Arbeit eines modernen und zukunftsgerichteten Instituts ausgerichtet:

DIE KOMBINATION VON GRUNDLAGENFORSCHUNG MIT ANWENDUNGSORIENTIERTEN ARBEITEN

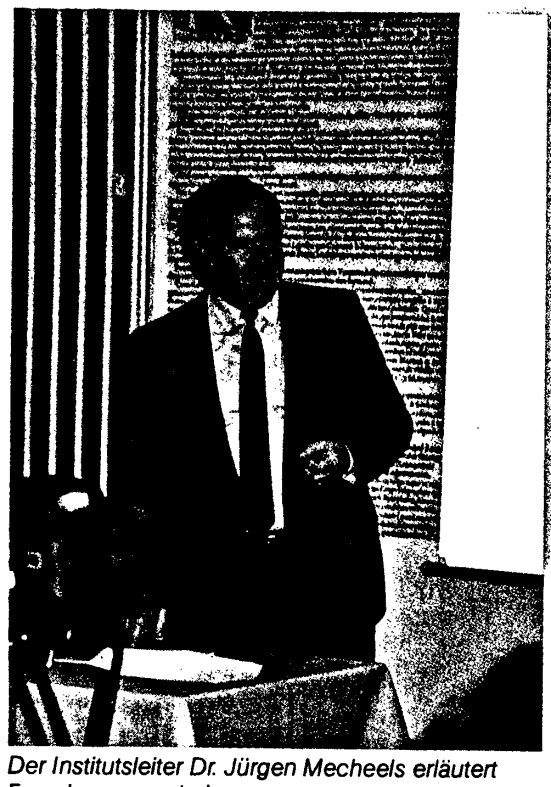
für Industrie, Gewerbe, Handel und Behörden.
Der hohe Stand des fachlichen Wissens wird in HOHENSTEIN durch Projekte der Gemeinschaftsforschung gesichert. Der enge Kontakt mit der Front des textilen Geschehens, mit Industrie, Handel, Textilpflege, Beschaffungsstellen, sorgt dafür, daß sich die Hohensteiner auch vor Ort bewähren, Informationen aus erster Hand erhalten und daß die Forschungsergebnisse optimal umgesetzt werden.

DIE KOMBINATION DER ARBEITSGEBIETE

Besonders charakteristisch für die Hohensteiner Institute ist die einzigartige Verknüpfung der Interessensgebiete:

- **Textilveredlung,** also das Ausrüsten und Färben nach modernen und wirtschaftlichen Verfahren

Zukunftstechnologie im alten Schloß. Experten aus drei Ländern diskutieren Algorithmen für die 3D-Darstellung von Kleidung am CAD-Bildschirm



Der Institutsleiter Dr. Jürgen Mecheels erläutert Forschungsergebnisse

- **Bekleidungstechnik** im weitesten Sinne von der Produktgestaltung über Größen und Paßformfragen bis zur Produktivität und Automation in der Fertigung
- **Bekleidungsphysiologie,** also das Wissen vom Tragekomfort der Kleidung und die Entwicklung optimal funktionierender Kleidungssysteme
- **Textilreinigung** als rationelle und umweltfreundliche Reinigungsmethode für Textilien; Gütesicherung.
- **Wäscherei** für Gewerbe, den Objektservice, im Mietwäschegeschäft und im Haushalt; Gütesicherung
- **textile Materialprüfung,** Erstellung von Güterichtlinien, technischen Lieferbedingungen und Gütesicherung für die ganze Textilkette

Das Wissen aus jedem dieser Arbeitsgebiete befruchtet auch die Nachbarsparten. HOHENSTEIN kann z. B. bei der Gestaltung von Bekleidungsprodukten besser helfen, weil es auch die Fragen der Textilveredlung, des Tragekomforts und der Textilpflege kennt. Die Textilveredlungsindustrie profitiert vom Wissen HOHENSTEINS über die Weiterverarbeitung, die Trageeigenschaften und die Pflege, und die Textilpflege hat einen kompetenten Partner für alle anderen textilen Gebiete im eigenen Haus.

VERBINDUNG VON FORSCHUNG UND LEHRE

Getreu dem universitären Geist arbeiten Forschung und Lehre in HOHENSTEIN eng zusammen. Das sichert den Transfer der Ergebnisse in die Praxis; das zeigt aber auch dem lehrenden Forscher die Probleme draußen. Die Lehre kann somit betriebsnah und in die Zukunft gerichtet sein.

Die Verknüpfung von Forschung und Lehre schwebte schon dem Institutsgründer, Prof. Dr.-Ing. Otto Mecheels, vor: „Ein Forscher ist besser, wenn er durch Lehren das freie Sprechen gelernt und für den Unterricht auch über sein eigentliches Arbeitsgebiet hinausblicken muß. Ein Lehrer ist besser und mehr zukunftsgerichtet, wenn er sich durch die Forschung dem Fortschritt stellen muß."

DIE UNABHÄNGIGKEIT

Die Materialprüfung, die Beratung und Entwicklung in HOHENSTEIN sind durch eine völlige Unabhängigkeit der Institute und Mitarbeiter gekennzeichnet. Der Institutsleiter und eine ganze Reihe von leitenden Mitarbeitern sind öffentlich bestellte und vereidigte Sachverständige für ihre Arbeitsgebiete; viele Mitarbeiter der Materialprüfung und anderer Fachbereiche sind notariell zu Unabhängigkeit, Objektivität und Sorgfalt ihrer Arbeit vereidigt. Die Tätigkeit der großen Institute ist auch so weit verzweigt, daß niemand wirtschaftlich begründeten Einfluß nehmen kann. Und schließlich will Hohenstein seinen seit 40 Jahren erworbenen Ruf der Unabhängigkeit und Objektivität auch in Zukunft behalten.

Vor Ort muß sich die Forschung bewähren. Gemeinsam mit der Industrie werden Probleme gelöst.

HOHENSTEINER INSTITUTE IHR TECHNOLOGIE-PARTNER

Die HOHENSTEINER INSTITUTE umfassen Organisationen der Gemeinschaftsforschung, Vertragsforschung und -entwicklung, Materialprüfung, Beratung und Schulung für die Branchen der Textilwirtschaft. 110 Mitarbeiter stehen hinter dem weltweiten Ruf HOHENSTEINS für qualifizierte Forschung, erfolgreiche technologische Innovation und wirksame Ausbildung. Das fachliche Können und die Erfahrung der Forschungsgruppen und ihrer Leiter, der Ingenieure und Techniker verhelfen den Partnerbetrieben zu entscheidenden Fortschritten auf vielen Gebieten.

Unsere Leistungen sind nachfolgend beschrieben; sie reichen über einen ganzen Bereich der Textilkette von der Textilveredlung über die Bekleidungsherstellung, die Bekleidungsphysiologie, die Textilpflege (Textilreinigung und Wäscherei) bis zu Technischen Lieferbedingungen, Qualitätssicherung und den Bedürfnissen des Textilhandels und textiler Beschaffungsstellen.

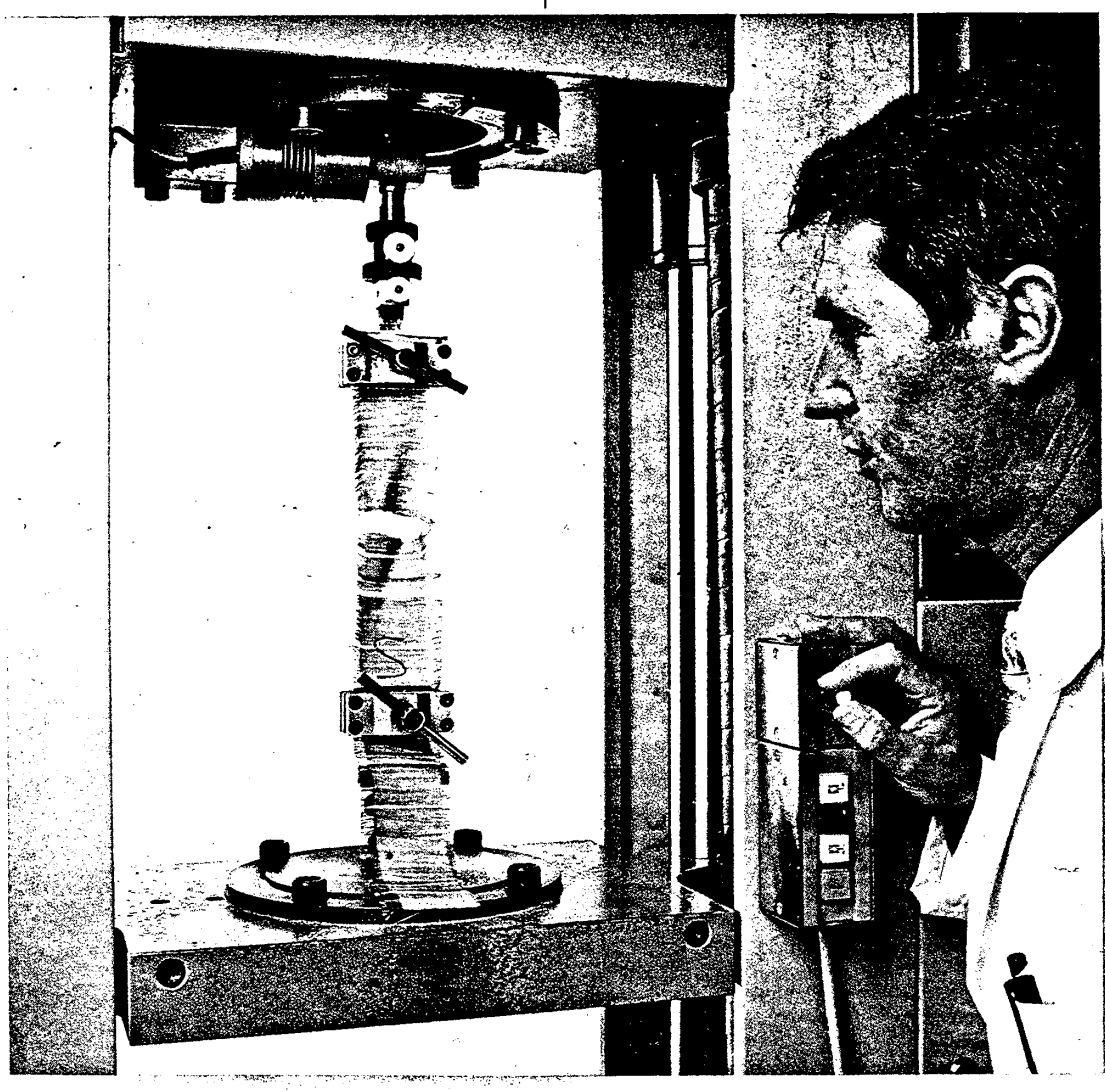
Gütesicherung im Wäschereibetrieb: Betriebsinhaber und Institutsmitarbeiter kooperieren zum Wohle der Kunden.

HOHENSTEIN entwickelt Prüfmethoden und -geräte, arbeitet in Normenausschüssen mit und hat enge Beziehungen zu einschlägigen Forschungsstellen und -organisationen weltweit in anderen Ländern. HOHENSTEINER Mitarbeiter kennen das Betriebsgeschehen. Sie arbeiten viel vor Ort im In- und Ausland und tragen auch aktiv zu Tagungen und fachlichen Sitzungen bei.

In HOHENSTEIN laufen deshalb viele Fäden zusammen. Wir alle zusammen kennen uns in der Textilwelt recht gut aus! Mit dem Know-how unserer Spezialisten, dem Wissen aus der stets in die Zukunft reichenden qualifizierten Forschung und der Nutzung aller Informationen sind wir mit Erfolg der Technologiepartner der mit uns verbundenen Branchen.

HOHENSTEIN ist Partner vieler Betriebe in Fragen der Produktentwicklung, Verfahrensgestaltung, Gütesicherung oder des Marketing. HOHENSTEIN kooperiert mit industriellen Gemeinschaftsforschungseinrichtungen, der Forschungsstelle Textilreinigung und der Gütegemeinschaft Sachgemäße Wäschepflege. Es arbeitet mit Verbänden und Fachorganisationen in übergeordneten Branchenfragen zusammen und half schon vieles bewegen. Die am meisten zufriedenstellenden Ergebnisse werden in echter Partnerschaft erzielt. Fachleute aus aller Welt kennen die Einrichtungen des Schlosses Hohenstein am Rande des Neckartals und die Gastfreundschaft seiner Bewohner. HOHENSTEINER Mitarbeiter trifft man auch draußen „vor Ort"; nicht selten treffen sie sich überraschend weitab der Heimat. HOHENSTEIN ist also im vollen Sinn des Wortes Technologie-Partner erfolgreicher Unternehmen.

Tech|no|lo|gie *die;* -, Wissenschaft der Umwandlung von Roh- und Werkstoffen in fertige Produkte und Gebrauchsartikel durch Anwendung naturwissenschaftlicher und technischer Erkenntnisse. Gesamtheit der zur Gewinnung oder Bearbeitung von Stoffen nötigen Prozesse und Arbeitsgänge; Produktionstechnik. Technisches Wissen; Gesamtheit der technischen Kenntnisse, Fähigkeiten und Möglichkeiten.



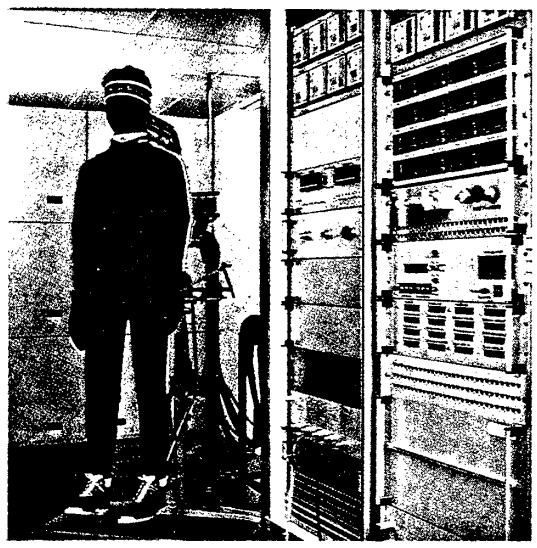
Ausbildung von Bekleidungstechnikern und ein breites Spektrum von Fortbildungskursen im Institut oder außerhalb machen HOHENSTEIN auch zum Partner bei der Qualifikation von Mitarbeitern.

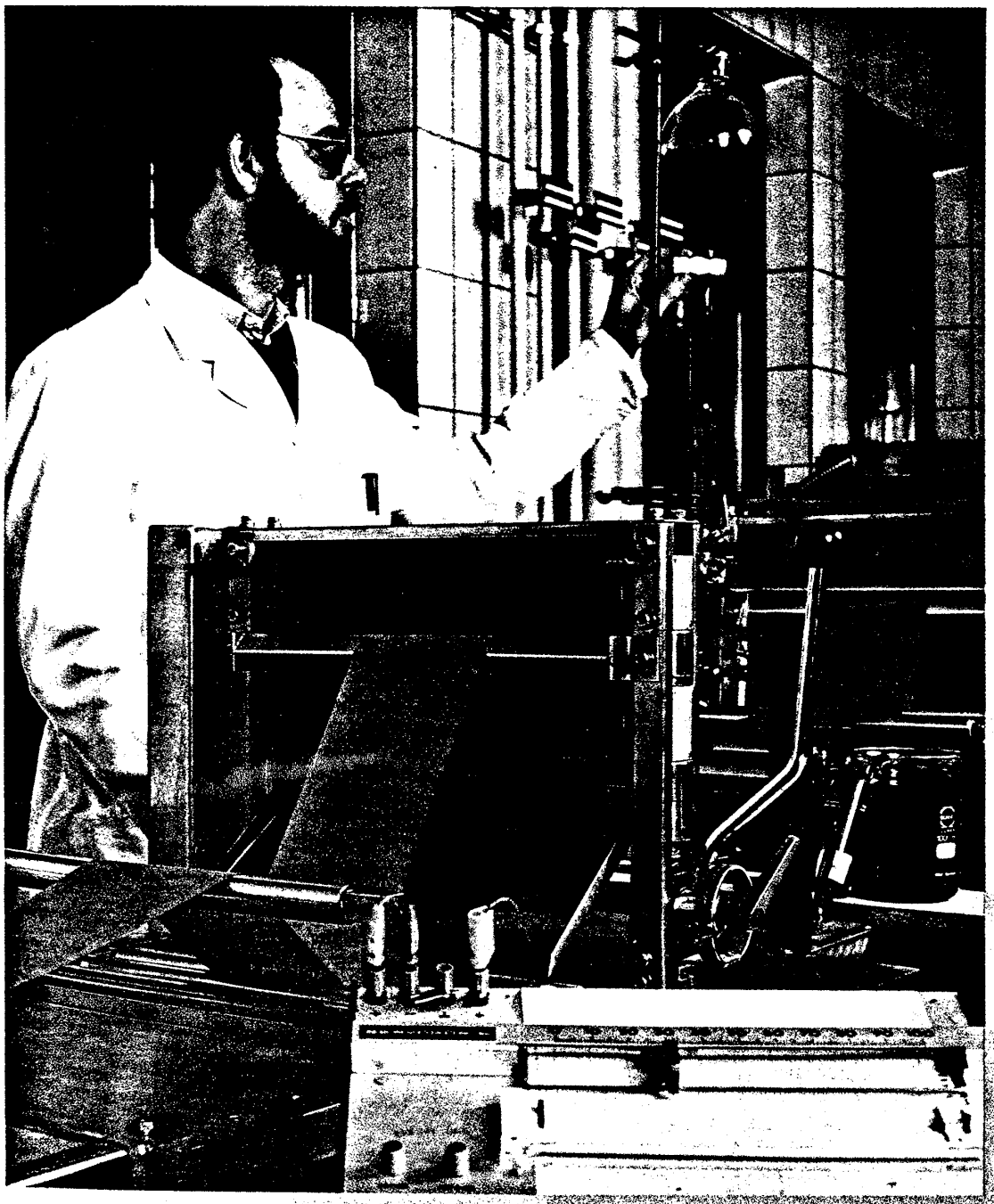
Sorgfältige Materialprüfung: Untersuchung von Berufsbekleidungstextilien an der Zugprüfmaschine.

ARBEITSGEBIETE: Produktgestaltung · Konstruktion · Qualitätsplanung
Qualitätssicherung · Produktionstechnik · Arbeitsorganisation
Umweltschutz · Training · Ausbildung · Fortbildung · Beratungsdienst

Optimale Bügeltechnik:
Ausbildung von Fachleuten der Textilreinigung im Technikum.

Auch ein wichtiger Mitarbeiter: „Charlie", ein Thermoregulationsmodell des Menschen, optimiert hier den Tragekomfort von Sportkleidung.





Arbeit am CAD-System:
Übertragung des Entwurfs in paßformsichere Modellschnitte.

Pilotanlage Textilveredlung:
Erforschung der Verfahrenstechnik für die Kombination mehrerer Prozeßstufen ohne Zwischentrocknung („Naß-in-naß-Technik").

DIE PARTNER HOHENSTEINS

TEXTILINDUSTRIE

Mit der Textilindustrie ist HOHENSTEIN auf den Gebieten der textilchemischen Verfahrenstechnik, der Farbmessung und vielfältiger Textilprüfung und Gütesicherung verbunden. Das Textilforschungszentrum HOHENSTEIN kooperiert mit dem Forschungskuratorium Gesamttextil.

Im Mittelpunkt unseres Interesses steht die Verfahrenstechnik der Textilveredlung unter Einsparung von Wasser, Chemikalien und Prozeßstufen und mit möglichst schadstoffarmen Abwässern. Auf dem Gebiet der Farbmessung, der Abmusterung und der Rezeptberechnung leisten wir Pionierarbeit; alle wesentlichen Farbmeßgeräte stehen in HOHENSTEIN. Unsere Kurse und die Beratung über Farbmeßthemen sind weithin bekannt. Ein großes Arbeitsgebiet ist die Sicherung optimalen Tragekomforts durch Textilien mit Hilfe von Konstruktion und Ausrüstung.

HOHENSTEIN entwickelt Meßsysteme und Analysenmethoden, untersucht Abwässer, berät die Textilindustrie über die Anforderungen bei der Bekleidungsfertigung und über die gute Zusammenarbeit mit der Textilreinigung.

Erfolgreiche Zusammenarbeit besteht auch mit den Produzenten von Natur- und Chemiefasern.

Diskussion von Forschungsergebnissen

Arbeitsfelder

Textil – Bekleidung – Tragekomfort – Textilpflege – Gütesicherung – Beschaffung – Warentests – Prüfgeräte – Verfahrenstechnik.

BEKLEIDUNGSINDUSTRIE

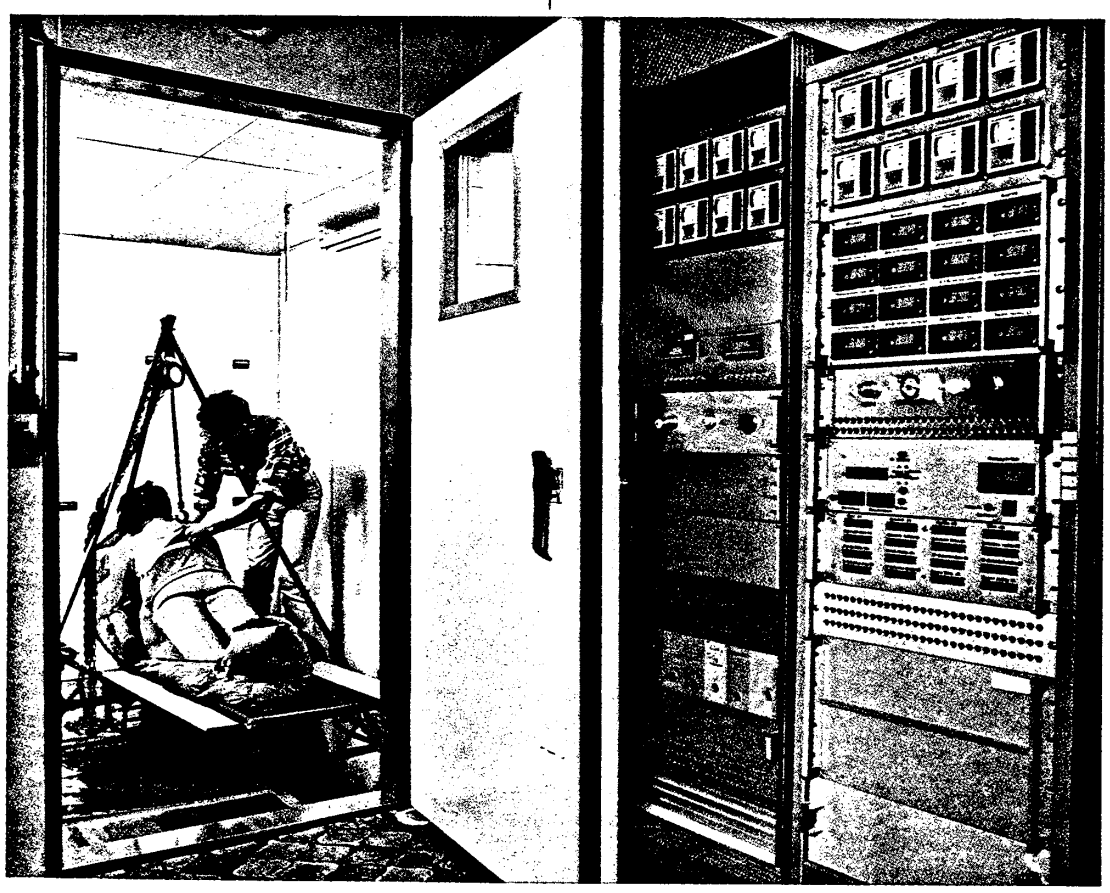
Die Arbeitsschwerpunkte HOHENSTEINS liegen hier in der funktionellen Produktgestaltung, in Fragen der Handhabung, der Betriebsorganisation und auf dem Gebiet der (CAD-)Schnittkonstruktion, Paßformsicherheit und der Größen.

HOHENSTEIN arbeitet mit der Forschungsgemeinschaft Bekleidungsindustrie zusammen. Die Technische Akademie Hohenstein bildet Bekleidungstechniker aus und veranstaltet regelmäßig Fortbildungsseminare für Fachleute aus der Bekleidungsindustrie.

Die Produktgestaltung von Kleidungsstücken erlangt im Wettbewerb immer größere Bedeutung. Dabei geht es nicht nur um Berufs- und Schutzkleidung, sondern ebenso um die Sport- und Freizeitkleidung; auch bei der Alltagskleidung spielen gute und angenehme Trageeigenschaften eine immer wichtigere verkaufsfördernde Rolle. HOHENSTEIN weiß alles über Konfektionsgrößen und Schnitt (hat dazu CAD-Einrichtung), beschäftigt sich mit modular betriebener Automation, innerbetrieblichen Informationssystemen und mit Qualitätsplanung und -steuerung. HOHENSTEINER Mitarbeiter wirken in vielen Gremien von Forschung und Verbänden mit.

Dabei profitieren Bekleidungshersteller auch von den Kenntnissen HOHENSTEINS auf textilen Gebieten, in der Textilpflege und in der Bekleidungsphysiologie.

Kupfermann „Charlie" testet die Wärmeisolation von Schlafsäcken



TEXTILREINIGUNG

Hier bietet die Abteilung Forschungsstelle Textilreinigung ein Komplettpaket für den erfolgreichen Reiniger von den Materialfragen über die rationelle und umweltfreundliche Reinigung bis zu betriebswirtschaftlichen und verkaufsfördernden Themen. HOHENSTEIN prüft Schadensfälle, hilft aber noch mehr zu deren Vermeidung. Die FTR berät, schult und informiert.

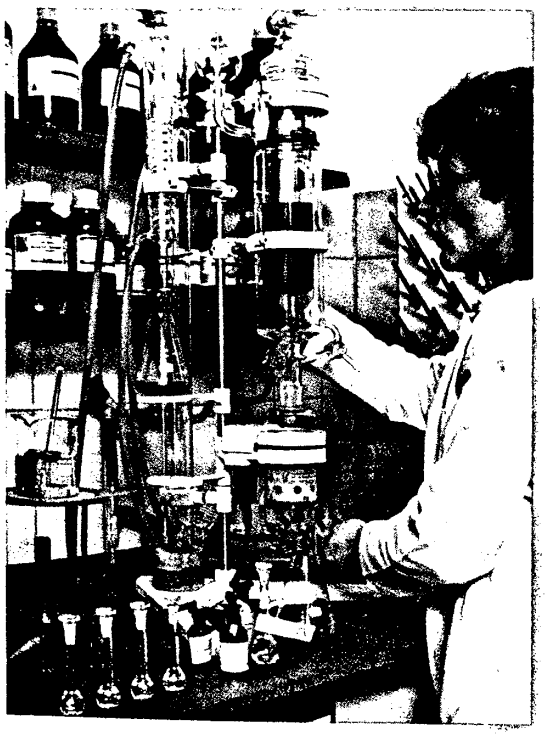
Mit der Forschungsstelle Textilreinigung e. V. gemeinsam unterhält HOHENSTEIN die weltweit führende Service-Organisation für die Textilreinigungs- Branche. Der Leiter dieser Abteilung ist auch Präsident der International Drycleaning Research Organization. HOHENSTEIN steht hinter der Gütesicherung für die Chemischreinigung gemäß RAL-RG 990 und der Arbeitsgruppe Lösemittelökologie.

WÄSCHEREI

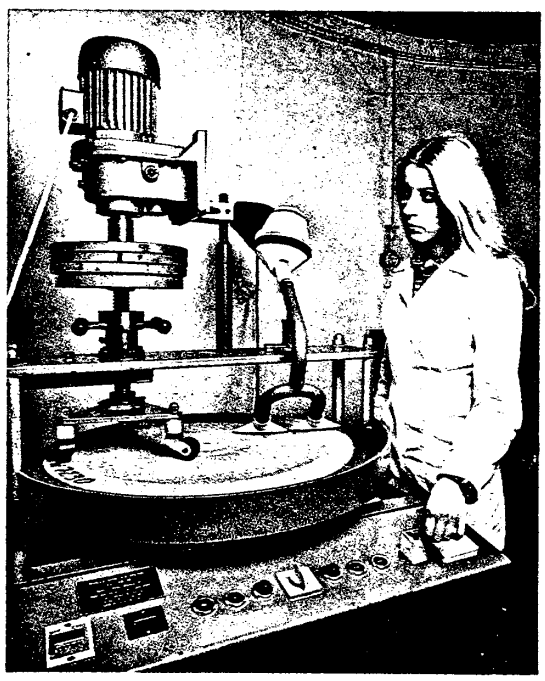
Der ständige Kontakt mit den Mitgliedern der Gütegemeinschaft Sachgemäße Wäschepflege im Rahmen der Qualitätssicherung, die Gemeinschaftsforschung und die Kenntnisse aus den benachbarten textilen Gebieten sind für HOHENSTEIN die Basis, das Forschungs- und Informationszentrum der gewerblichen Wäschereibranche zu sein. Die Probleme aus dem Objektbereich (Krankenhäuser, Anstalten, Hotels) gehören ebenso zu den Arbeitsgebieten HOHENSTEINS wie die der Berufsbekleidung und des Mietwäschegeschäftes (einschließlich Produktentwicklung, Qualitätsbeschreibung und Gütesicherung). Es werden Lieferbedingungen für optimale Textilien und Kleidung erstellt, waschtechnische und betriebsorganisatorische Fragen geklärt. Waschmitteluntersuchungen und Abwasserfragen gehören gleichfalls zu den Interessengebieten HOHENSTEINS.

Waschmitteluntersuchungen und Prüfungen von Waschmaschinen und Trocknern verbinden HOHENSTEIN auch mit der Haushaltswäscherei. Für die Prüfung der Waschwirkung anhand von Wasch-/Trage-Tests steht eine gut eingespielte Organisation zur Verfügung.

Bestimmung von umweltrelevanten Bestandteilen im Abwasser



Gute Detachur sichert den Erfolg in der Textilreinigung



Prüfung textiler Bodenbeläge

BEHÖRDEN, GROSSVERBRAUCHER, HANDEL UND VERSANDHÄUSER

arbeiten vornehmlich auf den Gebieten der Produktentwicklung (auch im Rahmen Technische Lieferbedingungen), Gütesicherung und -prüfung, der Qualitätsbeschreibungen, der Konfektionsgrößen und der Paßform mit HOHENSTEIN zusammen. Optimierte Trage-und Komforteigenschaften von Kleidung spielen dabei eine große Rolle. Forschung und Untersuchungen verbessern die Produkte und liefern verkaufsfördernde Argumentationen.

Die in Zusammenarbeit mit Industrie und Handel geschaffenen HOHENSTEINER Größensysteme sind heute weltweit bekannt. Behörden schätzen besonders die gute und objektive Beratung durch HOHENSTEIN auf allen textilen Gebieten und die Unabhängigkeit der Institute von allen Interessengruppen.

VERBRAUCHER-ORGANISATIONEN

lassen sich von HOHENSTEIN beraten, führen im Rahmen der Materialprüfung umfangreiche vergleichende Warentests an Textilprodukten, Waschmaschinen und -mitteln und anderen einschlägigen Haushaltsprodukten durch. Viel arbeiten sie mit HOHENSTEIN auch auf dem Gebiet der Verbraucheraufklärung und der Textilpflege zusammen.

KOORDINATION

Über HOHENSTEIN laufen auch viele und oft sehr erfolgreiche Querverbindungen zwischen Faser-, Textil- und Bekleidungsindustrie, Textilpflege, Handel und Beschaffungsbehörden.

Erstellung von Forschungsberichten am Textverarbeitungssystem

SIE WOLLEN MEHR WISSEN?

Haben Sie eine Frage über diese Information hinaus, wollen Sie ein Problem mit einem HOHENSTEINER Mitarbeiter besprechen oder die Dienstleistungen HOHENSTEINS in Anspruch nehmen, rufen Sie das Institutssekretariat an.

0 71 43 / 2 71 - 36

Wir verbinden oder antworten schnell!

Falls Sie direkten Kontakt mit einer der Abteilungen suchen, finden Sie deren Durchwahlnummern auf der nächsten Seite.

HOHENSTEINER INSTITUTE

FORSCHUNGSINSTITUT HOHENSTEIN
BEKLEIDUNGSPHYSIOLOGISCHES INSTITUT HOHENSTEIN E.V.
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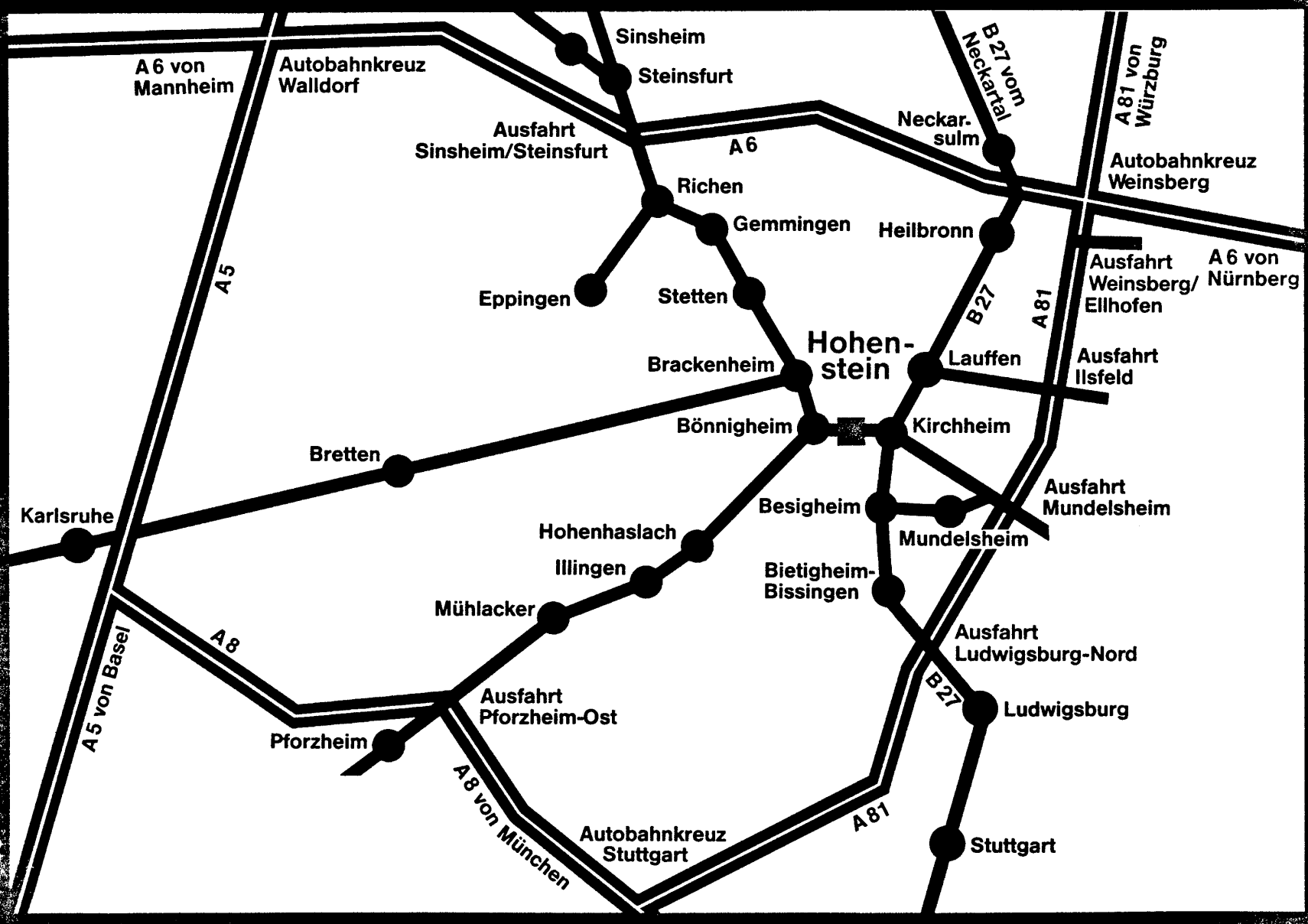

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Telefon Durchwahl	**(0 71 43) 2 71-0**	Bekleidungstechnik	47	Wäscherei	32
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7. GEROCK REINIGUNG

This was a family operated business managed by the owner Herr Egelhoff and his wife. The business had been developed over the last 10 years and now consisted of two shops, one in the high street the other inside a supermarket and a factory processing unit/shop on an industrial estate sited on the outskirts of the city.

As a result of recent strict German environment laws regarding the release of potentially hazardous chemicals into the towns drainage system (which often ended in the rivers), each drycleaning plant had to be situated over a tank. This tank would collect any spillages from the machine, thus preventing any solvent reaching the earth/ drains around the building.

None of the plants we visited had experienced spillages so the tanks were purely as precautions. Any leaks around the machine were taken care of before they developed into "liquid" leaks by constantly measuring the amount of vapour solvent around the machine.

The siting of a drycleaning machine inside a supermarket was seen as a tremendous acheivement to Herr Eglehoff. Situated on a busy thoroughfare of a supermarket, opposite a stall selling fresh fruit and vegetables and next door to a cake shop, was a 50kg capacity Bowe drycleaning machine.

Herr Egelhoff explained that it had taken a long time explaining to officials that solvents, correctly managed, were safe to the environment, would not cause offensive odours and would be completely acceptable to the public. This was then "marketed" to the public through his other outlets by a series of posters, stickers and leaflets all portraying the "green syndrome". All his interior decorations included flowers and tree's, designed to give an impression that drycleaning was environmentally healthy.

His market research had certainly paid off. A quick calculation based upon his weekly turnover revealed an annual income of 475,000 D.M. (£150,000).

One point noted by its absence was the lack of a steam press upon which to finish the garments after cleaning. Instead, all finishing was undertaken using hot irons similar to those used in the home. Whilst it obviously took longer to "press" a garment using this method the quality was good, as the operator had to pay attention to every part of the garment, even the lining on jackets.

Another, possibly even greater reason for the use of irons was in regards to staff competance. Skilled hoffman pressers were in short supply and to train someone to an acceptable level took time and cost money. As the majority of shop staff are female, the use of an iron was a skill they already posessed.

Another of Herr Egelhoffs marketing strategies involved the factory site which also contained laundry facilities (more on the lines of a U.K. launderette service wash).

Here, as well as having a prominently green and yellow decor, which featured pictures of smiling flowers, happy tree's and a large yellow sun was a "penguin".

This explained Herr Egelhoff signified the high quality of cleaning that was carried out whilst still being environmentally friendly.

I am not sure what the German for penguin is but all his literature and sales promotions were labelled "pinguin".

Retail prices were comparable to the U.K. in that:-

Jackets	6 D.M.	£1.90
Trousers	5.40 D.M.	£1.70
Pullovers	3.70 D.M.	£1.17

Whilst the actual rates of pay for a shop assistant were higher.

10 - 12 D.M./Hr	£3.17 - £3.80 /Hr.

Kleidungspflege aus Meisterhand!

Der Textilreiniger ist ein Lehrberuf nach der deutschen Handwerksordnung.
Die Berufsausbildung sieht im Normalfall 3 Lehrjahre vor, die mit der Gesellenprüfung abgeschlossen wird.
Zur Ausbildung berechtigt sind Textilreiniger-Meister, die ihre Meisterprüfung vor der Prüfungskommission einer Handwerkskammer abgelegt haben.

„Gute" Textilreinigungsbetriebe

sorgen sich nicht nur um Ihre Kleidung –
sondern tun Tag für Tag etwas
für unsere Umwelt.

Textilreinigung ist aktiver Umweltschutz DTV

Eine Information für
unsere werte Kundschaft!

Textil-reinigung ist aktiver Umweltschutz

DTV

1. Warum ist Textilreinigung aktiver Umweltschutz?

Lösemittel werden nicht nach jeder Verwendung weggeschüttet wie schmutziges Waschwasser, sondern durch Destillation regeneriert. Dabei wird der aus der Kleidung entfernte Schmutz im Destillationsrückstand konzentriert und anschließend in Spezialverfahren aufbereitet.

Es wird also weder wertvolles Wasser verschmutzt, noch schmutzbelastetes Abwasser erzeugt.

Darüber hinaus ist die chemische Reinigung energiesparend. Zur Trocknung benötigen Lösungsmittel weniger als ein Zehntel der Energiemenge, die gewaschene Kleider brauchen würde.

2. Was ist bei der chemischen Reinigung anders, als in der Waschmaschine?

Ihr Textilreiniger verwendet zur Pflege Ihrer Kleidung in der chemischen Reinigung nicht Wasser, sondern regenerierbare Lösemittel.

Diese sind besonders faserschonend und entwickeln ihre Reinigungskraft bereits bei normaler Raumtemperatur. Das heißt: die Reinigung ist gleichzeitig hochwirksam und besonders sanft.

Sie merken es an den leuchtenden Farben, der Flauschigkeit und an der perfekten Paßform Ihrer gereinigten Kleider.

3. Welche Risiken bestehen beim Umgang mit Lösemittel?

Reinigungsmaschinen sind hermetisch abgeschlossen und so konstruiert, daß bei sachgerechtem Umgang Lösemittel weder flüssig noch gasförmig entweichen können.

Dennoch ist Sorgfalt, Verantwortungsbewußtsein und Fachkenntnis erforderlich, um diese Sicherheit durch sachgerechte Verfahrenstechnik und Maschinenwartung im Betriebsalltag zu gewährleisten.

KREUSSLER

Kreussler was formed in 1912 and up to 1937 specialised solely in the manufacture of dyestuff's to the textile industry. After 1937 the company started to diversify into developing detergents for the drycleaning industry, dental anaesthetics, rheumatic pain controls and more recently a pharmaceutical division that has developed a treatment for varicose veins.

They employed 150 staff with a turnover of 45 million DM/year (£14.28).

The man in charge, Herr Kasper Hasenclever gave a very informative talk on present German legislation which had a direct effect on drycleaning plants within that country.

The main areas being:-

a) The protection of groundwater. This was where all drycleaning machines had to be mounted over special tanks which were capable of holding the total amount solvent within the machine in the case of a leak. All water in contact with solvent for example after passing through a solvent/water separator, had to be cleansed so that the content of solvent was not more than the specified maximum level of 0.5mg of perchlorethylene per litre of water.

b) The handling of Dangerous Chemicals. All solvents had to be stored in special sealed and approved containers or in specially protected area's away from other materials.

c) Air Pollution. All drycleaning machines had to be checked by authorised personnel every two years. A working place environment analysis had to be kept. This made it necessary to indicate solvent concentration, which must be below 25% of the maximum permitted level of 50ppm. All records had to be kept by staff of a professional status and with prior knowledge of solvent handling.

d) The handling of Waste. All residue left from the distillation process and any other waste containing solvent such as fluff and deposits from button traps, has to be collected and kept in closed containers. It was then necessary to use only a licensed waste collector.

If in 1992 common standards throughout Europe are adopted such as these, then many plants within the U.K. will struggle to meet them. It is not uncommon for distillate residue to be placed with other refuge and sent to the local authority tip in the U.K.

In the protection of groundwater, the law prohibits the amount of hydro carbons that can be disposed of into the sewage system as being no greater than 20 m gms/litre. This would mean that launderies would have to dryclean all grease/oil contaminated items prior to laundering and so increase their processing costs.

When asked about how this strict legislation was enforced Herr Hasenclever informed us that a regular period of checks would be made at all processing units. Any breach of these regulations was in the first instance met by a formal written warning. Any further breaches for the same offence carried a penal sentance.

One very impressive piece of equipment found in the laboratories of Kreussler was a gas/liquid analiser. This worked by means of ultra violet and infra red light absorbsion. Each substance absorbs a differing amount of light, therefore by building up a data base of light absorbancies for known substances, it was possible to identify unknown substances by use of a micro computer in seconds to an accuracy of 0.001 ppm.

9. VOLLREINIGUNG & WASHEREI KLUG

Herr Klug is the Managing Director of this family laundry and drycleaning factory which processes both workwear and flatwork for both private companies and hospitals. All textile items are owned by the customer.

The factory comprises of 13 Spencer drycleaning machines processing approximately 7000kg of workwear each day and 2 Batch Tunnel Washers (Senking & Englart & Foster) processing approximately 8000kg of flatwork comprising of hotel, restaurant and hospital work.

The Klug family also own another 28 shops in which there are a further 20 Spencer drycleaning machines which provide a service to customers from the domestic market.

The total weekly workload being in excess of 100,000kgs.

We were informed by Herr Klug that the company had not been investing in new equipment during the recent 3 years until they could decide in which way government legislation was developing.

As a result of high environmental standards with regards atmospheric pollution with solvents and the precautions to be taken with regards to solvent spillage, it was thought there would be a change from drycleaning of oil contaminated industrial workwear to wet washing. This however had since been countered by restrictions in effluent contaminents, thereby leaving the future uncertain.

Certainly the company had decided not to replace equipment in the shops, instead choosing to centralise drycleaning services within the factory, with the shops being used to press items after cleaning.

This concept was interesting as it occured some twenty years ago in the U.K. and then de-centralisation took place with machines being placed in high street shops.

Customers sending their workwear for processing had a simple contract which stated that everything sent would be cleaned, repaired when required and returned within a given time period.

It was obvious from the standards provided a major railway customer that re-investment in garments was the responsibility of the customer. As garments were reaching the end of their life, patching took place more often. In the end, several garments were nothing more than a mass of patches of slightly differing shades, leaving a shapeless garment upon which it was impossible to impart a quality finish.

When asked why the company had not diversified into garment rental we were informed that the large amount of capital required together with a reluctance by the customers to relinquish control of purchase were the two main reasons why garment rental had not taken place.

The management structure consisted of Herr Klug undertaking a role akin to General Manager, an accountant who undertook responsibility for all financial transactions and an engineer responsible for the maintainance department.

Direct day to day management was undertaken by several "technicians" each of whom had been trained in their own speciality ie: Wash Area, Ironers, Presses etc.

Herr Klug informed us that, like England, the Textile Industry had a poor image and therefore found it exceedingly difficult to recruit technical managers with a high level of skills and knowledge. Instead they relied on recruitment of staff and training by use of crash courses. However, a great level of reliance was placed upon the technical skills of reprresentatives from Allied Trades.

Hospital work was processed through a continuous Batch Tunnel Washer and then finished alongside linen from other commercial establishments.

This meant that all hospital linen was processed to a high standard equal to that enjoyed by hotels etc. It also meant that this high standard was attained by the regular and consistant use of bleaches which has a derogatory effect on the textiles life.

Hygiene standards in Germany prohibit the sorting of hospital linen therefore sorting takes place at the hospital where linen is separated into colour coded bags. This then places the responsibility for the correct processing of linen in the hands of the hospital staff. Thermal disinfection was attained by a minimum wash temperature of 90^{o}C being attained. This is high compared to U.K. standards where the D.H.S.S. recognises 71^{o}C as being acceptable.

Surgical instruments left in the linen was still a problem however the hospital was always eager to make amends for any damage caused by their negligence.

It was interesting to note that all hospital linen was 100% cotton and that there was no requirement to use Flame Retardant finishes or fabrics despite the wide availability of Trevira CS which was exported to the U.K. to satisfy D.H.S.S. requirements.

Charges to the hospitals was done by weight, the current cost being 1.4DM/kg equivalent to 44p/kg compared to a U.K. approximate contractor cost of 33p/kg.

For comparison the laundry was situated in an old building with machinery, the majority of which would require early replacement.

10. KONZEPTA TEXTILREINIGUNG

This was a family operated drycleaning business consisting of 3 shops. The business, having been set up by the father, now aged 70, had recently been handed over to his son Herr Krebbs who was slowly re-developing the shops.

Their work was high class domestic work, which was processed within a short period of time at a premium charge.

The shop concept was similar to that of Herr Egelhoff with a lot of displays, posters and bright colours used throughout the shop. Emphasis was placed upon producing a quality finish to a well cleaned garment.

11. LEVER INDUSTRIAL

The plant we visited was Lever's Developement and Application Centre at Maarsen, Holland.

We were met by one of Lever's top chemists, Simon Hemmes who, as well as being most knowledgable in laundry systems had an equal knowledge of Belgium jokes (Similar to our Irish).

The day started with a P.R. presentation which I found to be extremely interesting.

Lever Industrial is a part of the giant Unilever Company which employs 270,000 people in 75 countries with a current turnover of in excess of £16550 million of which detergents constituted 22%.

Its hard to beleive that brand names such as Persil, Brut, Birds Eye and Timotei are all manufactured by the same company.

Having such a large scale of operation meant that they could employ the back up staff to go with it.

Their Research and Developement staff, which accounted for approximately 2% of their profits were presently working on a safe substitute to Hypochlorite Bleach which would still have the same disinfecting properties. One substitute was found to be Peracitic Acid, however as it was a carciogenic substance sophisticated pumped injected systems had to be developed to effect its safe use.

Having access to some of their market research surveys showed their were now in excess of 100,000 purpose built OPL's (On Premise Launderies) in Europe, whilst in contrast just a few hundred installations account for the bulk of the industrial market. Their research shows that whilst detergents represent 2-4% of laundering costs, energy can account for 10-20% with labour being an even larger cost factor.

Therefore by analysing the total process can successful cost control be acheived, and only by examining and understanding all aspects can cost control be matched to succesful washing results. It was with this consept in mind that pioneered the use of liquid detergent systems for launderies in Germany, Holland and Belgium.

Whilst powders require manpower in handling and energy for heating and mixing, pre-prepared liquids delivered in bulk require no handling, thereby cutting manpower and energy costs.

Even though their laboratories were extremely well equipped they still used test pieces analised by the TNO (Dutch equivalent to Fabric Care Research Association).

In order to accurately assess the long term effects and costs of new detergents, Lever's had purchased a Tunnel Washer and installed it in the premises of a large commercial laundry with the agreement that it was on free loan to the company in exchange for full access to any data generated by a bank of computers which were linked to the machine.

This enabled all tests to be carried out under factory conditions and the computers could project differences in quality/costs etc by regulating supplies or machine controls.

Liquids have only recently made an impact into the British launderies and whilst some of us are sceptical about their long term benefits, our European colleagues seem more than pleased with their performance.

Looking through microscopes in their laboratory convinced me that we in Britain must do more to protect the environment from harmful substances which we release into the atmosphere and rivers.

12. VAROBO 83

This was a purpose built plant used solely for the processing of hospital linen. The laundry handles approximately 35 tonnes of linen each week. Unlike launderies in Britain the philosophy behind Varobo 83 is to process a minimum range of items, thus, by being specialists in a small number of categories a lower unit price is possible.

This made comparison with British norms extremely difficult. The weekly workload consisted of approximately 70,000 items. These were 25,000 sheets, 35,000 small flatwork items such as pillowcases, tea towels etc and 10,000 garments such as nightwear, operation gowns etc.

Equipment consisted of a 16 compartment 35kg Engelhardt & Forster Batch Tunnel Washer, Two Ironers and a Kleindienst Tunnel Finisher including the necessary membrane press and tumblers.

A quick calculation revealed at least 20-25% spare capacity, however the management informed us that they had no intention of increasing the plant utilisation, insisting that the spare capacity, enabled them to give a guaranteed service to their customers, who were prepared to pay the price asked.

The plant was quite compact, with all sorting/washing being carried out behind a special barrier that was designed not only to fulfill an anti cross infection purpose but also to reduce the level of noise and heat in the main production area where most staff are employed.

Production is arranged so that the linen is handled only three times during the whole of its progress through laundry and at no time is it stored in trolleys or trucks. Handling takes place in the sorting room, at the finishing stage and then at the point where it is distributed to the customer.

All machines were equipped with steam, gas and electric metres which enabled the plant engineer to monitor consumption it was possible to identify the efficiency to which each machine was operating. Maintainance or even machine replacement was therefore easier to determine.

The way in which production is controlled is a combination of all the latest techniques, including the use of micro-computers, as well as an on-site main frame computer terminal, which is itself subordinate to one with a much larger memory capacity several miles away.

The main computer was operated by an agency which leased time to its customers, thereby enabling the laundry access to hi-tec systems without the high cost of developement.

All the soiled linen received is weighed prior to processing and this information is then fed into the main computer banks.

After weighing and the total quantity of linen recorded by the computer, it is classified into overhead self opening and closing bags on weigh stations, and then stored on overhead rails.

This entire operation is simple and continuous. Each consignment has the customer or bar code mark, which is scanned by a hand held laser scanner, the data being fed direct into the computer.

Any clean items returned on a trolley exchange system are input into the computer's memory before being topped up with additional supplies of clean. The unused items are credited to the user account. In this way there is a complete check of the quantities of linen used at each delivery point. This is then analysed and passed on to the plant manager and the person responsible at the customers end. The total consumption of linen on a daily per head basis can therefore be continually monitored.

A simple charging system was in use for all hospital work based upon weight. We were informed that in 1960 the average weight of linen used per patient day was 2-3lbs rising by 1972 to 4-6lbs and was presently 7-8lbs. This could indicate a constantly improving standard of service or a service that was supplier dominated, where usage was encouraged by availability of supplies rather than actual need.

One extremely interesting aspect of this plant was its approach to quality control. The laundry was a member of the U.K.Z. Organisation which laid down the standards for the industry in Holland. To become a member, one had to pass their Quality Assurance Programme. This consisted of being assessed at no less than 120 inspection points throughout the laundry, and obtaining a minimum of 70% at each point. These tests were carried out by an employee. The member of staff carrying out this task is encouraged to be subjective in their assessment and a points system is used to describe each inspection point. At the end of each week this information is collated by management and action taken to improve any area which has not met the required points standard.

V.K.Z. DEMANDS.

A. ORGANIZATIONAL DEMANDS.

B. TECHNICAL DEMANDS.

C. HYGIENICAL DEMANDS.

A. ORGANIZATIONAL DEMANDS:

GENERAL

SALES

BUSINESS - ECONIMICAL CONTINUITY

MEASURED BY DIFFERENT RATIO'S

LABOR TECHNICAL ASPECTS

ORGANIZATION STRUCTURE - JOB DESCRIBTION

PRODUCTION TECHNICAL ASPECTS

PRODUCTION FLOW CONTROLE + MACHINERY REPLACEMENTS

TRANSPORT ORGANIZATION

CALIMITY ARRANGEMENTS

CONTRACT ARRENGEMENTS

STANDARD DELIVERY CONDITIONS

CONTACTS AND AGREEMENTS

B - C. TECHNICAL AND HYGIENICAL DEMANDS:

A. BUILDING LAY OUT.

B. ELECTRICITY, WATER, HEATING - SUPPLY.

C. PERSONAL AND PERSONAL - FACILITIES.

D. PAKKING OF SOILED LINEN.

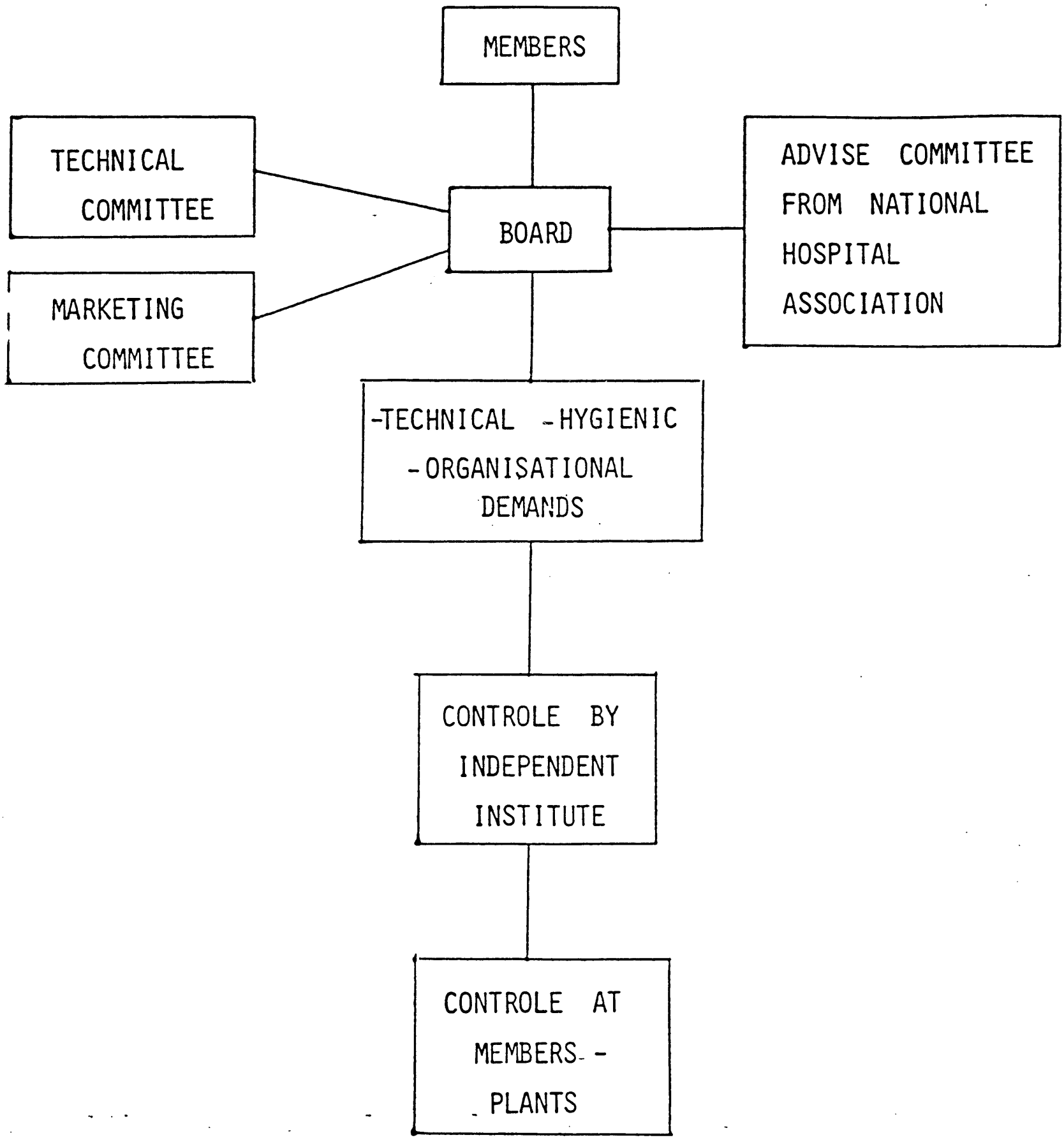
E. WASHING - PROCES;

WASHING

DESINFECTION AND RE - INFECTION

PROOF - PIECES: COLOUR - USAGE - STAIN REMOVAL

V. K. Z. - ORGANISATION.



V.K.Z. - ACTIVITIES.

1. DEVELOP TECHNICAL, HYGIENIC AND ORGANISATIONAL DEMANDS.

2. DESCRIBE HYGIENIC REGULATIONS FOR MEMBERS AND LAUNDRY - PERSONAL.

3. ORDER PLANT CONTROLES BY AN INDEPENDENT CONTROL INSTITUTE

4. MARKET DISCUSSION WITH THE NATIONAL HOSPITAL ASSOCIATION.

5. COST - PRICE SCHEME FOR NATIONAL HOSPITAL ASSOCIATION.

6. DEVELOP A STANDARD - OFFER - REQUEST FOR HOSPITALS.

7. DEVELOP STANDARD DELIVERY CONDITIONS.

8. INFORM BIG MEDICAL- TEXTILE USERS IN DIFFERENT WAY E.G. A NEWSLETTER.

F. FINISHING QUALITY.

G. FINISHING EQUIPMENT.

H. MOISTURE RETENTION.

I. O.R. - TEXTILES + CLEAN PAKKING.

IMPORTANT DEMANDS:

CLEAR SEPARATION IN LAUNDRY BETWEEN SOILED AND CLEAN LINNEN
PERSONAL FACILITIES AS: HANDWASHING FACILITIES,
TOILETS,
GARMENTS,
DIFFERENT FACILITIES FOR PERSONAL
IN SOIL - SORTING DEPARTMENT.

WEL - ORGANIZED TRANSPORTATION OF SOILED LINNEN.
CHECK ON GOOD FUNCTION MACHINERY, FLOATS, THERMOSTATS.
USING FORMULE FOR THERMO - DESINFECTION.
TIME IN MINUTES MULTIPLIDE TEMPERATURE ABOVE
55° C, MUST BE MORE THAN 180 IF YOU USE BLEACH
AND MORE THAN 250 IF YOU DONOT USE BLEACH.
MESURE THE RINSE PROGRAM.
DIP - SLIDES: - FREE OF ENTRO BACTERIES.
- VERY FEW OTHER BACTERIES.
STANDARD SOIL AND STAIN PROOF - PIECES.
STANDARD PROOF - PIECES FOR DETERMINING, GRAYING, WHITENESS
AND USAGE.
FINISHING - QUALITY.
MOIST - RETENTION 6 % GOOD
6 - 10% ACCEPTABLE
10 % NOT ACCEPTABLE
HYGIENIC TRANSPORT OF CLEAN LINEN.

13. ROZENBURG - GIEZEMAN

Another purpose built plant but operating solely with linen hire items. The laundry does not process any uniforms or patients clothing at all instead it has been able to stream line itself by supplying a standard range of items to a standard size/make-up.

The basis of linen hire is where the laundry purchase all the stock required and "hires" to the hospital. The cost of the hire is simply included in the laundering charge.

In supplying a textile rental service the laundry can to a large extent dictate the number of different types of article to be used, and in so doing can then equip the plant with the most appropriate machinery to handle the workload.

On the day that we visited the plant was closed down, having completed its quota for the week. When asked if they were planning to expand their workload, we were told that non-medical work such as restaurant or hotel linen was more difficult to handle through different colours and sizes thereby adding complexity to the system. The equipment could cope but the system would need completely re-thinking.

All soiled linen was sent to the laundry in disposable plastic bags, paid for by the hospital.

Despite being told of extremely high hygiene standards in Dutch launderies neither of the two male sorters wore gloves or any other protective clothing other than the uniform overall.

Production per operator hour was high (150 articles per operator hour compared to 75-85/operator/hour in Britain) however, with the small range of items and low average weight per item direct comparison again proved difficult.

Whilst most of the machinery was half way through its useful life the standards of maintainance was excellent, this however was not attributed to Rozenburgs own engineers.

Plant maintainance along with annual accounts, wages and stock purchasing was all contracted out to other companies. The philosophy being that Rozenburgs management were expert in the "re-cycling" business but knew very little about the other services.

One major difference to launderies in Britain was the inclusion of a clean room in which all the theatre linen was sterilised and pre-packed for distribution throughout the hospitals.

All theatre linen and instruments were all supplied on a hire basis, thus saving the hospital the initial capital out lay. Whilst we were visiting a trial was being undertaken using Goretex in the theatre as opposed to the conventional balloon cloth.

Goretex is a tri-laminate and the three layers consist of two outermost layers of absorbent polyester and the inner layer consists of a waterproof teflon membrane which is impenetrable to micro-organisms. The most remarkable thing however, is that the material can still "breath" despite it being impenetrable by liquids.

This special construction ensures that the patient remains at the correct temperature and the absorbency of Goretex is such that draping can be achieved with only one layer. This is not only more comfortable for the patient but saves time and materials.

Goretex fabric is in use in several Health Authorities in Britain however due to the involvement of several departments ie. laundry, sewing room, c.s.s.d. etc a true costing is difficult to obtain.

The quality control adopted by the plant manager was reffered to as "The Critical Influence Factor". This consisted of "what can go wrong" and "how do I correct it". This tended to keep quality standards of a level acceptable to both costs and customer.

WAS- EN TEXTIELVERZORGING

Rozenburg - Giezeman

LINNENVERHUUR VOORBURG