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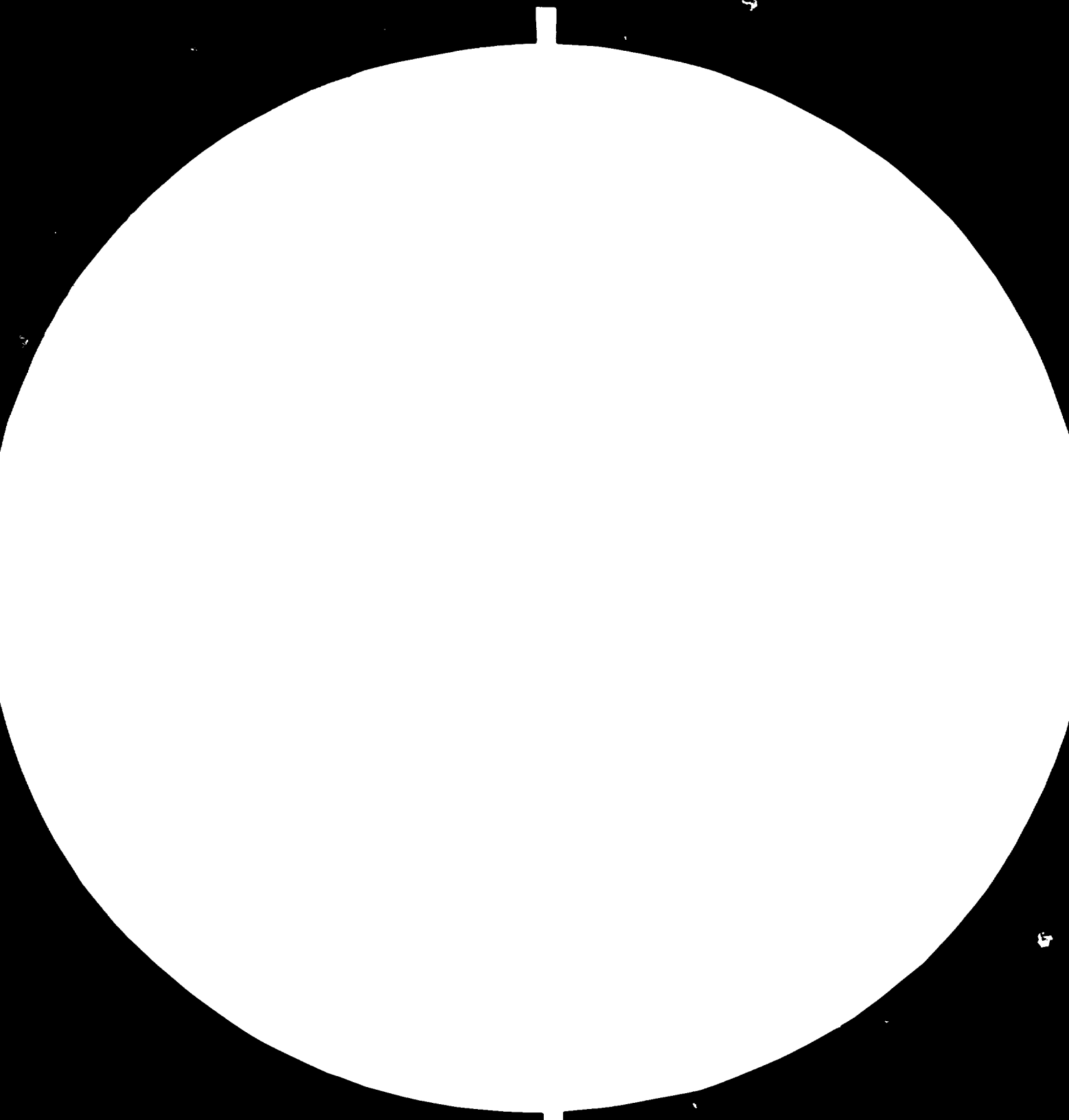

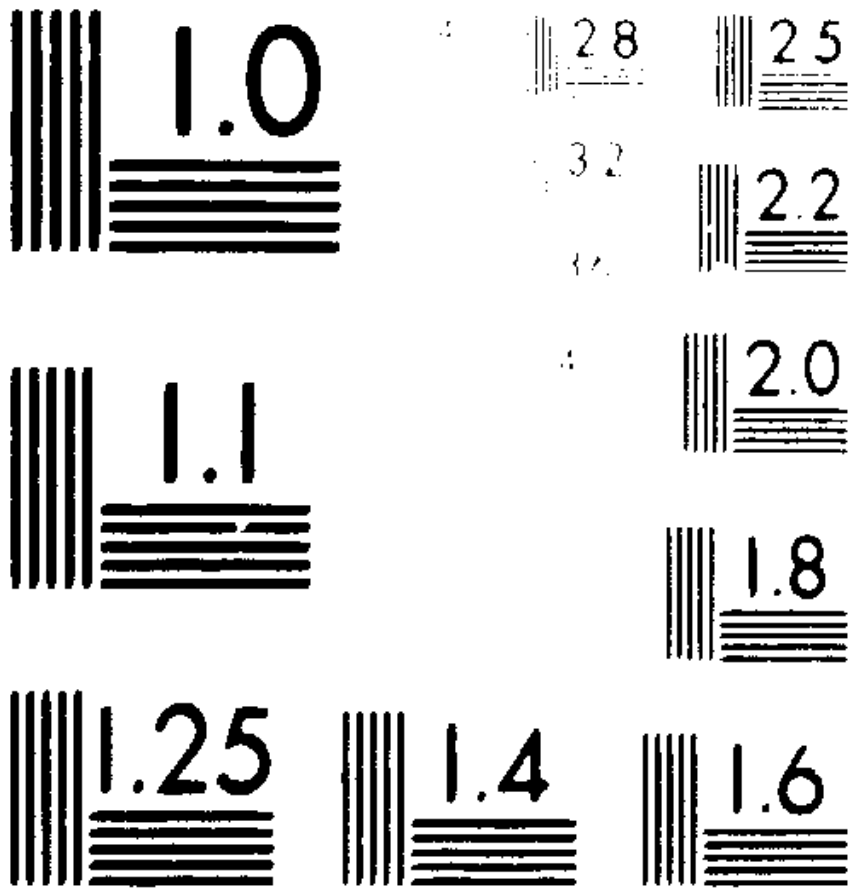
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December 1982.
English.

Egypt. The Textile Development Centre, Alexandria.

Final Technical Report: Commissioning the Spinning Department and developing an applied R & D work programme

Prepared for the Government of Egypt by the United Nations Industrial Development Organization executing Agency for the United Nations Development Programme.

Based on the work of Jack Shaw Expert in Textile Spinning

United Nations Industrial Development Organization
Vienna.

Abbreviations

R & D ..... Research and Development.

T.D.C. ..... Textile Development Centre.

S.D. ..... Spinning Department.

U.S.A. ..... United States of America.

TR. ..... Technical Report.

RR. ..... Research Report.

VR. ..... Visit Report.

DEPT. ..... Department.

C.F. ..... Consolidation Fund.

Abstract.

The purpose of the report is to record the work carried out during the commissioning of the Spinning Dept of the T.D.C. and the progress made in 1981/82 in Applied R & D and Consultancy. The S.D. has been completed in terms of machine installation and some additional support equipment. In September - October 1982 a planned applied R & D work programme was devised which covered three main items, blended polyester-cotton yarns for Popular Fabrics, limit or spinnability spinning of new types of cottons and mill consultancy on yarn quality and associated problems. Additional staff were engaged during the year and the work was extended to include some on the job training and additional topics on quality assurance for various types of machines. This work is continuing and by the end of the first quarter 1983 the T.D.C. should have enough data to organise a tutorial type seminar on quality assurance linked to the required standard of maintenance.

The years work has produced some nineteen (19) Research Reports nine (9) Technical Reports, twelve (12) Visit Reports and one (1) Seminar Report covering almost all aspects of yarn production either as R & D or mill Consultancy. By introducing standard work procedures and systems this has helped to avoid making mistakes, duplicating instructions and accelerated the job of reporting. Assuming these procedures are continued the output of the S.D. should be greater in 1983 and be of a higher standard. The three major topics particularly the polyester-cotton blended yarn processing, have been very sucessful and of great interest to the mills and the Fibre Producer Misr Rayon Company. This interest will continue in 1983.

The outstanding spares and accessories are very essential to a smooth working of the S.D. and should be purchased quickly during 1983. Consideration should be given to expanding the facilities of the S.D. by purchasing four new machines complete with spares and accessories.

Mill Consultancy should be gradually expanded in 1983 and include two new types of work namely new machine evaluation and process economic studies. These are of prime interest to Industry and the T.D.C. should take a responsible position on such matters.

The T.D.C. should consider having working links with Institutes and Industry in Europe and the U.S.A. on one or two useful topics. More use should be made by attendance at specialised courses and conferences to improve the technical background of management and engineers and introduce more up to date thinking on technical and management practice to the Industry.

There should be a team of engineers from T.D.C. attending the International Textile Machinery Association Exhibition to be held in Milan in 1983. This will give them an opportunity to see the new machines, instruments and accessories for the full range of processes.

On more difficult known problems the T.D.C. should arrange shared work with other Institutes in Egypt in order to offer Industry some possibility of a solution in the shortest possible time.

CONTENTS

Appendixes

1.1. The Textile Development Centre.

The Textile Development Centre was started about six years ago adjacent to the already existing Testing and Quality Control Organization Building.

The purpose of T.D.C. is to provide a full service to practically all branches of the Egyptian Textile Industry, from fibre to made-up garments. When the T.D.C. is fully operational it should provide the following facilities:

(1) pilot plant processing from fibre to finished garments.
(2) test laboratory activity.
(3) qualitative studies of industrial problems and processes.
(4) provide a consultative service to Industry.
(5) introduce new technology to the Industry.
(6) provide seminars, training courses, conferences, and
(7) be a focal point of communications for International exchange of information between Egypt and other leading textile Countries and Centres in the world.

In its own specialised capacity the S.D. should fully contribute to these T.D.C. activities.

1.2. The Spinning Department.

The S.D. is well equipped with principal machinery, see Appendix 1. and supported with minimal numbers of spares and accessories. However it was quite apparent at the cutset the staff were unable to do complicated or difficult work of a special nature until more instruments and equipment could be provided. Nevertheless there was a considerable amount which could be done Even though there were only two engineers no provisions had been made for devising systems for data collection, standard procedures for testing and method of report writing.

Therefore in order to support the work four actions were immediately agreed:-

1) a standard procedure of preparing each job was created giving test numbers and making out test instruction sheets.
2) a standard procedure was agreed for testing all products in the S.D. from fibre to yarn.
3) data collection sheets were designed.
4) a simple but formal style of report writing including some standard sheets was introduced and
5) a group of test instruments were sited in the S.D.

One necessary requirement for the staff was to provide them with a few instruments for setting up machinery and making provisional analysis of the end product. A group of instruments was arranged in the spinning room and these are given in Appendix 1 Section 2.0. Therefore within a short period of time at the end of 1981 the S.D. was self reliant in terms of being able to work and they had been given some standard procedures to help to reduce the possiblity of overlooking items, for data collection, final presentation of the work, and means for setting up machines for each item of work.

At the outset a list of additional equipment and spares were itemised and most of these were procured locally through Industrial Contacts. However there are a considerable amount still outstanding for the S.D. and these items are listed in Appendix.2.

1.3. The Nature and Duration of the Assignment.

The assignment started on 28 September 1981 and was specially concerned with developing the S.D. to operate and begin to serve the industry under the following headings:-

1) assist local industry in the field of applied research.
2) to devise an applied research programme in collaboration with the mills with particular attention to:
   - blended yarn production-polyester/cotton.
   - best use of imported cottons.
   - how to increase efficiency and productivity.
   - how to reduce waste and second quality.
3) provide a Technical Consultancy.
4) make qualitative and operational studies.
5) communicate with the industry.
6) train counterparts.
7) prepare an ongoing Applied Research Programme of work.

A good attempt was made at most of these items which at the start of the assignment in September 1981 the S.D. was only staffed with two engineers. Later in March 1982 a further two engineers were recruited and in September 1982 an other engineer joined the stff. Therefore for more than 6 months the amount of work was limited. The present staff list is given in Appendix 3.

As applied R & D programme was quickly established and was well underway by Dec.-Jan. Later the engineers continued to work for a period of 3 months June, July, August, supervised by my counterpart. I returned to duty in September, to find that most of the work set for that period had been attempted to various degrees of excellence. My present assignment will terminate December 1982.

2.0. Recommendations

Applied R & D

1) The listed programme in Sections 3.3. and 3.4. and Appendix 4 should be implemented with emphasis on blended yarn processing in the mills.

2) The S.D. work should gradually be oriented more towards mill consultancy and new product and machine evaluation.

3) The rewiring of the two high production cards should be done speedily and be fully evaluated over a wide range of cottons. This work should be widely published throughout industry because of its interesting technical content.

4) The S.D. should develop working arrangements with one or two institutes and industrials (such as fibre producers) in Europe and the U.S.A.

5) The S.D. should set-up two new activities, namely, New Machine Evaluation (eg. Dref Spinning. Air Spinning. Automatic Machines Systems) and Technical Process Economics of spinning.

6) Very difficult work of known character such as nep levels in yarn and sliver should be shared with another Research Institute and a joint programme agreed.

7) It would be beneficial for the Centre and its engineers to have technical and progress discussions in May and November 1983. The November talks would enable a 1984 work programme to be formalised and appropriately allow for new process and machinery developments made public during 1983 and shown at ITMA Exhibition.

Machinery

1) The outstanding spares, accessories and instruments given in Appendix.2. should be bought as soon as possible to provide a smooth operation of work in the S.D.

2) If more machinery is purchased it should be a condition that spares and accessories are included in the purchase.

3) The following new machines should be bought during 1983.

   a) one (1) high speed draw frame.
   b) one (1) thirty two (32) spindle fine-count roving frame.
   c) one (1) high speed forty spindle (40) Open End Spinner.
   d) one (1) high speed fifty spindle (50) Ring spinner.

Training and Communication.

1) The S.D. should develope a Tutorial Type Seminar on the Awareness of Maintenance for mid 1983 to encourage mills to provide improved facilities for quality measurement and maintenance.

2) More use should be made of short duration specialised training courses and attendance at International Conferences. Such topics as Management of R & D, Planned Statistical Experiments, Communications in R & D are subjects which could improve the base knowledge of the staff.

3) A form of Technical Newsheet should be considered for monthly publication, of extracts from Technical Publication, in order to keep the staff informed of the latest developments over the world's industry.

4) Staff should have an opportunity to discuss their work in formal surroundings and in front of Senior Management at least twice per year.

5) Engineers should visit the I.T.M.A. Exhibition in Milan planned for 1983.

3.0. Activities

3.1. The Start

With a staff of two engineers all the machines were checked and some consumable items were obtained, such as tubes, ring travellers and sliver cans.

Discussions took place with members of the Technical Committee and several mills from which it soon become apparent that efforts should be concerned with:

1) polyester-cotton blended yarns for popular fabrics.

2) spinnability assessment of the new Egyptian cottons.

3) process quality levels in the mills and the main causes for low standards at each process stage.

4) better experimental technique and planning of all work and

5) a standard presentation of the results.

The limitted staff resources decided that time should be devoted to an applied R & D programme and consultancy and not to collecting all the problems in the Industry by making a full tour of the Industry. If necessary it was agreed to do this later.

The above five items are now considered in a little more detail.

Polyester-Cotton Blended Yarns

This work was devoted to spinning yarn for the weaving, dyeing and finishing of two types of popular fabrics, with various levels of polyester in the fabric. The programme planned to provide from 11% to 45% of polyester in the fabrics by varying the amount in warp and weft. Carded yarns were produced and the polyester and cotton were pre-card blended in the blow room. The resultant blends were processed at conventional machine speeds and productions which mills are using and no special allowance was made for the polyester other than in detail of setting drafting systems at the draw frame roving and ring spinners. In addition yarns were spun by the Open End spinning method and in weaving these yarns will be used as weft only. For comparison purposes a standard fabric will be produced. In total thirteen different fabric lengths each of 50 mts will be produced based on two weaves. The spinning has been completed and fully documented and the weaving is in progress.

Spinnability of New Egyptian Cottons.

The C.F. publishes yearly a fibre analysis report of new seaon cottons and it was decided to include this year an estimate of the spinning limit for each of four new cottons namely Giza 66, 70, 75 and 68. These cottons are used extensively for combed yarns, therefore the work entailed taking baled fibre into yarn using all the preparatory machinery in the S.D. The work has been designed on a system of minimum twist limit spinning at the ring frame on a relatively few number of spinndles (50). The first two cotton types Giza 66 and 70 have been completed and the laboratory scale operation has been proved to be successful. The last two cotton types 78 and 68 have been cancelled in favour of working on the 1982/1983 new cotton crop.

Yarn Quality Assurance

This work was carried out in four stages.

1) spinning a standard 36 Nec in the S.D. to established conditions on the ring frame. This is popular count used in many mills.
2) a full plant survey from blow room to ring frame which required attention from a man and resource point of view.
3) a detailed examination of the effect of maintenance of a ring frame. and
4) a full mill machine survey for re-equipment and reorganization. this covered such points as buildings quality of accessories, maintenance and staff.

Working Procedures

In order to carry out the work smoothly and with the minumum of effort the following was introduced.

1) a few laboratory test instruments were sited in the S.D. for the engineers sole purpose of setting-up machines.
2) a register of work with Test Numbering.

3) experimental Test Sheets designed to set out the nature of the work and agree what resources would be required and the amount of laboratory testing needed, see Appendix 6 and 7.

4) a formalised design of report writing and data collection including standard machine forms. Examples of these forms are given in Appendix 8.

5) an agreed list of standard technological test procedures were agreed between the S.D. and the Test laboratory to cover fibre to yarn test. This has been reported in TR 37 see Appendix 5.

Summarising; the working procedures ensured that all work was planned and an instructions sheet prepared and approved by the Development Manager or the UNIDO Spinning adviser. The work was identified and was only carried out once the Test sheet was approved. The final report procedure of including standard machines sheets made sure no technical information was forgotton and finally the results were based on standard test procedures understood by S.D. Engineers, laboratory staff, and mill engineers.

3.2. Staff Training

No formal training has been organised as Dr Hassanin, N. Kishk and S. Saber in particular have a good technical background and require only on the job training to widen their experience. Engineers A. El Said and M. Sadek being younger may benefit from some formal training later but in the main, work experience at this stage was considered more important.

3.3. The Present 1981/1982 Applied R & D Programme Situation.

The work is being allocated to:

1) Polyester-cotton blend processing.

2) Spinnability of the new cottons for 1981/1982 crop.

3) Quality assurance.

4) Introduction of new technology.

With an increase in staff an examination of some new technology in spinning has been started by investigation a new high speed spinning ring not known in Egypt and by introducing two possible topics for 1983. the following tests have been completed in 1982 and are given in Appendix 4 and summarised below under the above headings:-

1981/1982 Programme

R & D. Test Nos. 1. 5. 7. 9. 12 and 16.
Quality and Assurance. Test Nos 8. 10 and 11.
Engineer Training Test Nos. 6 and 13.
Consultancy Test Nos. 2. 3. 4. 14 and 15.

3.4. The 1983 Applied R & D Programme.

The topics for 1983 are listed in Appendix 4 and may be grouped under the following headings:

R & D Test Nos. 17. 21. 23. 26. 28. 31 and 32
Quality and Assurance Test Nos 18. 19. 20. 25 and 30.
Engineer Training Test Nos. 22
Consultancy Test Nos. 24. 27 and 29

The work continues on polyester cotton blends, with four items concerned with this work. Two items 31 and 32 are concerned with an examination of new developments in ring spinning which should bring the staff of the S.D. and T.D.C. into direct contact with machinery makers and create useful links with Europe and Japan.

Seminars should become a practical and useful part of 1983 programme and three have been proposed namely:

1) Polyester-Cotton Processing.
2) Quality and Maintenance.
3) Newer forms of Spinning.
   A Post I.T.M.A. Seminar.

3.5. Other Work Activity

Following the work of R.S. Bridge expert in Environmental Dust Pollution, pollution dust surveys were supervised in three mills during 1982. these have been reported, see Appendix 5 TR. 32 and TR.44.

3.6. Seminars

A paper S.14 was presented at a Seminar concerned with circular knitting - entitled "Ring yarns for Knitters" see Appendix 5.

3.7. Trade Fair

A visit was organised for S. Saber to visit the 1982 Cairo International Trade Fair to see the Dref spinning machines. The visit has been reported see Appendix 5. VR. 47.

3.8. Conferences

Attendance was made at a conference arranged by Picanol for a demonstration and technical presentation of their new range of looms. Also attendance was made to an International Conference on the uses of polyester organi by the Egyptian Textile Industry in Alexandria.
Both conferences were in February and March 1982 respectively.

4.0. Achievements

We have achieved the following:-

1) Successfully completed a spinning programme of blended yarns for popular fabrics.
2) Established a laboratory technique of assessing spinning limits for the new Egyptian cottons; and the work is to be extended to this seasons crop.

3) Given a Consultancy to mills on quality standards, levels of process controls, machine and equipment survey and advised on processing polyester-cotton blends.

4) Given direct consultancy on nep levels in combing and examined the effect of machine maintenance.

5) Introduced an applied R & D programme of direct interest to the Industry.

6) Made a start of introducing a new item of spinning ring for polyester-cotton spinning.

7) Carried out on the job staff training.

8) Devised working procedures for

a work register.

data collection.

formalised fibre and yarn testing.

standardised a format of report writing and presentation of information.

9) Set up a small testing unit in the S.D. for monitoring products during work.

10) Established a running applied R & D programme for 1983.

11) Continued the work of dust pollution measurements in mills.

5.0. Utilization of Work Results

Polyester-Cotton yarn Blends

Some of the Public sector mills are interested in this work particularly if the fibre economics are attractive. The S.D. is at present engaged in one sample processing consultancy with a mill and is scheduled to continue the work in another two mills.

New Season Cottons for 1983

Both the fibre and the count limit estimate findings will be of interest and value to most of the public sector mills who are contemplating using the newer cottons in 1983.

Quality Assurance

This is an area of direct intest to all mills and when tests 8, 10, 11, 18, 19, 20, 25 and 30 are published the available data should be of considerable assistance especially if the work can be supported by a working seminar.

Consultancy

All consultancy work which has been done has been welcomed by the mills and in the main has been successful. There is a tendancy for mills to off-load their most difficult problems which they have been struggling with for years and expect the T.D.C. to give quick answers. The T.D.C. should therefore seek additional help in order to solve some of these points.

Work Procedures

These have been adequately used by the staff and should help to increase the output in 1983.

APPENDIXES

SPINNING DEPARTMENT

1.0. INSTALLED MACHINERY

1.1. Opening and Cleaning

a) Pre-fibre weighing device and feed lattice.

b) Bale Opener.

c) Step Cleaner.

d) Fine Opener.

e) Scutcher.

f) Fibre suction fan.

g) Exacta feed.

h) Dust Separator.

i) Air Compressor.

k) Electrical Control Panel.

All machinery supplied by Trutzschler.

1.2. High Production Cards.

a) Schubert and Salzer KB 88 Card fitted with chute feed, autoleveller and automatic can change.

b) Crosrol conversion card, with lap feed and autoleveller.

1.3. High Speed Drawing

a) Schubert and Salzer RSB31 draw frame fitted with an autoleveller and automatic can change system.

1.4. Combing

a) Lap former type E2/4A supplied by Rieter fitted with automatic lap drafting and lap storage.

b) Comber type E7/4 supplied by Rieter.

1.5. Roving

Speed frame type FB6. supplied by Schubert and Salzer comprising of 32 spindles 12" x 7" size.

1.6. Ring Spinning

Ring frame type FB17 with 108 spinndles supplied by Schubert and Salzer 9" x 2" size.

1.7. Open End Spinning

Open End Spinner-Trainer with 6 positions supplied by Rieter.

1.8. Yarn Preparation

a) Ring twister supplied by Platt Sacow Lowell type Twistomatic TCCA.1W. with 48 spindles.

b) Two-for-one twister supplied by Hamel type 4-0100 with 24 spindles.

c) An Autocomer supplied by Schlafhorst. fitted with slub catchers and comprising of 10 positions complete with automatic knotting device.

2.0. Installed Testing Equipment

For setting machines and making provisional quality checks of products the following instruments are installed in the spinning room:-

a) Lap Regularity Tester with Uster Varimeter.

b) Kcseiki Evenness Tester complets with recorder charts, spectograph and I.P.I units.

c) Yarn Twist Tester.

d) Yarn Wrap Reel.

e) Sliver Wrap Wheel.

f) Yarn Balance.

g) Sliver and fibre balance.

h) Yarn black board wrapper.

Spinning Department

1.0. Principal Spares and Instruments Still outstanding

1.1. Items for Applied R & D and Mill Consultancy.

1. One flange Spinning Rings.
2. Full range of travellers for (1)
3. Half flange spinning rings.
4. Full range of travellers for (3)
5. Card wire inspection viewer.
6. Stop watch.
7. Electronic Yarn Tencion Meter.
8. Pitot air measuring equipment.
9. Digital non-contact tachometer for speeds up to 80000 rpm.
10. Mini Uster Sliver roving and yarn evenness tester.

1.2. Items essential for machine operations

1) 34 Sliver Cans 20"dia x 42" high.
2) 12 Springs and tops for existing cans.

1.3. Key machine Items.

1) Main drive belts for SSI Card.
2) Three Special drive springs for OE Traines.
3) Rotor drive belts for OE Trainer.
4) One tooth belt pully for high speed draw frame.

2.0. Test Instruments for Applied R & D and Consultancy

1) Sliver Trash analyser.
2) Fine Maturity Tester.
3) Yarn Hairiness Meter.

Spinning Department

Appendix 3

Page 1 of 1

Engineering Staff

Counterpart

S. El Meligy. BS. Alexandria.
P.G. Manchester UK

Engineering Staff

Dr M H Hassanin BSc Alexandria.
P.h.D Leeds. UK.

Salah Saber BSc Alexandria.
P.G. Diploma Manchester UK.

Adel El Said BSc Alexandria.

Neama Kishk BSc Alexandria.
P.G. Diploma Manchester UK.

Magda Sadek BSc Alexandria.

Support Staff (Technicians)

N. M. Nasr.

S. A. Hamza.

M. M. Masoud.

Spinning Department

Appendix 4

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1981-1982 Work Programme

Test No.	Nature of Work	Date Started	Date Finished	Report
1	Blow room processing of cotton waste	Oct 1981	Nov 1981	RR1
2	Mill observations at UNIRAB	Dec 1981	Jan 1982	V32
3	Studies of Yarn quality at UNIRAB	Dec 1981	Jan 1982	RR2
4	Spinning of 36 Nec quality yarn	Dec 1981	Jan 1982	RR3
5	Bobbin weight studies for Polyester cotton blended yarn	April1982	June1982	RR7
6	Commissioning Rieter comber in S.D	May 1982	June 1982	RR8
7	Polyester-cotton yarns for Popular Fabrics	Feb 1982	April1982	RR9,10, 11,12,13.
8	High Speed Drawing. Effect of changing setting tensions and speeds	Aug 1982	Aug 1982	RR14,15, 16
9	Work programme for preparation of Polyester-Cotton yarns for weaving.	Oct 1982	Nov 1982	RR17
10	Spinnability of Giza 66 cotton	May 1982	July1982	RR18
11	Spinnability of Giza 70 cotton	Aug 1982	Dec 1982	RR21
12	O.E. Spinnability of Giza 66 cotton	May 1982	Oct 1982	RR19
13	Comber evaluation at Kafr El Dawar	Sep 1982	Oct 1982	RR20
14	Combing Problems of quality at Alexandria Sp Co.	Nov 1982		
15	Polyester-cotton blends processing in Orient Linen.	Nov 1982	Dec 1982	TR45 TR46
16	Evaluation of S.U. Superjet Ring	Nov 1982		

1983 Work Programme

Test No.	Nature of Work
17	Open End Spinning of cotton waste yarns.
18	Ring frame yarn quality, the effects of component of setting.
19	Nep counting procedure for assessing nep levels in sliver.
20	Card sliver quality. The effects of card production for a range of cottons.
21	Rewiring of the two H.P cards and evaluation.
22	Single head comber, evaluation of comber cycle.
23	Blowroom processing of 100% polyester.
24	Polyester-cotton blend processing at El-Siouf Spinning Co.
25	Spinnability of the 1982 season of new cottons.
26	Determine speed limits for 100% polyester and blends of polyester cotton at different draw frame stages.
27	High Speed OpenEnd SpinningProcessing yarns for knitting and weaving from 100% cotton and polyester cotton at rotor speeds up to 60000 rpm.
28	High Speed Cotton combing . Compare the technology of heavy lap short feed compared with light lap long feed method of combing.
29	Compare the blend efficiency of Polyester cotton when carried out in the blow rooom and at the draw frame.
30	Determine the effect of trash build up in the rotor at the open end spinners on yarn periodicity.
31	Evaluation of driven or rotating lappet guides at the ring frame developed by Nitto Shoji of Japan.
32	Evaluation of air suspension freely rotating spinning ring being offered by Cognetex Sp A Via Selice 94 I40026 Imola (Bo) Italy.

1983 Work Programme. continued

Test No	Natue of Work
	Seminars in 1983
1	Processing of Polyester-Cotton blends. a) Work done for Popular Fabrics. b) Processing technique in the mills pre-card blending for cheaper yarns. drawframe blending of comber cotton and polyester for the more expensive fabrics.
2	Relationship between quality and maintenance . Work in the S.D. on the card DF and FF should provide the data for a Seminar.
3	The Newer Techniques of Spinning. Consider such a Seminar following the visit of staff to I.T.M.A. machinery exhibition.

Spinning Department

Appendix 5

Page 1 of 3

Reports Issued

1.0. Research Reports

RR.1 Blow room processing of cotton waste.

RR.2 Studies of Yarn Quality at UNIPAB.

RR 3 High Speed Ring spinning of 36 Ne yarns.

RR.7 Studies of bobbin weight at the Ring Frame.

RR.8 Commissioning of the Rieter Comber in T.D.C.

RR.9 Polyester-Cotton Yarns Summary Report for Popular Fabrics.

RR.10 Polyester-cotton Yarns (100% Cotton) for Popular Fabrics.

RR.11 Polyester-Cotton Yarns 25%-75% for Popular Fabrics.

RR.12 Polyester-Cotton Yarns 35%-65% for Popular Fabrics.

RR.13 Polyester-Cotton Yarns 45%-55% for Popular Fabrics.

RR 14 High Speed Drawing, Effect of Roller Settings.

RR.15 High Speed Drawing, Effect of Delivery Speed.

RR.16 High Speed Drawing, Effect of Sliver Tension.

RR.17 Work Programme for Preparation of Polyester-Cotton yarns for weaving Popular Fabrics.

RR.18 Ring Frame Spinnability of Cotton Type Giza 66.

RR.19 Spinnability of OE Yarns from Giza 66.

RR.20 Observations of Combers at Kafr El Dawar.

RR.21 Ring Frame Spinnability of Cotton Type Giza 70.

RR 22 Observation of Comber at Alexandria Spinning Company.

2.0. Technical Reports

TR.21. Discussion with UNIRAB.

TR.31 Machine Survey for Alexandria Spinning Co.

TR.36 Polyester-Cotton work programme for Popular Fabrics.

TR.37 Standard S.D. Test Procedures.

TR.30 Environmental Dust studies at Alexandria Spinning Co.

TR.43 Mid 1982 Work Programme for S.D.

TR.44 Environmental Dust studies at Kafr El Dawar.

TR.45 Recommendations for Polyester-Cotton blended card yarns at Orient Linen Spinning Co.

TR.46 Recommendations for Polyester combed cotton blended yarns at Orient Linen Spinning Co.

3.0. Seminar Reports

S. 14 Ring Yarn for Knitters.

4.0. Visit Reports

V.24 Visit to Misr Rayon.

V.25 Visit to UNIRAB.

V.32 Visit to UNIRAB.

V.33 Visit to CATGO.

V.35 Visit to Orient Linen Spinning Co.

V.39 Visit to Kafr El Dawar Spinning Co.

V.40 Visit to Alexandria Spinning Co.

V.46 Visit to Alexandria Spinning Co.

V.47 Visit to Cairo International Trade Fair 1982.

V.52 Visit to Orient Linen Spinning Co.

V.53 Visit to CATGO

V.54 Visit to Alexandria Spinning Co.

TEXTILE DEVELOPMENT CENTRE

TEST NO. _____ ALEXANDRIA DATE _____

REPORT NO. _____ TEST INSTRUCTION SHEET

SPINNING DEPARTMENT

SUBJECT _____

_____

_____

NATURE OF EXPERIMENT			
METHOD AND PROCEDURE			
MATERIALS			
	STARTING DATE	COMPLETION DATE	
	TECHNICAIAN	REPORT BY	AUTHORISED BY

Appendix 6

Textile Development Centre

Machine Detail Sheet
Blow Room Machinery
Trutzschler

Test No. Date:-

1.0. Bale Opener. Type GBR 1000.

Spiked lattice speed :- mts/min

Evener roller speed :- r.p.m.

Stripper roller speed:- r.p.m.

Evener to spiked lattice setting :- mm

Grid bar setting :- mm.

Variable speed motor setting number :-

2.0. Step Cleaner Type SRS6

Beater speeds :- r.p.m.

Variable speed motor setting number :-

Grid bar setting :- , , , , , , mm.

3.0. Fine Opener Type RN.

Beater speed :- r.p.m.

Variable speed motor setting number :-

Grid bar setting :- and mm.

Beater to stripping edge setting :- mm.

4.0. Scutcher Type SME.

Beater speed :- r.p.m.

Variable speed motor setting number :-

Grid bar setting :- mm.

Beater to feed roller setting :- mm.

Beater to stripping edge setting :- mm.

Appendix 8

Textile Development Centre

Machine Detail Sheet
Ring Spinner

Test No. Date:-

Model	:-	SSI RB 17/802		
Yarn Count	:-	Ne	Nm	Tex.
Roving Count.	:-	Ne	Nm	Tex.
Material blend	:-			
Spindle speed	:-	r.p.m.		
Machine twist factor	:-	English.		
Drafting system	:-	SKF Double Apron.		
Ring Diameter	:-	50 mm.		
Number of spindles	:-	108.		
Back zone draft	:-			
Front zone draft	:-			
Total draft	:-			
Back zone setting	:-	mm.	ins.	
Front zone setting	:-	mm.	ins.	
Colour of cradle button	:-			
Twist wheel	:-			
Builder wheel	:-			
Lift	:-	141mm	9 ins.	
Gauge	:-	825 mm	3.25 ins.	
Production per machine	:-	Kg/hr.	lbs/hr.	

Appendix 8

TEST PROCEDURE

TESTING REQUIRED			SAMPLES
FIBERS	MICRONAIRE		
	FINENESS		
	MATURITY		
	PRESSLEY		
	STAPLE LENGTH		
	SHORT FIBRE%		
	SHIRLEY ANAL		
LAPS	LAP IRREG		
	USTER CV%		
	CUT WEIGH		
SLIVER	EVENNESS U%		
	CV%		
	COUNT MEAN		
	CV%		
	NEP COUNT		
ROVING	EVENNESS U%		
	CV%		
	COUNT MEAN		
	CV%		
	NEP COUNT		
YARN	T.SCP. MEAN		
	CV%		
	COUNT MEAN		
	CV%		
	RKM		
	ELONG%		
	U%		
	CV%		
	IPI		
	SPEC		
YARN APPEARANCE	BLACK BOARDS		
	TAPER BOARDS		

Appendix 7