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COMBINED QUARTERLY REPORT

OCTOBER, NOVEMBER, DECEMBER, 1968

Development Engineering and Process Research Groups,  
together with Manufacturing, Quality Control and  
Packaging.

FH/MJ/68.

17th December, 1968.

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PROJECT 1000 RESEARCH INVESTIGATIONS WITH SHORT-TERM OBJECTIVES

1300 Filter studies

H.G. Horsewell (1) A sample of LUCKY FILTERS cigarettes is being examined and the results obtained so far indicate that the filter does not show any unsuspected filtrational characteristics.

H.G.Horsewell (2) A sample of R.6 cigarettes is being examined. This cigarette has an acidic filter.

H.G.Horsewell (3) The filters attached to Export A and PLAYER'S NO.6 will be compared shortly.

3410 The study of filter materials

H.G.Horsewell (8) A report has been issued covering the work carried out on granular filters. Various means of improving the performance of granular filters are suggested including ways of increasing the filtration of vapour phase smoke constituents.

H.G.Horsewell (9) Methods of producing granular filters by cold bonding process are being studied.

H.G.Horsewell (10) The work carried out previously on filters containing water is being extended to cover filters containing additives other than P.E.I. The effect of changing the tobacco type in the cigarettes is being included. This project will also cover smoke assessment tests.

3420 The effects of additives to conventional filter media

H.G.Horsewell (14) A study is in progress considering the effects of combining zinc acetate and ethylenediamine diacetate.

3430 Filtration of specific compounds

T.W.Tolman (4) The work on filters for oxides of nitrogen has been completed to an interim point.

T.W.Tolman (6) Work has commenced on the search for filters and filter additives for removal of carbon monoxide from cigarette smoke. Attention is being given to transition metal complexes.

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PROJECT 3500 BIOLOGICAL STUDIES

3510 Bioassay studies

E.B. Wilkes (14) Some progress has been made (in association with R. Dagnall) in the writing of a computer programme for part of the analysis of long-term biological experiments. The results of JANUS 80 have been briefly reviewed and a note written.

PROJECT 4100 THE OPTIMISATION AND CONTROL OF TOBACCO PROCESSING

4110 Leaf and lamina processing

R.W. Hedge (1) Some preliminary recommendations on the investigation of process flows are being made on the basis of results to date.

4120 Stem processing

R.W. Hedge (1) A questionnaire on stem conditioning performance is now in the hands of Production Department.

E.B. Wilkes (2) The method of element analysis has been studied and is being applied to results obtained from experiments in Development Hall No.2.

4130 Cut tobacco

R.W. Hedge (5) Tests in the examination of cooler performance are progressing satisfactorily.

R.W. Hedge (6) In a study of mixing in process equipment useful comparisons are being obtained between different types of cut tobacco drying equipment.

4140 Instrumentation for Plant Control

A.E. Yallup (2) Infra-red temperature measurement experiments to determine the emissivities of tobacco materials have been started. The programme is held up due to a breakdown of the Barnes Infra-red thermometer equipment. Before repairs can be effected, circuit diagrams are awaited from the U.S.A.

4150 Quality measurement for product control

A.W. Cronshaw (4) The handbook on standard test procedures used in R. & D.E., Q.C., was written and issued.

A.W. Cronshaw (5) Procedures and methods of measuring moisture content in cases of lamina and stem together with the variation in moisture content within the cases are being investigated.

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4150 Quality measurement for product control (continued)

A.E. Yallup (6) Tests have been completed on strips of flue cured lamina designed to examine the temperature coefficient of the dielectric type electrical moisture measurement in the range 10% to 14% moisture content and over the tobacco temperature range 23° C. to 57° C.  
Tests have been set up at Delhi, Canada, to examine the possibilities of using the B.A.T. continuous moisture meter to measure the moisture content of flue cured strips immediately after an apron type strips dryer.

A.W. Cronshaw (6) Draft Standard Test Procedures were prepared for the "Microwave measurement of moisture in cases of tobacco in the Redrying Plant" and the "Kappa AB.61 measurement of moisture of tobacco after redrying". These standard test procedures were discussed with Mr. Cartmell during his visit to R. & D.E. and will be applied in the current redrying season in Canada.

PROJECT 4200 THE OPTIMISATION AND CONTROL OF CIGARETTE MANUFACTURE

4210 The effects of tobacco properties

F. Russell (1) An investigation of tobacco temperature at making is being applied to the SM.

4220 The effect of the machine

A.W. Cronshaw (16) A standard test procedure for noise measurement has been written and issued.

A.W. Cronshaw Unprogrammed

With the co-operation of S.C.L. a conversion/calibration has been obtained for the R. & D.E. paper porosity instrument in terms of the B.A.T. style instrument at S.C.L.

A.W. Cronshaw A series of meetings have been held at Molins to discuss the Mark 9 making machine and the test programme.

4240 Instrumentation and machine control

A.E. Yallup (3) Work has been completed on the measurement of tobacco moisture at entry to rod and a continuous moisture meter has been fitted to the rails section of a Mk.8 M.C.M.

R.G. Bryant (6) Work has continued on the prototype gravimetric weight control for Mk.8 M.C.M. It has been established that weight control drift is due to temperature rise effect on the weigher's mechanisms. A controlled heater has been fitted to the weigher. Interlock circuit layouts have been modified and a weight indicating meter added - all electronic controls working well. Cigarette making tests have been done.

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4240 Instrumentation and machine control (continued)

R.G. Bryant (8) After a thorough investigation the data logger's facilities have been modified in conjunction with Westinghouse Brakes & Signal Co. Design work involving "storing of alarm signals" will be carried out at R. & D.E. These modifications will yield more flexibility and greater utilisation.

4250 Quality measurement and inspection

A.W. Cronshaw (2) Molins have fitted a wedge type absorber to the scanning head of the scintillation counter type weight control in an attempt to overcome the drift problem. This is being evaluated.

A.E. Yallup (3) The mechanical cigarette handling mechanism has been constructed and is being tested in connection with the hydrostatic firmness tester for routine measurement.

4270 New concepts

F. Russell (2) A report on annular cigarettes has been issued and parts to properly convert making machines to produce small diameter cigarettes are being made.

D.B. Naylor (3) Nothing has been done on the automatic handling of cigarette paper due to work on BATEAU.

E.B. Wilkes Unprogrammed

A computer programme is being prepared for use in the analysis of moisture meter calibration curves. R. Dagnall has been assisting in this work.

PROJECT 4300 PACKAGING STUDIES AND PRODUCT DEVELOPMENT

4310 Study of the overwrap

D.E. Conway (7) The work on the migration of menthol within and from packed cigarettes has been completed.

D.E. Conway (8) A preliminary study of changes in cigarette quality during storage of packs at 50° C. has been completed and further preliminary tests considered.

D.E. Conway (9) Experiments have been completed on optimising heater profile design for maximum shelf life of polypropylene overwrapped H.L. packs. Tests are continuing on the effect of this on the shelf-life of 200s units and on improving the temperature control of the overwrap heat sealers.  
N. Foster

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4320 Study of Carton Materials

- N. Foster (4) A series of tests have been carried out measuring hinged lid pack rigidity as a function of basis weight and caliper.
- D.E. Conway (5) The examination of paper and foil rigidity has been completed. It is intended to attempt to relate material properties to the overall pack properties.
- N. Foster (7) The surveying of specification requirements of carton materials is continuing.

4330 Package design

- D.E. Conway (4) Work on the flexible pouch-pack for pipe tobacco is dependent on suppliers for printed material.

4350 Product development - cigarettes

- N. Foster (1) Work has been proceeding on the production of sample units for estimation of shelf-life properties and for determination of ease of access. An appraisal of the possible application of existing packing machinery to produce a sealed inner bundle has been carried out.
- N. Foster (2) An evaluation of the effect of the packing process on the quality of cigarettes has been carried out. The main parameters studied were cigarette weight and tobacco moisture content.
- D.E. Conway Unprogrammed
- (a) General investigations are continuing, as and when time permits, on the development of a satisfactory head space analysis or any other analytical method which could assist in the studies on flavour performance on packed cigarettes.
- (b) Due to the delays on 4541 further tests have been carried out using the R. & D.E. plunging device on the H.L. packer.

PROJECT 4400 FILTER MANUFACTURE

4410 Preliminary studies

- F. Haslam (7) Work on Project BATEAU is continuing. Supplies  
D.E. Conway of spherical capsules have recently been secured.  
H.G.Horsewell

1002578/8

4420

Improvement of existing process

F. Haslam (1) Work on seam slip during filter manufacture has been written up in the form of a file note.

F. Haslam (2) The problem of optimising acetate filter design is being examined in order to determine the economic implications.

4430

Machine development

F. Haslam (5) A report has been issued on the manufacture of flock filters from viscose staple grafted with P.E.I.

F. Haslam (7) A report has been issued on the performance of the Mexican cone applicator. The question of improved firmness at low plasticiser application levels is being further studied.

J.K. Milner (8) An attachment is being developed to enable BATEAU filters to be assembled on a Molins D.A.PTC machine. The method has been shown to work in principle at a speed of about 50 individual filters per minute. Difficulties arise in practice from variations in size and shape of the hand made capsules currently used in the experiments.

D.B. Naylor (9) An investigation has been carried out into suitable materials for the manufacture of resin ended capsules for Project BATEAU. A Mk.5 cutting head has been adapted for cutting the plastic tube and the resin dipping machinery is currently being assembled, together with the linking transfer conveyors.

PROJECT 4500 ASSESSMENT OF NEW EQUIPMENT

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Primary plant

A.W. Cronshaw (2) A report has been written and issued on the 'screen-less cooler experiments in Liverpool B anch Factory.

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Cigarette machines and ancillaries

A.W. Cronshaw (9) A report has been written and issued on the dust extraction in a Vokes pneumatic cut tobacco feed.

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Packaging machines

D.E. Conway (1) Tests on the Molins H.L. packer with a 24-pocket drum have been delayed due to incorrect dimensions of the drum pockets. Milins are preparing a new drum.

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PROJECT 6000 APPLICATION OF NEW DEVELOPMENTS

6300 Secondary manufacture

A.W. Cronshaw (1) Modified nylon suction bands for Mark 8 cigarette making machines have been produced by Hauser. These are being evaluated in R. & D.E. and Southampton Branch Factory.

6500 Cigar manufacture

J.K. Milner (5) The parts for Honduras were eventually received from the sub-contractors at the end of October and have now been tested and despatched.

J.K. Milner (6) Tripoli are now using one of the anchor wrap materials that gave good results in the original GUNNER exercise.

F. Haslam. Unprogrammed

Various aspects relating to U.K. manufacture are in course of continued study.

10025/880

R. Smurthwaite

Building, Maintenance and Services

Laboratory Block

Offices modified for Research Planning Department.  
Overhaul of panel heating system completed.

Development Halls

No.1 Hall

Services for paper machine completed.

No.2 Hall

Construction of 60 ft. West Mezzanine completed  
Heating and ventilation units installed.  
Services 80% complete.  
Conditioned room being constructed.  
Unit for same on order.  
Office redecoration continuing.

Machine Shop

New "Senior" mill installed and in operation.

General

New box trailer received and in use.

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