

RESTRICTED

NOTES ON GROUP RESEARCH & DEVELOPMENT CONFERENCE

SYDNEY, MARCH 1978

S. J. Green
C. I. Ayres
I. D. Burin
S. M. Candlish
J. G. Esterle
D. G. Felton
W. B. Fordyce
R. M. Gibb
R. G. Nicholls
E. Rittershaus
R. A. Sanford
F. Seehofer
C. J. P. de Siqueira
R. S. Wade
T. I. Wilson

Mr. P.M.Denton was present for the discussion of some of the items related to product development.

1. There has been no change in the scientific basis for the case against smoking. Additional evidence of smoke-dose related incidence of some diseases associated with smoking has been published. But generally this has long ceased to be an area for scientific controversy. Against this background members were concerned that the approach by ICOSI, outlined by Dr. Felton, seemed to imply that research solutions should no longer be sought for smoking products and that, if adopted, the ICOSI programme would drain resources from scientifically useful areas of product modification into areas of dubious or no scientific value. The meeting affirmed that cigarettes acceptable on all counts can probably be achieved by research and, indeed, may in fact be available. The ICOSI concern to replicate the established multiple aetiology for some diseases seems of particularly little value. Nevertheless, passive smoking research on the ICOSI proposals could provide useful material in discussions with authorities.
2. There is an advantage in funding work by medical scientists and if the Tobacco Research Council ceases to be effective then some of the funding might be diverted in this direction.
3. Recent developments related to the Hunter Committee were discussed and particular attention was paid to the situation with regard to cocoa as an additive to cigarettes. It was recommended that we should not invest in a major programme on the bioassay of cocoa and this should be raised with the CAC. The information from the Lokstedt experiments will be searched for additional information on the effects of cocoa, and all members will continue to seek and examine substitutes for cocoa.

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4. Control of odour from factories continues to be important.
5. It is clear that in many countries there is concern over the level of nitrosamines in foodstuffs. This explains in part the sensitivity to the presence of nitrosamines in tobacco, smoke and, perhaps particularly, the levels in sidestream smoke. The latter is a potential threat to the currently held view by many authorities that passive smoking does not constitute a direct hazard.
6. Attention continues to be drawn to carbon monoxide but it is of interest to note that Astrup has withdrawn his claim that carbon monoxide is a major factor in the development of atherosclerosis.
7. A report on the meeting in February with their medical consultants will be circulated from Hamburg.
8. The two themes being contemplated for future work by the Verband are the beneficial effects of nicotine as a drug, and a study of blood and urine levels of specified constituents to explore the degree of compensation by cigarette smokers.
9. In Germany a consumer report (Stiftung warentest, which is partly funded by the Government) is expected in Autumn 1978. This will draw attention to the levels of condensate, nicotine, carbon monoxide and nitric oxide. It is also known that the authorities are interested in a nitrosamine index and a polycyclic hydrocarbon index, but it is unlikely that these will appear in 1978.
10. Professor Schmähl has spoken against tax increases as these potentially lead to an increase in roll-your-own cigarettes or smoking to short butt-lengths.
11. In Brazil a bill has been passed which would allow tar, nicotine and carbon monoxide to be measured and published but it is likely to take three years for the necessary regulations to be promulgated.
12. From the extensive discussion on the current and projected league-table situation, attention was drawn to the pressure on the tolerances associated with the analytical methods.
13. It was suggested that, in general, BAT is slow in transferring results from R. & D. into a practice. For example, BAT was aware of the importance of ventilation in products in the late 1960s which is as early or perhaps earlier than the major competition companies. Yet ten years later there is pressure for crash programmes because BAT is said to be behind in the market place.
14. The conference on smoking behaviour at Chelwood in Autumn 1977 was considered to be highly successful and thought should be given to similar ventures in the future. One theme suggested was the significant changes in the smoking product over the last ten years.

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15. It was recognised that it is essential to maintain our own bio-research facilities as part of the total research programme. In view of this integration, a separate committee to consider the biological programme is no longer necessary.
16. As far as the scientific programme is concerned, the appointment of consultant medical and scientific experts would be welcomed. The position is obviously less clear-cut when all considerations are taken into account.
17. A view from Southampton, together with a note published by I.C.I. toxicologists which urged caution in the application of the Ames test, was circulated. It was agreed that the German laboratory would examine by the sebaceous gland test the series of samples which is currently being submitted to the Ames test in Canada.
18. It was confirmed that the measurement of specific activities is important, although in the later stages of product development activity per cigarette will continue to receive the major consideration.
19. There is need to continue to monitor work in the area of nicotine analogues and substitutes for nicotine. Our own direct work is small but, in essence, the limiting factor is good ideas, and suggestions based upon reliable evidence would be welcomed by Southampton staff.
20. In the discussion of cigarettes with ultra-low smoke deliveries it was pointed out that despite the semi-endorsement enjoyed currently by this type of product, many members of the anti-smoking faction are against smoking per se. Consequently, we should expect, in due course, an attack on this type of product as witnessed by some of the recent moves with regard to non-tobacco smoking materials.
21. Marketing opportunities will exist for cigarettes which are designed to replace the '1 mg. cigarette'. Innovation on taste, tighter control of deliveries which may include a wider range of specified compounds, and improved control of the physical properties of the cigarette, will obviously require attention. The pressure to retain smoking satisfaction may require more attention to be paid to the puff-by-puff delivery profile of the cigarette and perhaps the use of alternative active materials to augment or replace nicotine. A worthwhile aim is to modify the quality of sidestream smoke, and it should be remembered that governments can produce markets by endorsing a particular aspect of the cigarette, e.g., charcoal filters.
22. Celanese have approached BAT with the suggestion that there could be mutual benefit in pooling some aspects of research. Providing certain legal aspects can be satisfied, Celanese representatives will visit Southampton in April for exploratory discussions.

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23. In a somewhat similar manner, Bayer are seeking to collaborate with B.A.T. Germany and further discussions will take place.
24. It is important that central research laboratories continue to investigate new filter concepts, even if the immediate market which is available is unlikely to be large.
25. There was an extensive discussion of the audit of the Southampton research programme and the constructive criticisms were welcomed. Some of the issues raised were clarified and resolved but it was acknowledged that the programme of process and engineering research had consisted largely of important but short-term projects and lacked longer-term cohesive themes. The new programme was outlined and, basically, this will be concerned first with the effects of process conditions on the quality of cigarettes and then with a normative approach of processing to innovative concepts for the 1980s. One form of an extruded cigarette was outlined which might be considered.
26. The production needs for higher efficiencies in secondary manufacture, coupled with primary process automatic control systems, were emphasised and it will be considered whether the process control staff at Southampton can contribute in this area.
27. With conventional cigarettes, the transfer of nicotine to the smoker from the tobacco has very low efficiency. Potentially, therefore, opportunities exist for very big savings in tobacco if this low efficiency can be greatly increased.
28. The work of the staff, particularly those in Southampton, benefit greatly from much more personal contact with overseas staff, including those in functions other than R & D. It was agreed that it was desirable to raise at the Production Conference the need to involve much more the staff from G.R. & D.C. with production problems in the main operating companies.
29. Strong approval was expressed for the role of R & D in machinery development and testing. Whilst emphasising that factory testing is more appropriate in some circumstances, machinery involving new principles should normally be tested first in an R & D environment.
30. There is still interest in the annular cigarette construction, and staff from Germany will visit Southampton in a few months to discuss the progression of this work.
31. The current position on G-13 and DIET processes was outlined. Work in Australia indicates that the incorporation of expanded tobacco gives a product development advantage.

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32. In the discussion of NTMs, the question was raised whether it was known if the U.K. smokers perceived the NTM cigarettes as safer. Since Peer Special is still on the market it may be possible to determine the perception of this cigarette by the smokers who are continuing to smoke the product. This will be raised in Millbank.
33. When the current stage in the development of BATFLAKE is completed direct work in the NTM area will be limited. It is important, however, to maintain our interest in NTMs, e.g., the German contact with Bayer.
34. The meeting was informed that it had been decided to stop further work on the particular design of a simplified PRT machine as it appears technically no longer feasible. The aim of a smaller scale entry to PRT will still be pursued and possible alternatives are being considered from an examination of existing plant. Australia have a requirement for reconstituted tobacco with the same or better filling power than tobacco.
35. Processes are available at Schweitzer for the reduction of nitrate in sheet. Possibly microbiological processes are used by some manufacturers but other means such as extraction or dialysis may well be used.
36. In the discussion on filling power it was again emphasised that, largely as a result of the strong interaction between moisture content and temperature with filling value measurement, it was not feasible to use continuous measurements as a means of process control. In other contexts, the use of filling value measurement of samples taken prior to cigarette manufacture can, of course, have considerable merit.
37. The use of expanded tobacco, low and high porosity cigarette tissue, with and without perforations, and the control of burn rate creates opportunities in more flexible design and underlines the need to continue to develop the scope of the Total Product Design concept.
38. Considerable interest exists in the Dumbell and HEE filters, and in the near future German staff will visit Southampton to discuss further these developments. It was emphasised that the position with regard to non-wrapped acetate supplies should be established now in countries interested in spin-moulded filters and we should not wait until the filters are finally developed.
39. Southampton staff will examine whether the coated carbon filter can be used effectively as a means of producing a mentholated cigarette with a carbon filter.

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40. Consideration of a further conference on the use of the oil-water partition technique will be given when the results from the analytical cross-check arranged at the last conference are available.
41. From the discussion on flavours it was clear that all laboratories are now paying increased attention to this aspect of the cigarette. It was again asked that we should establish at G.R. & D.C. the information required for an effective means of obtaining a nicotine-rich, and preferably flavour-rich extract from waste tobacco. In a different area of flavour work, it was agreed that we should attempt to determine the reasons behind the reduction by WHO in the acceptable level of menthol.
42. It was agreed that insufficient research on leaf is being undertaken. The survey carried out during the year on past leaf-treatments did not yield information useful to the formulation of an expanded programme. An experiment has been planned, however, in which tobacco specially grown by E.L.T. will be used in an attempt to relate differences in flavour potential, as recognised by leaf experts, with differences in the diterpenes present in the green leaves prior to curing.
43. To make substantial progress, however, it was agreed that if possible the R & D facilities in Brazil should be brought to bear on the needs of the Group R & D programme. Several aspects of a potential programme were discussed and the details will be settled between R & D Brazil and R & D Millbank. One possible topic for examination is the degree to which changes in cultural practice can widen the ratio of nicotine to nitric oxide in the smoke from Burley tobacco.
44. The 1977 U.S. Virginia crop will give rise to severe problems with cigarette spotting. It was suggested that further explorations were required to determine the best way of incorporating this type of tobacco.
45. In the discussion on patents the importance was stressed of keeping the Centre informed about patent submissions made by the BAT Group members. Also in addition to monitoring the expiry dates of key patents held by the opposition, it was suggested that a detailed examination of patent activity can sometimes give advance warning of product changes in the market place.
46. Cigarettes of substantially reduced biological activity (SRBA) can be made by product modification and will continue to present a range of marketing opportunities. By SRBA is meant cigarettes where epidemiology would show no greater incidence of disease for smokers than non-smokers. But there remains a need for credible biological tests to facilitate developments. Credibility will continually evolve but could be provided by outside independent medical and scientific advice.

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As indicated in Note 1, we may already have an SRBA cigarette and it may be worth studying epidemiologically the current smokers of low tar products over the next decade. But until this evidence is available alternative products should be developed. To do this, research must provide a continuing basis for cigarette formulation and design for related process needs and better understanding of smokers' behaviour. Defensive research will need to be provided for as far ahead as can be seen and this may well include social aspects.

47. Currently BAT Group spends about half that of Reynolds and P.M. on R & D and if we are to maintain even this position and still compete effectively expenditure should be increased at the same rate as our competition, and our selection of projects must be more effective than the competition.
48. As the 1979 Group R & D Conference will be held in the U.K. it is not necessary to appoint auditors of the Southampton programme. A representative from most, if not all, of the major overseas companies should be able to attend a presentation of the Southampton programme and possibly other programmes. The Conference could then follow in a modified - probably smaller form. I will put forward firm proposals before the end of the year.

SJG:NW

6th April 1978

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