

STRICTLY PRIVATE & CONFIDENTIAL.

15th May, 1963.

To :- The Chairman.

From :- Sir Charles Ellis.

SMOKING AND HEALTH RESEARCH.

1. Work on the physiological and psychological aspects of smoking has been under investigation by Battelle at Geneva since early 1959, at a total cost of £40,716. The major portion, £36,500, of this has been incurred since September 1st, 1960.

These investigations have a bearing on the "Smoking and Health" problem, and therefore I suggest we should consider whether any of the results should be made available to the Tobacco Research Council.

2. An important part of this work [£19,216] has been concerned with tracing what happens to nicotine in the body when it is absorbed as smoke or injected as a chemical either into the blood stream or under the skin. In each of these cases the results support the generally held view that the physiological effects of smoking arise from the alkaloid nicotine. Important and quite new information has, however, been found out about the extent to which people really inhale, and what differences this makes to the amount of nicotine they absorb. In addition, the speed of response to nicotine and the time the effects last have been investigated. This group of researches has gone under the name of MAD HATTER.

These results are of great interest in helping towards an understanding of the act of smoking and will be much in our minds in developing the new type cigarette, "ARIEL". Therefore I suggest we should not disclose this information at the present time.

3. An associated, but reasonably distinct, research named HIPPO [£21,500] has been concerned to find out why people smoke and what is the origin of the hold it has on them. A comparison has been made with the effects of the "tranquilliser" drugs, in particular with reserpine. The result is to show that the action of nicotine is quite distinct from that of reserpine and does not have certain undesirable effects of reserpine. A cigarette soothes and enables the smoker to meet calmly a stressful situation because the nicotine stimulates and enhances directly the

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body's natural reaction to stress. This reaction starts in the brain and leads to the release of a succession of chemical substances [hormones] which culminate in the appearance in the blood of corticosteroids and glucose. These substances, for example in a frightened animal, enable it to release a burst of muscular energy to escape from danger. In man this reaction is more sophisticated and provides for reaction to mental stress and helps mental response. The present-day human reaction to stress is in most people somewhat halting, and many would find it difficult to stand up to the pace and impacts of modern environment without some external assistance. The cigarette, by means of its nicotine, does this by stimulating and enhancing the body's natural reaction. This action is quite distinct from that of tranquillisers or sedatives which merely deaden antagonistic reactions.

These researches have, in addition, shown that the corticosteroids, which are released in the blood by the action of nicotine and produce the above effects, also act directly against obesity. They do this by a three-stage process. Firstly, fat is mobilised from its deposits and brought into the blood stream; secondly, its metabolism and disposal is accelerated and, thirdly, appetite is reduced.

There is a subsidiary anti-diuretic effect, already well-known but which has been verified in the present experiments for the sake of completeness. It does not seem to be important either positively or negatively.

Reserpine, the well-known tranquilliser, blocks all pituitary functions and an important part of this work has been to show that, on the contrary, nicotine, in the doses that can be obtained by smoking, has no effect on, that is, does not block the -

- a] Gonadotrophin releasing factors,
- b] Thyrotrophin releasing factors,
- c] Somatotrophin releasing factor.

On the other hand, it must be mentioned that Burn has shown nicotine releases nor-adrenaline, which is a vasoconstrictor, and increases blood pressure. However no one, except the fanatics, have claimed this to be a danger, and I understand the majority opinion is now that smoking is not significant in the cardiovascular problem.

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3. The people who oppose smoking do so on the grounds that it is an important contributory cause of lung cancer and that it is just a habit with nothing to be said for it other than that it is pleasurable. Once given up it would soon be forgotten. It is my opinion that the results I have described show this view to be untenable. Nicotine is a wonderfully beneficent drug which does not, like morphine, sleeping pills or even dexedrin, lead to cumulative addiction. People keep to their smoking habits over years. If nicotine were not known its discovery would be claimed as one of the great medical advances of the day.

Its absorption by smoking depends on a simple but subtle technique of releasing the nicotine by a method closely under the control of the smoker. It is this which has built up the psychological aspects of smoking which are so strong and so important, but these only arise as a result of the physiological effects being associated by a memory process with a cigarette. Thus a smoker already feels calmed as he takes a cigarette from his case; indeed, it can be shown that there is a physiological response based on subconscious memory even before the first puff is taken.

4. The important result of this research HIPPO is that it gives an experimental basis for believing that the tobacco industry is carrying out an essential and valuable service for the public. It is my considered opinion that the tobacco industry has no reason to allow itself to be pushed onto the defensive; on the contrary, it is justified in taking a positive position that it is providing a product of which it is proud and from which the public benefits. The industry could safely admit that there may be some undesirable features in the products of combustion of the tobacco and paper, but it is vigorously carrying out research to find methods of removing these. It is also recognised that some "chesty" or bronchitic people would be well advised not to smoke, but here again important research is supported by T.R.C. to define this group more precisely.

5. It will be appreciated that the possibility of taking this attitude depends on the results of our research HIPPO, and it is for this reason that I consider it would be wise to disclose them to T.R.C. In the first instance, the Battelle experiments would be examined by the Technical Sub-Committee and also by the T.R.C. medical experts, such as Dr. Day, Dr. Armitage, and their consultant Professor Burn. If the report survives their critical appraisal then, and only then, will T.R.C. face

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the policy decision whether it would be in the best interests of the industry -

- a] to keep this material confidential but allow it to modify their attitude,  
or
- b] to keep the material confidential but show it to T.I.R.C. and the Forschungstelle in Germany,  
or
- c] additionally to show it to our friends in medical circles, such as Haddow, Dodds, Marrian, Roe, etc.

The question of publication in a scientific journal scarcely arises at this stage since the results have not been written up for that purpose.

6. Rather special consideration is required to decide when and how the HIPPO reports should be shown to Louisville, Montreal, Hamburg and Sydney. While it is very much a matter of Group research and as such should be disclosed to them before being shown to any outside body, I should have thought in this case the situation would best be met by a confidential letter disclosing the policy issue involved and pointing out that there was little point in sending over the technical papers until these had survived the critical appraisal of our own experts in this country.

7. I recommend the Committee should authorise that the following reports should be sent to T.R.C. -

Final Report on HIPPO I, dated January 1962. \*  
Report No. 1 on HIPPO II, dated June 1962. \*  
Final Report on HIPPO II, dated May 1963. \*

I further recommend that members of the B.-A.T. Research Group should be informed in general terms of the Committee's decision.

*Charles E. Egan*

\* Copy of these three reports sent to the Chairman.

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