Code/ Researcher	Project/Objectives	Status	Plans for Next Quarter
T-7050 ERF MHB MAN	Human Smoking Patterns as an Alternative to Standard Smoking Regimes 1. To find whether use of the standard smoking regime for bio-assay work gives artificial, elevated levels of specific activity. 2. To find whether changes in products to reduce tar deliveries are effective in normal human smoking. 3. To find whether combustion controlling factor or factors, eg. puff velocity, affect the specific biological activity of the smoke.	A Tandberg tape recorder has been successfully tested as a smoking pattern generator for the Freiri slave smoker.	A programme to achieve the objective is being prepared, prior to recommending purchase of the Tandberg recorder to complete the smoking machine.
T-7087 RLR MPS ERF	Fortification of Nicotine in Smoke Relative to its Tar Content To increase the acceptable physiological satisfaction of cigarette smoke per unit of tar delivered, particularly for low tar cigarettes. (see also projects T-6401, T-6535)	A data survey has indicated that at present PCL levels in blends, modifications of sheet cannot be expected to decrease the TPM/nicotine ratio of the smoke from the blends, unless nicotine is added to the sheet. We are studying the effects of additives to blends on deliveries of total and extractable nicotine and of TPM. In our tests sodium carbonate is	From the survey given in Laboratory Report No.104L, now being prepared, the following ways of reducing the TPM/nicotine ratio will be considered. 1. Alkali filters should be reviewed, since they can reduce

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		the only one to date which decreased the TPM/nicotine ratio, but this was achieved by a selective decrease in TPM. The extent of change in % extractable nicotine is affected markedly by the mode of application of the additive (syringe injection of cigarette, spraying of cut or granulated tobacco). Materials which increased the % extractable nicotine are shown below. (% increase over that for the control, given in brackets). 5% Na_2CO_3 (+220%) 3% Na_2CO_3 (+120%) 3% Urea (+90%) 3% $Ca(OH)_2$ (+110%) 4% K citrate (+34%) 2% Na aluminate (+80%) When oxynicotine was added to tobacco, it gave nicotine in the smoke at a transfer rate of half that given by normal nicotine. Thus, addition of 2.3% oxynicotine to a Matinee blend increased the cigarette	this ratio and increase the smoke's extractable nicotine level. A study of the relation between nicotine filtration and type of filter, its pressure drop, and the tobacco type is suggested. 2. Non-polar extraction of tobacco to reduce TPM yield will be reexamined, to find ways of minimising the nicotine extraction. (c.f. T-6601). The nicotine may possibly be added back via PGL. 3. The nicotine transfer rates of different forms of nicotine from ethanol extracted tobacco will be rechecked and extended to see if the higher nicotine transfer

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		nicotine delivery from 0.44 to 0.96 mg/cigt. Old samples treated with sodium silicate gave very low extractable nicotine figures, underlining the importance we should attach to aging effects in additive studies. At present the validity of our extractable nicotine results is still unsure for low delivery cigarettes, and checking of this is in progress.	holds when extracted tobacco is only a blend constituent (c.f.T-6401). It may be possible to change the pH and buffering capacity of the tobacco in other ways to increase nicotine transfer. 4. Nicotine will be added to PCL until its TPM/nicotine ratio is lower than that from lamina (c.f.T-6535). A reduction in TPM may then be achieved by reducing the lamina portion of the blend; this would probably require increasing the lamina filling power, and reducing its burn rate.