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** DATE AS YEAR/MONTH/DAY: 871105

Organisation of an Inflight Air Quality Study in the Nordic Area.

Discussion with M.BOURLAS and W.FINK about the framework of the organisation.

Planning of the study involves (1) A decision about the participation of an external laboratory, (2) Establishing relationship (information, contract), (3) Formation of the field staff at R&D, PMNE, (4) Validation of the analyses involved by any sort of joint experimentation.

The study itself will then be conducted by the external laboratory and only supervised "at arm's length" by PM. Possible candidates for the external function were FRESENIUS, NEURATH, IPI, JENSEN, TNO and VTT. From those were chosen

- FRESENIUS (wide official reputation, well known in environmental research)
- TNO (need to establish better contacts to this Dutch laboratory).

It is by no means intended to repeat a study by two laboratories, but the Nordic area could be divided into two regions, one of them is served by one laboratory.

** DATE AS YEAR/MONTH/DAY: 871116

Visit to the FRESENIUS Institute, D-6204 Taunusstein-Neuhof. Tel.00496128-744-0, Tfax.00496128-744890.

Prof.Remigius FRESENIUS, Dr.Bernd SCHOLZ.

First contacts established for cooperation in the field of an Inflight Air Quality Study. The manual of the PASS sampler and the report of Oldaker and Perfetti were handed over.

The framework of the study's timetable was worked out as follows:

- (1) First information is handed over and the external laboratories check their capabilities according to time and equipment.
- (2) A second meeting is organised in Neuchatel to show the PASS equipment to the field workers of that study.
- (3) Meanwhile, air carriers are contacted in order to set up a timetable for the sampling procedure in the aircrafts.

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(4) A training course for handling and maintenance of the PASS samplers is organised at R&D, Messrs. Fink and Piade. The results are validated (cross-checked) by a joint experiment.

(5) The contracts are signed between J.Rupp, SHB on behalf of the TI Washington and the external laboratories.

(6) Estimated time for starting the practical work could be begin of 1988. Measurements should be done on nicotine (smoke burden), RSP (overall quality of air), CO (amount of exhaust gases), CO₂ (indicator for air exchange) and RH (indicator of climatic conditions).

** DATE AS YEAR/MONTH/DAY: 871118

Visit to the TNO, Schoemakerstraat 97, NL-2600 AE Delft.
P.O.Box 217, Tel.003115-696900 or 6969034 for Env.Chem.

Head of Dept.Environmental Chemistry:Dr.R.GUICHERIT
Dept.Indoor Environment: Mr.R.W.LANTING

First contacts established for cooperation in the field of an Inflight Air Quality Study. The manual of the PASS sampler and the report of Oldaker and Perfetti were handed over.

The skeleton of a possible study was outlined (see also visit to Fresenius Institute on Nov.16th, 1987). The next meeting will be together with J.Rupp and H.Gaisch on Dec.11th, 1987.

(1) TNO wants to cross check the PASS instrumentation with the CO meters they have used for an IAQ in cars. They do not seem to be confident and do not want to lend their name to an unknown instrument.

(2) The instruments for the above mentioned study are also built into an aluminium suitcase (CO, NO_x and aromatics, non of them monitored, but only sampled). This equipment could be used for assembling a CO₂ device.

(3) At least two possibilities for CO₂ monitoring (indicator of sufficient air exchange) were discussed, (a) SIFOR 2 by Mayhak works on an IR basis, can be combined with a datalogger (SQIRREL) and a probe for temperature and RH, would fit into the metal suitcase. However, this device works with AC-220V, but transformers are available and have been used in a program with KLM, (b) TECHMATION, dimensions ca. 20 x 20 x 50, works on batteries, but does not fit into

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the suitcase.

(4) Possibilities for O3 and NOx monitoring exist as well, but the instruments are larger (they fit into a 19" rack). Some of them are not suited for inflight studies as some fumes are exhausted during analysis.

(5) Number of samples were discussed. I proposed at least 5 samples per aircraft type for 3 types at least (city hopper, city jet and jumbo/airbus). Sampling time ca. 20 minutes, so that 3 individual samples can be taken during a flight of 60 - 90 minutes. TNO will prepare some estimations of the costs involved.

(6) According to TNO, the syndrom ascribed to "bad air" in aircraft cabins is mainly due to CO, which could reach very high concentrations during start and landing. The eye-burning and dry lips could be ascribed to the O3 concentration, which goes up to 200 micrograms/cbm during the flight.

** DATE AS YEAR/MONTH/DAY: 871123

Meeting with J.BESQUES at EEMA, Lausanne.

Preparation for a forthcoming meeting with Prof.LEU, St.Gall.

Discussion of the statistics involved in N.WALD's paper "Does Breathing...". Exchange of views on misclassification (paper by P.LEE). Examination of a draft concerning the estimate of public costs involved in excess risks.

** DATE AS YEAR/MONTH/DAY: 871127

Preparative discussion for a meeting between Prof.LEU, St.Gall and Marcovitch, Besques, Reif on Dec.3th, 1987.

** DATE AS YEAR/MONTH/DAY: 871202

Meeting with Prof.M.GUILLEMIN and Dr.T.VUDUC of the Institut d'Hygiene Industrielle, rue du Bugnon 19, Lausanne, Tel.492131.Dec.2nd, 1987, 0900h. IAM also present.

Exchange of views concerning recent topics like ETS and possible detrimental effects. Both of them believe strongly in what is found in literature. The whole atmosphere was in a way hostile to smoking, however not to persons. No ashtrays were found.

According to VUDUC, this is not "a personal dislike, but dictated by the trade unions and the personal stewards".

Financial support for some of the ongoing studies was offered. The interests of VUDUC (main player in terms of the experimental side) center around (1) Establishing separate

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indicator substances for irritative effects of smoking (e.g. formaldehyde) and accumulative or cancerogenic effects (e.g. PAH's, nitrosamines), (2) the physical fate of the SS substances changing to ETS (adsorption, desorption, vapourisation, condensation, ageing, aggregation, etc.).

A more or less detailed outline of these projects will be sent to PM in due course.

In a oral review of the existing literature, it was tried to weaken the strong belief into weak statistical data by pointing out that (1) The dose/response curve is not well established in the area of ultra-low doses, (2) The existing statistical data are very "soft" with a view to minor changes in diagnosis and/or attribution, (3) Neither evaluation nor pooling can be reliably based on such low numbers of cases, (4) Each evaluation using the Nathan-Haenszel approach shows insignificance whenever the lower end of the bias touches or goes below 1,00.

Meeting at BATTELLE Institute Geneva, Route de Drize 7, 1227 Carouge. Tel. 004122-270270.

Dr. AUGUSTO PORTA, Messrs. STEFAN PERCZEL and MIHAI CICOTTI. IAM also present.

Discussion of a possible collaboration in Air Quality Studies in three main fields, (1) Inflight air Quality Studies, (2) Establishing the Sick Building Syndrome for Switzerland and (3) Field Studies at workplaces, public places, etc. These studies should comprise at least the measurement of four compounds (RSP, nicotine, CO, CO2) with the possible addition of counts of microbes, yeasts and fungi.

A detailed offer, broken down into different option, will be sent to PM within three weeks.

** DATE AS YEAR/MONTH/DAY: 871203

Lunchtime meeting with Prof.Dr.LEU of the Univ.St.Gall. J.Besques, IAM also present.

The target of this meeting was to renew old contacts and to ask Prof.LEU if he wants to update his previous work on the socio-economic costs of smoking. The atmosphere was very relaxed and friendly, Prof.LEU being a smoker of cigars himself (they help him to work overnight). However, recently he tried again to stop smoking.

He warned the tobacco industry, that on updating his work, he must include some new aspects, the lack of which was a

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major point of criticism by Prof.AEBELIN:

(1) LEU used a mean value of health care costs during the life time. But more than 60% of the medicament costs are consumed in the last year of human life. For all premature deaths, this would dramatically change the cost impacts in certain age cohorts.

(2) The old approach of calculating the hypothetical "loss in salary" does not take into account the value of lives of groups like household women, retired persons and children. Therefore, this approach was changes to the "willingness to pay for one's health". He admitted that these information have to be taken from a questionnaire and then transformed into figures, which opens for biases of all kinds. He did not seem to be informed in-depth about the type of questionnaire himself. Literature for this is found in Dorothy RICE and WILSON, Millbanks Memorial Quarterly Review, 1986.

(3) A new study has to include for sure the effects of passive smoking, which would render the situation less favorable for the industry.

A subsequent meeting was arranged for February 3rd, 1988, 1130h, Stadtkeller St.Gallen, where a possible collaboration will be discussed anew.

** DATE AS YEAR/MONTH/DAY: 871204

Meeting with AUSTRIA TABAK, A-1090 Vienna, Porzellangasse 51, Tel. 0043222-342600, 1500h.

Gen.dir.B.MAUHART, Prok.Dr.R.LACHNER, Dr(Ms).WARNER, Dr.H.KLUS.

HGA and J.RUPP also present.

The target of the meeting was to present the slide and overhead show by J.RUPP on the Sick Building Syndrome, ACVA activities and wrong interpretations of statements found in the literature on ETS and detrimental effects.

AUSTRIA TABAK should be prompted to start some studies themselves and to include these topics into the Hearing on ETS Effects, which will take place May 5 - 6, 1988 in the Austria Center, Kagran, Vienna. KLUS strongly opposed in saying that he had promised to the invited speakers not to use this hearing for a PR action. If this were the case, then he (and according to him) most of the speakers would withdraw. The feeling of the other participants was, however, that (1) Each research must be seen in the right

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context, (2) That for risk establishment a benchmark of air quality is needed.

A compromise could be that the minister of public health, Mr.LOSCHNAK, himself, asks for "discussion in the context of overall air quality" in his opening speech.

** DATE AS YEAR/MONTH/DAY: 871207

Visit to FRESENIUS Institute, Taunusstein-Neuhof, Germany.
Tel.00496128-744-443 (direct to Prof.R.FRESENIUS).
Prof.R.FRESENIUS, Dr. B.SCHOLZ.
HGA, J.RUPP also present.

Target of the meeting was to show the institute and the status of discussion concerning ETS studies to J.RUPP. Some progress was also made in the preparation of those studies:

(1) F. will start to study the analytical side of this study, especially the recovery and MS analysis of nicotine samples.

(2) F. will put together a survey of instruments to be used in this study. From our side, an input should be made concerning probes for RH measurement.

(3) F. will try to establish the analytical threshold for the four main analytes as low as possible.

** DATE AS YEAR/MONTH/DAY: 871208

Meeting with Prof.BERTHOLD SCHNEIDER, Medizinische Hochschule Hannover, Institut f.Biometrie, Konstanty-Gutschow-Str.8, Hannover-Kleefeld, Postfach 61 01 80, D-3000 Hannover 61. Tel. 0049511-532-4375 (Prof.S.direct).

In a very friendly atmosphere, the problems of statistical interpretation of the epidemiological data were discussed on a high level. Prof. SCHNEIDER is willing to pay a visit to the USA to meet his colleagues in the field of statistics, the most of which he knows personally. The expected time will be April 1988. Until February 1988 he will work on papers dealing with the following subjects:

(1) The "competitive risk" approach will show that the loss in mean human life expectancy due to the exposure to ETS is not even measurable and can be expressed in fractions of minutes.

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(2) A parallel to the "uncertainty principle" in statistics will show that the product of "differential excess risk" and "number of probands" is a constant with a value of 20 - 30. This means that risks lower than 1 over 10000 can only be established by an unrealistic high number of probands.

(3) With a view to the numerous biases involved in epidemiological studies, one can only speak about a significant excess risk above $RR = 2,00$.

(4) Factors of transforming exposure effects of the MAC (TLV, STEL) type to life time effects.

(5) The two pooling procedures proposed in literature (Fisher, using the p-values and Mantel with a logarithmic approach) are both questionable. Mantel's procedure assumes a non-dependency of result on the method used in the single studies, which is never the case.

(6) The fact that the cases are mainly taken from hospitals is in itself a selection, which does not only change the numbers of cases but also the contingency factors ("Berkson's Fallacy").

(7) If two parameters are both dependent on a third parameter, than this fact would pretend a correlation of the former ("Simpson's Paradoxon").

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