INTRODUCTION

Since many years the problems of load and load capacity of task performers have been raised with respect to scheduling, duration and nature of the work and the possible effect thereof on the behaviour and well-being of the task performer.

In 1977 a start was made at the Netherlands Institute for Preventive Health Care/TNO with a project*, of which the purpose could roughly be defined as follows: To develop a useful measuring instrument capable of demonstrating the (assumed) effect of the performance of a task on the task performer and, assuming that this would prove possible, to ascertain to what extent the task effect changes under different task conditions.

The majority of research has been concentrated on describing short-duration effects of physical components of a task on the individual performing that task. The investigations aiming to demonstrate more lasting effects of the task performance on the one hand and the effects of an invariably present mental component of a task on the other, are faced with the absence of a good measuring method enabling interpretation of the to be determined effect in a quantitative way (Broadbent, 1979).

Some known indicators of changes in the condition of the organism can be used under properly controlled laboratory conditions, but their indicator value greatly diminishes when they are used in a real field situation (Johnson, 1970; Lacey, 1967).

The spectrum of influences under which such indicators can change is actually so wide that it is difficult to represent them quantitatively and to interpret the effect of the actual task examined.

The conclusion that must be drawn from the foregoing is obvious: measuring results in respect of the effect of the task on the task performer must actually represent this effect and not all kinds of other, possible, underlying factors.

It was decided to set up a project for examining the effect of an occupational task on the task performer. For practical reasons the task of a

* Members of the project-team are Drs C.H.J.M. Opmeer and both authors.
busdriver was chosen. Measurements performed in this investigation can be roughly divided into two categories, viz., measurements with respect to the individual (physiological and psychometric measurements) and with respect to the bus (involving two components: speed of the bus and steering-wheel movements). These measurements are performed under different task conditions (routes, shifts) with respect to task performers in two age groups. In order to improve interpretation of the data, events in and around the bus were observed during the work. In determining the research strategy it was assumed that the effect of the task performance is a cumulative effect. Thus, we assume that the condition of the organism changes under the influence of the task to be performed by this organism. This consideration led to the decision to measure the assumed effect on physiological and psychometric variables not during performance of the task but before, during some rest intervals, and after the performance of the task. These measurements are carried out in a specially equipped mobile laboratory, designed for the purpose. The task-specific measurements are, of course, carried out during task-operation. Apart from the field study just described, the project contained a methodologically different but in view of the purpose integrated part: the accident analysis.

THE ACCIDENT STUDY

At the beginning of the above-mentioned project during a general orientation on the busdriver's profession an investigation was started of the archives of accident reports of busdrivers in the company where the project was to be carried out. It appeared that the contents of the archives together with other available information about the accidents, the busdrivers and their work-organization, might be interesting for a more detailed analysis relevant for the purpose of the project. It was assumed that the occurrence of a traffic-accident could contain information about possible effects of the task performance of a busdriver, and of the conditions of this task, on the man. However, also in the field of accident research one is faced with the absence of a generally applicable methodology (Hale and Hale, 1972).

The accident study contains two parts because the initial explorative investigation of the above-mentioned accident archives could be followed by a second study of the accidents of a different establishment of the bus