Probably the clinical data provided by the reports received is not entirely representative of the spectrum of illness in the general population because of the tendency for severe illnesses to be investigated. The age and sex distribution of the 700 cases analysed is similar to that reported in North America.^{20 22 23}

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New Invention

Hayman Perching Stool

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The Hayman Perching Stool was originated at the Royal National Hospital for Rheumatic Diseases, Bath, by collaboration between a senior occupational therapist (Mrs. J. L. B. Freeman) and a research technician (Mr. D. Hayward) with the aim of producing a stool to meet the specific needs of the disabled in the home. Early development work was undertaken as a research project by the A.R.C. Experimental Workshop. Final development work and the clinical trials were carried out in collaboration with the Bath Institute of Medical Engineering, through which funding, patents, and manufacturing were arranged.

The perching stool is intended to improve the independence mobility, and comfort of the user. (see figs. 1 and 2). There are many routine actions which require standing for short or comparatively lengthy periods. Preparing food, washing up, answering the telephone, standing at the wash-basin, are all normal functions of the average housewife's life. For the many thousands of them disabled, however mildly, by rheumatoid arthritis of hips, knees or feet, osteoarthritis, spasticity of any other chronic limb disability, the ordinary household stool is an inadequate aid. For the man similarly afflicted there are many jobs in which the need for some simple but effective aid is obvious: at the work bench, the desk or drawing board, the switchboard or counter.

To 1½ million disabled people in Britain who are the potential users of such an aid may be added the frail elderly—some 6·5 million over 65.

Design

Six main features had to be incorporated into the design:

- (1) *Armrests*: To give firm aid when rising and sitting and to provide a rest for the arm while working or relaxing.
- (2) *Adjustable seat*: To permit variation in angle to accommodate all heights of person and degrees of flexion deformity in hip and knees.
- (3) *Firm, stable four-legged construction*: Essential to the confidence of the user and equally important to avoid tipping when rising or sitting.
- (4) *Non-slip resilient seat*: To avoid a tendency to slip forward on an angled seat, and to accommodate small nodules or sensitive areas.
- (5) *Central cross-bar*: To avoid accidental banging and possible injury to thin skin in steroid-treated patients.
- (6) *Non-slip feet*: To prevent movement when used on tiled floors.

Prototype models incorporating all these features were developed and placed on trial in the hospital and on loan to patients on discharge to use at home.

Preliminary Home Trials

Seven women patients were selected for participation in the home trials, representing an age group from 24 to 57, and varying degrees of disability. Their problems were observed and six of them provided written comments and a comparison of the stools usefulness with others.

All said it was better than the stool of chair used before. They considered it an "aid for disabled" rather than a piece of house-

hold equipment. Four wished to keep their trial stool, and two did not because they were of short height and found their feet could not touch the ground while sitting well back. Five users found it easy to move, four found the adjustment adequate and were to increase the number or scope of their activities.

Hospital Trials

The hospital trials were carried out by siting the stool in various departments and observing use and reactions. The trial period was three months, during which the stools were used by several hundred patients of varying degrees of disability in varying situations.

One stool was placed in outpatient reception. Fixed at its lowest height and angle, but still higher than all other seats available, it was positioned against a wall. Patients of both sexes and all ages chose to use it, and all users liked it and remarked on the arms. In the ward washing area the stool was hotly contested for by two patients, one with hip replacement, the other with flexion deformities of the knees, walking with two sticks. Other severely disabled patients using walking frames and crutches also used it. They commented on the arms to help them up and that they could rest their walking sticks against it.

In the remedial kitchen the more unstable and disabled preferred the stool to an ordinary upholstered swivel-top stool. Some patients with very early rheumatoid arthritis but very little disability found the arms slightly restricting. One lady with dropped feet and poor balance plus multiple rheumatoid arthritis managed all her simulated normal household tasks using the stool and felt unsafe without it. In the physiotherapy department the stool was used in the hot pack and wax treatment room and patients unable to use the lower chairs found it comfortable and helpful.

Further Development

As a result of the trials, additional bar-positioning holes were incorporated in the frame to allow greater adjustment of the seat as regards height from the floor and angle of rake. Improvements were made to the material and shape of the seat to minimize further any tendency to slipping. Formed handles were designed to improve ease and security of grip. A back-rest was designed as an optional extra.

The main development, however, resulted from the wide range of applications for the stool which became apparent during the clinical trials. It was realized that the user could obtain much benefit from the stool if it was sufficiently easy to move it. The next stage, therefore, was development of a perching stool also capable of being used for short distances as a walking frame. The front seat supporting bar was removed entirely, and replaced by small but secure pegs. This allowed the seat to be lifted and swivelled back into an upright position, permitting full clearance for the user to stand within the framework and use it as a walking frame. In addition, the non-slip feet of the Perching Stool were replaced, in the Perching Walker, with crutch-type suction foot-rubbers.

Dimensions are: height 34in. (86cm); width 18.5in (47cm); seat height 25in-31in. (63cm-79cm); weight 12 lb (5.45 kg).

The Hayman Perching Stool (OM70) and the Hayman Perching Walker (OM75) are manufactured and marketed by Ellis, Son & Paramore Ltd., Spring Street Works, Sheffield S3 8PB.