

MODIFICATION FORRESTER-TYPE COMBINATION CERVICAL AND STURDY BODY BRACE DEVELOPED

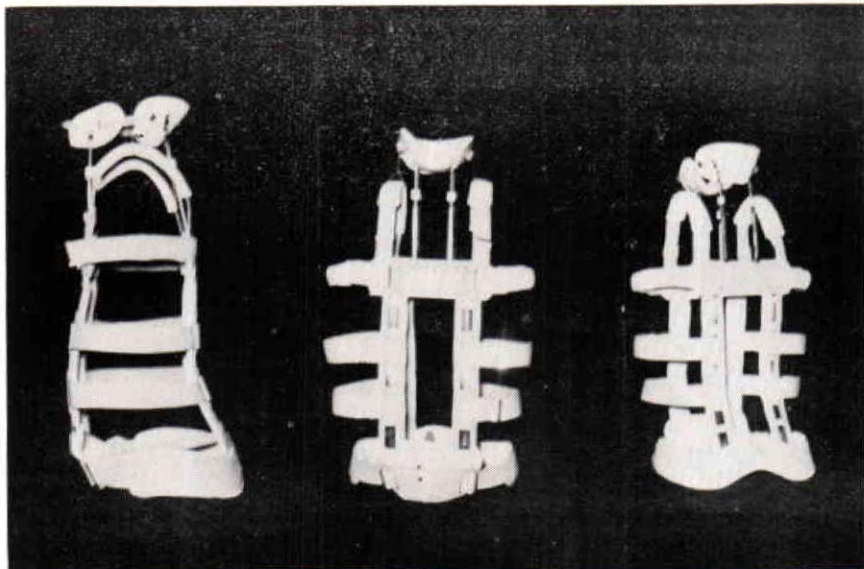
By HUGH L. WILLIAMS, M.D. and
T. M. DAVIDSON, C.O.

Dr. Williams: Long dissatisfied with the "Minerva jacket" cast both because of its discomfort and my own personal inability to get a fit that I liked, I was interested in a paper presented in Banff, Alberta, Canada at the American Orthopaedic Association three years ago. This presented, as a sidelight, a brace new to me, combining the Forrester-type occipito-mental neck brace with a sturdy body brace, and being used post reduction in neck fractures, dislocations and arthrodesis.

When I wrote to the author of the paper, Dr. Hira Branch of Grand Rapids, Michigan, he kindly sent me a diagram of this brace. Since then, I have been using it, or our present modification, for all of my own neck fractures, dislocations and arthrodesis.

The original brace, as diagrammed, had eight-inch horizontal bars on chest and pelvis on the anterior half and the same eight-inch bars superiorly and inferiorly on the posterior half. After three clinical trials, it was found that this allowed a great deal of "play" which alarmed me both from the stability and from the discomfort of the straps passing over or around the anterior superior spines of the pelvis. I took my problem to my Orthotist, Mr. Theron M. Davidson, of the Indiana Brace Shop at Indianapolis, who immediately came up with what we have felt is a good solution. As shown in Figure 1, it is a pelvic band in place of the inferior eight-inch bar on the posterior half of the brace.

Of course, we cannot claim complete comfort of the brace, but since this addition, the brace has given much less discomfort. Compared to my own "Minerva jacket" both the relative support and the comfort of the patient has been much enhanced. I also note that a great number of our other local Orthopaedic Surgeons have adopted it. And, since a recent



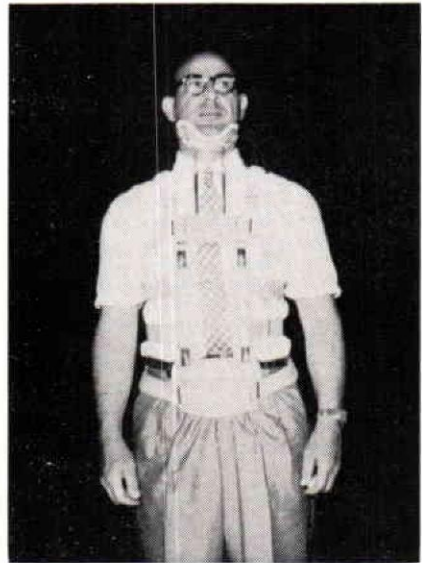
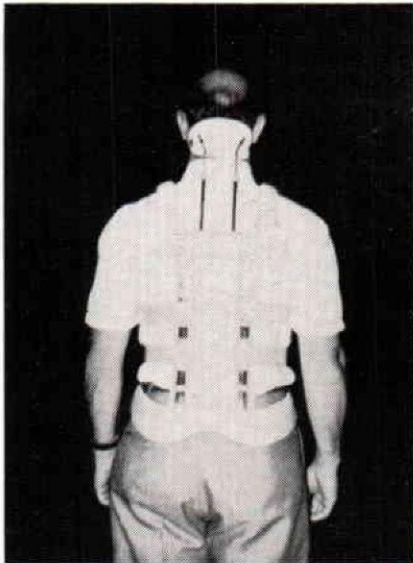
clinical demonstration at the Indiana State Orthopaedic Society Meeting, Mr. Davidson and I have been receiving many requests for diagrams from other Orthopaedic Surgeons and Orthopaedic Appliance Manufacturers.

I personally have used it on seven cervical spine arthrodesis, five acute fractures or dislocations of the cervical spine and one osteomyelitis of the cervical spine. Six of the arthrodesis have now completed their period of fixation and are completely successful with position maintained perfectly; the other case is less than six weeks since surgery.

Four of the five acute traumatic cases showed perfect maintenance of position. The other case showed some evidence of anterior subluxation before the brace was applied and developed another 20° after being placed in the brace. I do not believe this was the fault of the brace, since we were able to control the neck's position excellently in the brace.

The osteomyelitis was in an aged person in which further surgery was almost an impossibility because of surgical risk. The brace maintained the position excellently for over a month with evidence of bone healing and no further destruction of bone when the patient expired of a concurrent subdural abscess which had been a complication before the brace was applied.

Personally, I have been most satisfied with the stability and comfort afforded by this brace. Although the Minerva jacket still has its place in dealing with some children, recalcitrants and mental cases that cannot be trusted with buckles and straps, I do not plan to use it again unless forced to. My heartfelt thanks go to Dr. Branch and Mr. Davidson for the modified brace, truly a useful addition to my armamentarium of Orthopaedic Appliances.



T. M. Davidson, C.O. The metal work involved in the brace discussed by Dr. Williams consists of the following parts: Starting from top to bottom, the occiput and chin rest is of the four-poster Forrester type. We make our four tubular adjustment tubes of steel, $\frac{1}{4}$ " I.D. x $\frac{3}{8}$ " O.D. Tubes average about six inches in length, according to the size of the patient. The tubular adjustment tubes are riveted to the thoracic and sternum plates, made of .072 $1\frac{1}{2}$ " x 8" 2024-T3 aluminum. Bilateral anterior and posterior upright

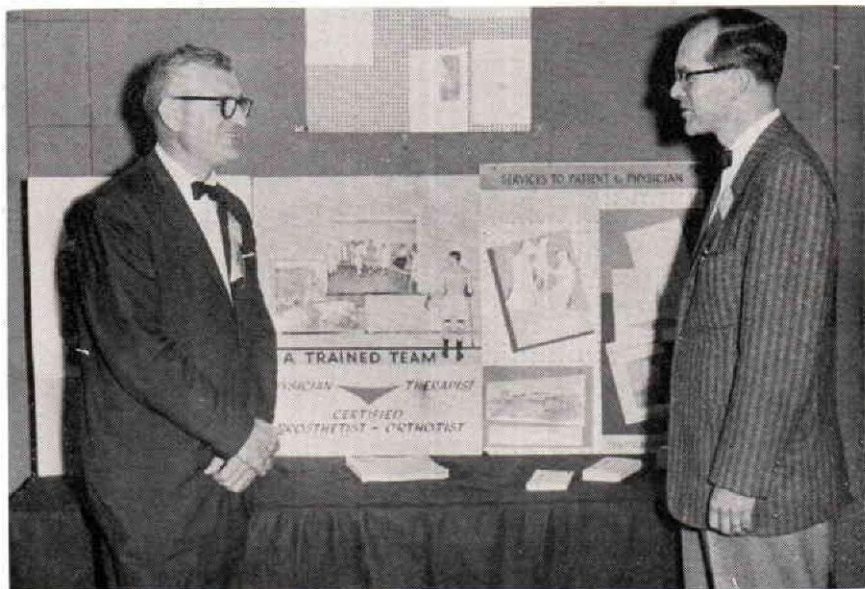
bars are riveted to thoracic and sternum plates with a spread of five inches, bar stock $\frac{3}{4}$ " x $\frac{3}{16}$ " oval 24 S.T. aluminum. The pubic plate is riveted to the anterior uprights $1\frac{1}{2}$ " x $6\frac{1}{2}$ " x .072 2024-T3 aluminum. Butterfly pelvic band $1\frac{1}{4}$ " x .072 2024-T3 aluminum is riveted to posterior uprights. All of these parts are interchangeable.

The leather work consists of: sponge rubber padding lined with pearl horsehide, and covered with smoked elk. Adjustments are made of $1\frac{1}{2}$ " non-elastic webbing. The leather work covers the pubic plate, extending leather well below metal plate, approximately $3\frac{1}{2}$ " at center of plate, tapering to $2\frac{1}{4}$ " at groin, allowing freedom of leg movement. The pelvic band, sternum plate, and thoracic plates are covered with leather, well padded with sponge rubber, and lined with pearl horsehide. The uprights are slotted for adjustment purposes and to attach $1\frac{1}{2}$ " non-elastic webbing. Shoulder straps are one-inch non-elastic webbing covered with one-inch plastic tubing. Axilla webbing strap attaching thoracic plate to sternum plate is also covered with plastic tubing. All buckles, both one-inch and one-and-one-half inch, are the safety-type buckle with metal tuck loop.

This modified brace can be applied to patient while on a Stryker frame.

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CEREBRAL PALSY MEETING HAS CERTIFICATION DISPLAY



The 1958 Meeting of the Academy of Cerebral Palsy was held at Providence, Rhode Island. Shown above are—Dr. Stanley D. Simon and John Buckley, C.O. & P., at the Certification Display.