IN DEALING with a large number of peripheral nerve injuries due to war wounds, we have been impressed with the number of patients who recover function spontaneously, and with the satisfactory degree of recovery that many of them eventually attain. Even in the cases that have been explored with the expectation of finding the nerve trunk completely severed, a surprisingly large percentage have shown no disruption of continuity of the nerve. These observations seem to apply less to the incisional type of wound due to bayonets, knives and the like, but to be more characteristic of the wounds due to high velocity projectiles. In order to confirm our impressions, we have analyzed the histories of 154 men with lesions involving one or more of the three major nerves to the hand, whose wounds were due to projectiles. In 80 cases the wounding agent was a bullet, and in 75 instances the agent was a metallic fragment from a shell, grenade, or mine, which has been called "shrapnel." One man sustained separate bullet wounds affecting major nerves in each arm, so that the series comprises 155 case reports.

DESCRIPTION OF THE CASES

The patients were all sailors or marines whose wounds were sustained in the Pacific theater of war. They reached our hospital on an average of three months from the time of wounding. In this interval they had received excellent care aboard ship or in the various land-based Hospital Units of the Navy, and in general their condition on reaching the mainland was excellent. The number of serious complications was remarkably low. Approximately one-third of these patients were transferred to other hospitals before our studies were completed, and a few additional have been received too recently to permit us to establish a definite prognosis as to spontaneous recovery.

In 40 cases the principal nerve injury implicated the radial nerve; in 20, the median; and in 43, the ulnar. There were 27 instances in which all three major nerves were simultaneously involved; 17 cases represented a combination of median and ulnar; 6, the radial and median; and 2, the radial and ulnar.

In 5 cases the level of wounding was in the neck; 29 were wounded in the axilla; 69 in the upper arm; 12 in the region of the elbow; 36 in the forearm; and 4 were wounded at the wrist.

IMMEDIATE EFFECTS OF WOUNDING

In the immediate history of wounding in these cases, there are four features that occurred with sufficient frequency to acquire significance. These are: (1) a lack of sensation of penetration, and sometimes an absence of any

* The opinions expressed in this article are the private views of the authors and are not to be construed as official or reflecting the views of the Navy Department.
sensation of "impact": (2) the impression that the extremity has been "blown off"; (3) the occurrence of involuntary contractions in the hand and arm; and (4) a primary phase in which there is both motor and sensory paralysis of the wounded extremity.

The majority of men feel the impact of the projectile as a heavy blow with some blunt object. They rarely experience any sense of penetration, and if they have been showered with dirt and pebbles, as in the explosion of a shell, they may be unable to distinguish the impact of the debris from that of the shell fragments. In this series, 26 per cent of the men stated that they did not feel "impact" and were not aware that they were wounded until they saw blood flowing from the arm, or found that the hand would not respond to command.