

as to the course of events in the west prior to the 40's. Even well-read men may admit this without shame, by reason of the great lack of available published information touching that period. It is known that Captains Lewis and Clark were sent northwest to visit the British domain and Captain Pike southwest to the Spanish territory, immediately after the Louisiana purchase; but how many will claim to know what was passing in the west between the dates of their return and 1842? After that year, indeed, the curtain which had been allowed to fall back over this mysterious domain was thrown open wide, and Fremont's, Emory's, Sansbury's and Marcey's official explorations; the Mexican War; the Oregon and Mormon immigrations, and the discovery of gold in California, laid the hidden west bare to the daylight.

It is this intervening space that Captain Chittenden covers in his new work. It is rather a large book, being in three volumes. It is published by Francis P. Harper, in a style uniform with his edition of Dr. Coues' Lewis and Clark, Pike, Thompson-Henry and others, and shows the mechanical and typographical perfection of those works. It covers a great deal of ground, as may be seen from a rapid survey of the contents. It begins with eight chapters on the fur trade in general, the methods employed, relations with Indians, liquor traffic, trading posts and the life of the trappers.

Next follows the main substance of the book, the narrative proper. Beginning with the Louisiana Purchase and the settlement of St. Louis, it takes up in succession the origin of the fur trade, the careers of Manuel Lisa and his associates, the Astoria venture and the overland journeys in connection with it, General Ashley and the Rocky Mountain Fur Co., Jedediah Smith, Captain Bonneville, Nathaniel J. Wyeth, the Oregon Trail and the Santa Fe Trade. Part Three deals with contemporary matters: the war of 1812, the Aricara campaign of 1823, the Yellowstone expeditions of 1819 and 1825, the smallpox scourge, and military, scientific and missionary affairs in general. Part Four consists largely of personal adventure, Jim Beckwourth, Alexander Harvey, Hugh Glass, John Colter and men of their type, and a survey of the region, its animals, plants and native tribes concludes the book.

All this is told in a pleasant narrative style, something like that of the late John Fiske; not too greatly disfigured by notes, but amply backed by first-hand authorities, some of them now printed for the first time from long-hidden documents. Letters and diaries are given, some in facsimile; autograph manuscripts and signatures; several plates are reproduced from the inaccessible journal of Prince Maximilian; and

a large folding map is added, which evidently embodies an enormous amount of research and labor, and will be of the greatest assistance to any student of western history.

Besides adding to our knowledge, Captain Chittenden demolishes some of our errors, and deals hardly with Marcus Whitman, the famous Flathead delegation and some of George Catlin's statements among the number.

A. T. R.

SCIENTIFIC MISCELLANY.

Common salt, snuffed up the nose in doses of four grains, has been reported by Dr. George Leslie to have remarkable effects upon the nerves of the face. In thirty or forty cases of toothache, facial and other neuralgia, the pain disappeared almost instantly, and only two cases failed to yield to the treatment.

While smokeless powder has been expected to give battle scenes in the future a greatly changed appearance, a new German shell is intended to reverse them. The powder charge of this projectile contains amorphous phosphorus, and when the shell bursts it emits a thick white smoke that shows the gunner even at a great distance, how accurate has been his aim. The smoke also tends to obstruct the enemy's view.

The protective vest of Jan Szczenpanik, the Polish schoolmaster inventor, is most remarkable as a product of the weaver's art. The fabric is undyed silk, about as thick as the material of a winter overcoat, and it is claimed that the extraordinary thread combination, gradually worked out by weaving experiments, gives the elastic fiber the cohesion and resistance that make it proof against dagger-thrusts and revolver bullets fired at short range. The silk vest, fully covering the breast, weighs about three pounds.

There are cases of thought transfer and like effects that puzzle even scientific students. In a recent lecture, Sir Thomas Lander Brunton pointed out that particular senses in some persons are extremely sensitive, and showed that slight impressions may sometimes transfer thought, and that impressions made upon one sense may effect another. Visions have been brought about by some defect in the eye, and voices have been heard through some defect in the ear, and it is probable that some defect in the nerve going from the eye to the brain may cause hallucinations. But there are other phenomena, impossible to explain at present, that Sir Thomas suggests may foreshadow the discovery of brain-waves similar to the

waves in Marconi's wireless telegraphy.

Electricity, aided by chemical action, is looked upon by M. I. Skvortzow as the chief molder of the earth, instead of heat. The earth's heat, which has increased in importance as the earth has taken a more material form, is attributed to electric currents, which circulate near the surface, the earth's interior being possibly as cold as the greatest depths of the ocean. Changes in the aspect of the earth, as well as meteorological phenomena, are supposed to be due to electric currents induced by solar influence. The temperatures of different planets depend less on their distance from the sun than on their reserve of energy and on the currents induced by the sun through their axial and orbital motions.

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