

ions. Indeed, the atomic theory has received strong support from the recent studies of electrolytic dissociation. J. J. Thomson's recent work on cathode-ray phenomena has led him to results that indicate even the divisibility of atoms into negatively electrified corpuscles.¹

PROGNOSIS.

The soothsayers of old were looked upon with awe when by flight of birds, by falling star or by weird incantations they foretold the future. When to-day by examination of the tongue or pulse, by throwing a light into the eye so that he may inspect the eye-grounds, by listening to the working of the lung or heart, or by the study of secretions in the test-tube and under the microscope, the physician pronounces upon the fate of his patient, the same feeling of mystery comes over the listener, and the same unconscious homage is done the superior being who can peer into the future as was accorded the soothsayer. Much more credit is often given to a physician for a correct prognosis than for the acute diagnosis or skilled treatment that underlies his statement as to the course of the disease and its termination. He predicts that on a certain day the crisis will occur or the rash will disappear, or convulsions may take place. With wonder the laity see what was foretold come to pass and their amazement is great and the physician is credited with insight almost supernatural. Even though the doctor in his helpless ignorance may say that he can not tell what the result will be, that the patient may recover and live to a ripe old age or may die within twenty-four hours, he is accorded, perhaps unmerited, praise for his ability and the question is discussed as to how the doctor could tell such and such would happen.

The ability to make a prognosis depends on no mysterious or occult power, on no supernatural gift, but on study and experience. The natural history of disease, the effect of treatment, and an accurate knowledge of the existing conditions present in the given case must be known. This enables the physician to take a comprehensive view of the case and to hazard something more than a shrewd guess. A prognosis may be based largely upon an accurate knowledge of statistics, yet each case has to be considered by itself, the surroundings of the patient, the virulence of the disease process, the resisting power of the invalid, his individual peculiarities, and the condition of all the vital organs. It is here that the physician of broad education, of wide experience and of shrewd observation is often enabled to foretell the future to the upsetting of statistical tables and the amazement of the friends of the patient, and often of other physicians.

While the ability to make an accurate prognosis depends to a large extent upon actual experience, it must be remembered that this power is not entirely a natural gift, or a mysterious power granted to the few, but that

it is just as much the result of reading, study, observation at the bedside and in the deadhouse, and of logical reasoning as is a scientific diagnosis or rational therapy.

VACCINATION AND SMALLPOX.

The *Popular Science Monthly* for October contains an article by Professor J. Nevins Hyde on the late or still-present smallpox epidemic in this country. He shows first how massing together of people, who thus lose their customary adaptation to environment, creates a peril and that this is especially accentuated when the assemblage is the form of camps and in time of war. War and pestilence are twin brothers, but they do not always appear side by side. More often pestilence follows war, and he illustrates this from our own history—the skin diseases so abundant after the Revolution, the cholera epidemic following the Mexican war, and the prevalence of typho-malarial fevers after the Civil war. Our late Spanish war is no exception; it has introduced into our country an epidemic of smallpox sweeping from the Eastern and Southern portion to the Pacific and involving all sorts and conditions of men. It came also in a form that has troubled the diagnostician and for this reason its range has been the more extended, the mildness of the malady in most cases leading to neglect of precautions and consequent spread of the contagion.

The cause of the mildness of the disease is explained by Hyde by the immunity conferred by vaccination through generations, an immunity conferred even in unvaccinated by inheritance, which he thinks must be admitted, not merely as a logical sequence of laboratory experiments, but from clinical facts. "Not the sins alone of the fathers, but some of the safeguards, are visited upon the children." The germs were brought from the Spanish hotbeds of smallpox by our vaccinated soldiers and were thus attenuated in virulence. It has been largely an epidemic of modified varioloid, but capable of producing in virgin soil the typical variola, as has been shown in many instances. Vaccination, however, while probably as near perfection as a preventive of smallpox as any human means can be, is still not absolutely perfect, and its failures show most plainly in epidemics when those ordinarily resistant to vaccinia become amenable and vaccination may even apparently succeed after or during the developed smallpox itself.

These exceptional facts, however, prove nothing against the rule, and the anti-vaccinationists overlook the signal victories over smallpox of which the general character of the present epidemic is itself an evidence. Hyde shows that, were it necessary to appeal to statistics at this late day to prove the value of vaccination, the experience of Porto Rico alone, where smallpox has been practically stamped out in two years, would be sufficient. She "bombarded us with a filth germ and in revenge we made her clean." His article concludes with the demand that "vaccination should be the seal on the passport of entrance to the public schools, to the voter's

1. See JOURNAL, June 8, 1901, p. 1630.