

ing and ventilating of buildings: Gilbert B. Morrison, Kansas City, Mo.

Science and art in social development: John S. Clark, Boston, Mass.

Moral tendencies of existing social conditions: Washington Gladden, Columbus, O.

The manual element in education: C. M. Woodward, St. Louis, Mo.

[Title to be announced.]: W. B. Powell, Washington, D. C.

Natural distribution, as modified by modern agriculture: John Hyde, Washington, D. C.

Calculations of population in June, 1900: Henry Farquhar, Washington, D. C.

Civil Service in the United States: H. T. Newcomb, Washington, D. C.

Federal guaranties for maintaining republican government in the States: Cora A. Benneson, Cambridge, Mass.

DISCUSSION AND CORRESPONDENCE.

ON THE U. S. NAVAL OBSERVATORY.

THE article on the U. S. Naval Observatory by Professor Asaph Hall, Jr., in the number of SCIENCE for July 14th, treats very effectively of some matters which astronomers have long wished to see altered at that institution. Many able line officers—D. D. Porter and others—have served there, as Professor Hall suggests. Any amount of such service, however, can no more make astronomers than the service of half-pay officers could do in Sir George Airy's time, although at either Washington or Greenwich the habit of naval discipline was a help toward the formation of careful habits of observation. Nor do I suppose that the earlier Greenwich assistants, Baldrey and others, were better astronomers at the start than those at Washington, who brought with them a knowledge of astronomy.

In general we should find in the earlier volumes of the Washington observations precisely what we might expect if we knew the history of the establishment derived from the accessible data beginning with Gilliss's first report, which contains, among other things, the description of the instruments procured, some of them antiquated when they were constructed, others still used to some extent, others now replaced

by haphazard constructions for which some one more or less acquainted with the matter is responsible.

In general it may be said that the success or failure of the observatory now in use will be more definitely decided in two or three years after it is better known what the later reports shall indicate as to the constructive ability of the mechanicians who have been employed to replace or remodel the work of Troughton and Simms, Pistor and Martins, Alvan G. Clark and the other makers at first selected.

There is no doubt, I imagine, that the present astronomers at the observatory have had nearly *carte blanche* to do what they would, and we shall learn in a few years whether the immense amount of money expended on it has produced proportionate results, or is likely to appear to do so when they come forth to view. The excuses which were for several years offered for the delay in actually beginning the work on the zone— 14° to 18° —were not altogether satisfactory, as the astronomer whose observations of it are so quickly accomplished had been many years in service, and there is, so far as I am aware, nothing to show the necessity of the delay, except, if I may speak plainly, the entirely haphazard manner in which the U. S. Naval Observatory had been conducted from 1845 to the actual time of beginning observations on the zone.

It is not, in my judgment, necessary to do more to greatly improve the institution than to follow Airy's example in a simple matter of business according to the general custom at great observatories of the present day.

The appointment of a strong and intelligent visiting committee, to include a few prominent officers of the army and navy, together with a number of eminent and intelligent civilians, would add greatly, almost without expense or trouble, to the definiteness of the plans and the steadiness of the execution of the work of the institution, as one can readily see from the late autobiography of Sir George Airy.

TRUMAN HENRY SAFFORD.

WILLIAMS COLLEGE OBSERVATORY, July 19, 1899.

CEREBRAL LIGHT.

DR. E. W. SCRIPTURE, in SCIENCE of June 16th, gives an account of an experiment which