It is known from Diodorus that the great temple-building period at Agrigentum commenced after 480 B.C., and further, the temple the fourth on the list was incomplete as respects its roof in 406, and was never finished afterwards. It was a huge temple, and the orientation date for the foundation has great architectural probability. After a shock to its prosperity in 406, the city partially recovered, and six years afterwards may have been able to found the small temple with which I have closed the above list. Also the orientation date of the temple at Paestum coincides exactly with a passage in Herodotus in which, although he does not mention the temple, he speaks of the celebrity of a Posidonian architect.

"A Study of the Phenomena and Causation of Heat-contraction of Skeletal Muscle." By T. G. BRODIE, M.D., and S. W. F. RICHARDSON, M.B., B.S. Communicated by W. D. HALLIBURTON, F.R.S. Received March 2,—Read March 11, 1897.

(From the Physiological Laboratory of St. Thomas' Hospital.)

(Abstract.)

In carrying out some experiments to determine the changes in length of a muscle when subjected to varying loads and temperatures, we have paid particular attention to those changes produced from the onset of heat-contraction up to a higher temperature. We have, for the particular study of these changes, always employed a sartorius preparation of a frog immersed in diluted defibrinated blood, which was gradually heated in a water bath. The changes in length were recorded photographically. The necessary tension was applied by means of a very weak spiral spring.

If the load be low—we have usually employed one below 1 gram—the record shows four separate contractions. These are:—

(1) A contraction commencing at about 32° C., and ceasing at about 40° C.

(2) A second commencing at about 46° C., and ceasing soon after 50° C.

(3) A third commencing at about 56° C., and ceasing soon after 60° C.

(4) A fourth commencing at about 63° C., and extending up to 75° C.

If we contrast the temperatures of these contractions with those given as the points of coagulation of the proteids of frog's muscle plasma by v. Fürth, we find that the first three agree in all points

with the proteids termed by v. Fürth soluble myogen-fibrin, myosin, and myogen respectively. The fourth corresponds with the temperature at which white fibrous and yellow elastic tissue contract when heated.

We have concluded from this and many other facts that the contractions produced by heat are at basis caused by the heat-coagulation of the different proteids.

We have obtained corresponding results with mammalian muscle; here the contraction at 32—40° does not occur, and soluble myogen-fibrin is absent from the muscle plasma.

"Some Experiments with Cathode Rays." By A. A. C. SWINTON. Communicated by Lord KELVIN, F.R.S. Received February 27,—Read March 11, 1897.

The extensive employment of the focus form of Crookes' tubes as the most efficient known means of generating X-rays, has rendered advisable the more complete investigation of the cathode ray discharge in tubes of this description.

Hitherto, the usual method of investigating the characteristics of a cathode ray discharge apart from its mechanical properties, and beyond what is visible to the unassisted eye, has been by allowing the rays to fall upon a screen of some brightly fluorescent material, such as glasses of various descriptions, or screens covered with fluorescent salts. With all of these the maximum amount of fluorescence appears to be produced by such comparatively weak cathode rays, that in some cases the special effects produced by the more powerful rays seem to be more or less entirely masked, while the well-known phenomenon of the fatigue of fluorescent substances, when exposed to the more active rays, conduces to the same result.

Surface Luminescence of Carbon when exposed to Cathode Rays.

I have found in some cases that by replacing the usual screen, made of or covered with fluorescent material, by one of ordinary electric-light carbon, much appears which was previously invisible. When a concentrated stream of powerful cathode rays are focussed upon a surface of carbon in this manner, a very brilliant and distinctly defined luminescent spot appears on the surface of the carbon at the point of impact of the rays, the remainder of the carbon remaining black. This luminescent spot seems to have a very close relation to the fluorescent spots on glass and on other fluorescent materials under similar influence. The effect is evidently a purely surface effect, as when the cathode stream is rapidly deflected by