

both talk to trees as they would to persons; both believe it possible to climb to heaven by high trees. The phantom world of fairy tales and the world of reality are not sharply distinguished for them. We know this condition from childhood. If we will but reflect that the children of all ages are invariably disposed to harbor thoughts of this character, that a goodly portion even of highly civilized peoples possesses no genuine intellectual culture but only the outward semblance of the same, that furthermore there always exist men who derive profit from fostering the lingering relics of the views of primitive mankind, and that entire sciences of deception even have been created for their preservation, we shall clearly understand why these habits of thought have not yet died out. We may read, indeed, in Petronius's "Symposium of Trimalchio" and in Lucian's "Liar's Friend" the same blood-curdling stories that are told to-day; and the belief in witchcraft now prevalent in Central Africa is not a whit different from that which pestered our forefathers. The same ideas, slightly modified, are also found in modern Spiritualism.

(To be continued.)

The Nebular Hypothesis and the Lick Observatory Photographs.

BY PROF. GARRETT P. SERVISS, IN N.Y. JOURNAL.

ASTRONOMY commands the imagination of both the learned and the unlearned as no other branch of science does, and some of its recent advances appeal with particular force to the inquiring mind, which, conscious of its superiority to merely terrestrial and temporal things, reaches continually toward the infinite and eternal realities that alone can satisfy it. Among these advances one of the most remarkable is due to the discoveries made at the Lick Observatory with the great Crossley reflecting telescope, which is devoted to the photographing of celestial objects.

Especially among those mysterious and wonderful clouds of faintly glowing gases called "nebulae" has this telescope proved its exceptional power. Vast spirals, immense gulfs of blackness surrounded by luminous walls, intricate patterns of nebulous traceries as delicate in structure as the finest lacework and beaded with stars, interlinked rings of light, gleaming like the phosphorescence of the sea, but each so stupendous in circuit that the whole solar system and many other solar systems together might be embraced by it; orbs of pale fire whose gigantic whirling motion and whose gradual compaction into new suns under the pressure of gravitation are all but visible—such are some of the marvellous shapes and appearances that these photographs show.

And, most wonderful of all, where these strange scenes are revealed by photography the eye frequently beholds nothing at all. One begins to suspect that before long something equivalent to the X ray of the laboratory will declare itself in astronomical investigation and will reveal a whole new universe within and around the known universe of the stars.

In one respect particularly the latest Lick photographs of nebulae are intensely interesting. Frequently the question is asked by those who, although interested in astronomical progress, have not followed it closely, "Has the famous nebular hypothesis of the origin of the world been exploded by recent discoveries?" How the impression that it had been exploded became so widespread it would be hard to say, but no one studying the photographs in question could long entertain any doubt as to the nebular hypothesis. Instead of being exploded through the progress of discovery, as some over-zealous churchmen have pretended, it has been immensely strengthened, and the Lick photographs alone would have given birth to such a hypothesis if the genius of Kant and Laplace had not anticipated them.

Out of a nebula we came, into a nebula we shall return, is a

proposition the first half of which at least can be regarded as established. There are photographs, for instance, which exhibit as clearly as anything possibly could the emergence of suns, planets, satellites out of the nebulous clouds. The process is there before your eyes. You cannot dispute it. The various stages of world creation are represented, not all in one nebula, of course, but by many nebulae in different states of development and condensation. If we had sufficient time, if human life were more than a span, we could watch the changes in a particular instance. But it takes millions of years to make a sun and more millions to compact a planet. Yet to doubt that the results of the process are before us represented by these photographs would be as irrational as to doubt that the grain of seed in the ground and the sprout pushing above the soil and the full-grown stalk with its leaves and berries are all bound together as successive phases of one continuous process of growth and evolution.

Take the wonderful photograph which Professor Keeler, the director of the Lick Observatory, has recently discussed in the scientific journals, representing the strange Triad nebula in the constellation Sagittarius, one of the richest regions of celestial space within ken from the earth. The latest teaching of astronomy is that that curious haze, sprinkled with stars and channelled with dark, winding gaps running into endless branches like the roots of a gigantic tree, contains the whole potency of a future system of suns and worlds. No miracle is needed; no intercession of creative power. That nebula holds the atoms of coming planets and moons, and the essences from which their inhabitants are to be compounded. Once on a time this solar system of ours was as formless and chaotic as that huge mass of glowing gases in Sagittarius. But it held the seed of humanity, awaiting its time to sprout and spring up and grow into the beauty of the "image of God."

CIVILIZATION IN THE UNITED STATES.

WETUMPKA, ALA., Oct. 3.—Winfield Townsend, alias Floyd, a negro, was burned at the stake yesterday, in the little town of Eclectic, 15 miles from here. The crime with which he was charged was an attempted assault upon Mrs. Lonnie Harrington, whose husband set fire to the brands which reduced Townsend's body to ashes. The negro went to Harrington's house, and told Mrs. Harrington that her husband had sent him to get 20 cents from her. She told him she had no change. Then Townsend left, but returned in ten minutes. The woman's screams were heard by Bob Nichols, another negro, who was passing along the road at the time. He ran to the home in time to see the negro escape. As soon as Mrs. Harrington was brought back to consciousness Nichols gave the alarm. The news spread rapidly. All the stores in Eclectic were closed and all the gin and sawmills shut down. The people gathered for a pursuit of the negro. The crowd divided, some scouring the woods near the scene of the crime, and others went to the Penitentiary for bloodhounds. The dogs were taken to where the negro's track disappeared, and an exciting chase ensued. The dogs stopped finally at a tree on the outskirts of the town. The crowd coming up discovered the negro sitting on a limb. He was brought down at once and taken to the scene of his crime. There he was confronted by his victim, who positively identified him.

A crowd of several hundred people gathered in the village. The negro was then taken to the edge of the village, and surrounded by the mob. The preparation for and the manner of death were discussed by the mob. To decide the matter, a vote was taken and the balloting showed a majority of the crowd to favour death at the stake. The stake was prepared, and the negro was bound to it with chains. Pine knots were piled about him, and the flames were started by the husband of the negro's victim. As they leaped to the wretch's flesh his wild cries upon God for mercy and help could be heard for miles. The crowd looked on, deaf to his cries, and in an hour the negro was reduced to ashes. Townsend, before being bound, confessed the crime, and said he was also implicated with Alex. Floyd, who, a couple of weeks ago, attempted to assault Miss Kate Pearson. He said he and Floyd had planned other crimes of a like character.