

THE SOLAR SYSTEM.

Substitute for Laplace's Historic Creed.

By Thomas C. Chamberlain and Rollin Salisbury, Heads of Departments of Geology and Geography, University of Chicago. 8vo. Vol. I. "Processes and Results," pp. 654; Vol. II and III, "Earth History," pp. 692-624. G. B. Hill & Company.

While a suitable explanation for many of the phenomena which the geologist studies, he is inclined to fall back on some conception of the initial condition of the globe. For a long time Laplace's notion regarding that stage of the earth's history was generally accepted. It is now being abandoned as to the soundness of the French geologist's theory. The most interesting feature of the really magnificent work of the elder Chamberlain and Salisbury is their advocacy of the older doctrine and the advocacy of a new hypothesis. How fully it will be accepted only time can tell. There are indications that it is being received favorably in isolated instances, but as yet the majority of geologists hesitantly pronounce an opinion. The theory which is advanced here is that the earth, or falls, the technical reader who carefully examines the volumes under discussion will find with pleasure the large amount of fresh material which has been introduced and the dispassionate treatment of most of the questions involved upon.

It is believed that the space now occupied by the solar system was once filled with a cloud of highly rarefied gas, which was hot and somewhat irregularly spherical. In time it began to contract in size, and there was then detached from its equatorial region a ring of nebulous matter. In fact, a number of these rings were formed in succession, each being smaller than its predecessor. The central portion, very highly condensed, formed the sun. The matter of each of the rings eventually shaped itself into a sphere, and by degrees assumed a definite state. The earth, Laplace held, was once a gaseous mass, on which a crust developed by the condensation of some of the original store of matter. He accounted for the high temperature of the globe to-day in this manner, and fancied that except for a comparatively thin shell it is liquid.

Professor Chamberlain and his associate start with a much lower temperature. If matter was in a gaseous condition when evolution began, they think it would soon become cool enough to constitute an incalculable number of small bodies, practically identical with meteorites, but with at the centre a hot, gaseous mass. Other theories—such as the collision of two dead planets—are considered incidentally, as means of supplying a host of tiny stones. The Chicago geologists evince no preference for any of these theories of supplying the meteorites, however. An essential feature of their hypothesis is that these small bodies—"planetesimals" they called—had been provided, a few clusters of which formed the nuclei of the big planets, which were built up by the addition of the more scattered meteorites. The internal heat of the earth is regarded as the product of the mechanical work of the material after it had assembled. It may be well to remember that the great German physicist, Helmholtz, attributed the ability of the sun to maintain its thermal output without cessation, in spite of its enormous losses of heat by radiation, to gravitation alone, though it was probably a contraction of volume which the astronomers had not been able to detect.

The hypothesis of Laplace presents a number of difficulties. Astronomers are not sure that matter which would be left behind by the contraction and rotation of a spherical nebula will assume the form of rings. It is also doubtful whether a ring would break up and form a sphere. Recent computation seems to show that if the space bounded by Neptune's orbit were filled with a nebula and the momentum of the bodies of the solar system were imparted to it, the rotation would not be rapid enough to throw off any matter. Again, though the nebula in the constellation of Andromeda probably does seem to be splitting up into concentric rings, Keeler—the late director of the Lick Observatory—has shown that the vast majority of nebulae are spiral, with a disposition to form a number of knots, or local condensations. Changes in the level of continents or mountains, earthquakes and some other well defined phenomena are attributed by the Chicago geologists to small and ephemeral strains set up in the crust of the earth. These might be caused by the collapse where matter had been ejected from the surface, or to the subsidence of ocean beds, or the loss of internal heat, which, however, is believed to be less serious than was once supposed. None of these influences, in the opinion of the geologists, is sufficient to account for the formation of the great mountain ranges of the globe. The force manifested in the mentioned phenomenon, they believe, had a different origin, has accumulated and has operated on an enormous scale on rare occasions. Relief was then obtained during comparatively short periods, and is imputed to a general shrinkage, resulting from any extensive cooling, but the material of loosely compacted material. To a rearrangement in the interest of "density" is assigned the building of the mountains, the Alps and the Himalayas.

The facility with which earthquake tremors are transmitted through the globe and the resistance offered to the moon's effort to create a tide in the interior of the earth seem to indicate that there cannot be any fluid there. Apparently, the globe is nearly as rigid as steel, and its rigidity must be greatest at the centre. These facts strongly contradict the theory that lava comes from a permanent reservoir. Professors Chamberlain and Salisbury hold that when molten rock is ejected from a volcano the performance is local and independent of volcanic action elsewhere. The preachers of the "planetesimal" gospel hold that up to a certain imperfectly defined level heat ascends from the centre more rapidly than it passes thence to the surface. Accordingly, there must be regions in which there is a slight, temporary accumulation which causes liquefaction. The softened material eventually gets access to a fracture, and follows the line of least resistance to the surface. The volcano acts as a safety valve, gives relief and then subsides.

THE DUMA.

From Notes and Queries. Whether the Scandinavian Dömr and the Slav Duma spring from the same root is not exactly the question which I take up, although to my

LITERARY NOTES.

Mr. H. G. Wells has finished his somewhat superficial study of this country, and is considering the preparation of a volume expounding the general principles of socialism. He believes that such an exposition is much needed.

The Samuel Pepys Club, of London, lately made an expedition to Pepys's country house, Brampton, which still looks as it did in the time of the diarist. Dr. Knight has declared that Pepys was born there, but this is disputed. A visit was also paid by the club to Hinchbrook, Lord Sandwich's house, and here divers of its members sang for their host the "Dialogue Between Apollo and Neptune," bewailing the death of the first Earl of Sandwich—a lament which was found among the manuscript music in the Pepysian Library at Cambridge two years ago.

Some correspondence, hitherto unpublished, between Ben Franklin and a certain Mme. de Brillon will appear in the next number of "Harper's Magazine." The letters were written while Franklin was living in France.

Several, if not all, of Thomas Hardy's novels are undergoing translation into French at the hands of M. Firmin Roz. M. Roz has lately published a critical article on Mr. Hardy's works—an article full of praises. He speaks of Wessex as "one of those corners of the earth which art has made into a fatherland for our imagina-



HEAD OF A GIRL. (From the drawing by Leonardo Da Vinci.)

thinking the root is to be found in the Sanskrit (Max Müller, "Science of Thought"). The Slav or Russian meaning of the word is thought, and to this meaning it is strictly limited. The Duma is a council of thinkers (of opinion), ponderers. The word has grown up from two roots: of the first the consonantal sound alone is retained; the second is to be found in um, the Russian for the capacity of the mind; Sanskrit *ma*, whence also the Russo-Slav *mnit*, to think, opine.

My chief point, however, is this: the Duma was entirely unknown in Russia before the reign of Ivan the Terrible, who first established a Duma, or council of the leading Boyars and other notables about his person in 1572. The word itself does not occur in Russian history of the period when Scandinavian influence predominated at Novgorod and at Kiev. Nestor did not employ the term; he could not have known it.

The Duma assembled in the Czar's own chamber, in the Golden Hall of the Kremlin, or in the vestibule of the same. From 1572 to the time of Peter the Great the formula of the Duma was: "The Czar has directed, and the Boyars have [by his command] decreed," etc.

The Scandinavian institution of the Icelandic *Dömr* was, therefore, never introduced into Russia, and the Russian Duma cannot possibly be of this origin.

FRENCH "SPELLING REFORM."

From The London Globe. It looks as if spelling reforms were really arriving. France proposes to make certain changes compulsory in all its schools. Thus, "s" is to be substituted for "x" in plurals—"chevaux" for "chevaux." The "h" is to be dropped in certain words, giving us "rétorique" and "têatre." And the French hen will henceforth do its clucking over an "euf." With an Anglo-French exhibition impending, these decrees cannot fail to strengthen the hands of our own spelling reformers. But though the spelling of schools can be dictated by a government, that of authors cannot, and a conflict of usage would be disastrous. It is fortunate, perhaps, that France has provided us with the opportunity to watch such a struggle.

tion." His translation of "Far from the Mad-ding Crowd," by the way, is "Loin de la Foule Enragée."

Some notes made by Ralph Waldo Emerson on the character and career of the famous preacher to seamen, Father Taylor, are published in the current "Atlantic." Taylor was "mighty Nature's child," Emerson says; and he shows us "how men are always interested in a man." "He is a real man of strong nature." He adds:

He is a work of the same hand that made Demosthenes, Shakespeare and Burns, and is guided by instincts diviner than rules. His whole discourse is a string of audacious felicities harmonized by a spirit of joyful love. Everybody is cheered and exalted by him. . . . Edward Taylor is a noble work of the divine cunning, suggesting the wealth of nature. If he were not so strong I should call him lovely. What cheerfulness in his genius and what consciousness of strength! "My voice is thunder," he said, in telling me how well he was. And what teeth, and eyes, and brow, and aspect! I study him as a jaguar, or an Indian, for his untamed physical perfections. He is a work, a man, not to be predicted, his vision poetic and pathetic, sight of love unequalled. How can he transform all those whiskered, shaggy, untrim tar-paulins into sons of light and hope, by seeing the man within the sailor, seeing them to be sons, lovers, brothers, husbands? But hopeless it is to make him that he is not; to try to bring him to account to you or to himself for aught of his inspiration.

M. Jusserand, the French Ambassador to the United States, has sent to his English printer the manuscript of the second volume of his "History of English Literature." The English edition of this volume, which is already in circulation in French, has been written by the author almost as a new book.

Mr. Zangwill has apparently ceased to write novels. He has been preparing a comedy in his leisure moments, but almost all his time is spent in work for the Jewish Territorial Organization.

Among the art books of the autumn will be found "The Life and Works of Vittorio Carpaccio," by the late Professor Gustaf Ludvig and Professor Pompeo Molmenti. The trans-

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lator is Mr. R. H. Hobart Cust, the author of the book on Giovanni Antonio Lazzi (Sodoma), published last season.

Another art book which is in preparation is a biography of Vincenzo Foppa, the Lombard painter of the fifteenth century. The authors are Rodolfo Malocchi, of Pavia, and Miss C. J. Ffoulkes. Exhaustive research in Italian archives for the purposes of this work has produced some valuable results. Reproductions of all of Foppa's known pictures will accompany the text. Many of his works have been destroyed.

Miss Ellen Terry's reminiscences of Henry Irving furnish forth the most engaging portion of Mr. Menses's book on the great actor. She pictures Irving while rehearsing "The Merchant of Venice":

I came to the rehearsal with ideas, with my own conception of the part as it ought to be played, but the moment Irving began I was hypnotized. I couldn't budge—I was enthralled. . . . He threw himself so thoroughly into it that his skin contracted and his eyes shone. His lips grew whiter and whiter, and his skin more and more drawn as the time went on, until he looked like a livid thing, but beautiful.

He knew his limitations, Miss Terry declares. "How strange it is," he once said to her, "that I should have made the reputation I have as an actor with nothing to help me—with no equipment. My legs, my voice—everything has been against me." "And all the time," says Miss Terry, "I was looking at that splendid head and those wonderful hands, which he was holding out in a despairing gesture toward me, and I thought, 'Ah, you little know!'"

Mr. Bernard Capes has changed the title of his forthcoming novel from "Cartouche" to "A Rogue's Tragedy," the former title having already been used. Mr. Capes has had an odd experience as to titles, this being the fourth occasion on which he has unwittingly chosen those which were not original with him.

Among the rare books which that persistent investigator, Mr. Wilfrid Voynich, has lately found, is a copy of Sir Thomas Herbert's "Travels," in which that lively writer described the discovery of America by Madoc ap Owen Gwyneth "above three hundred years before Columbus." Herbert was the Parliamentarian who was chosen as groom of the bedchamber by Charles I when the King was forced to dismiss his own attendants. He became much attached to Charles, was in the end his only attendant and was on the scaffold with him when the royal head fell under the axe.

MISS LIBERTY FROM THE BAY.

But it is not alone these foreign arrivals who lament the singular position in which the Statue of Liberty finds herself in these latter days of the New World. Pity 'tis 'tis true "Liberty" is no longer it; she is even become somewhat de trop. The outgrown colossus, topped by hundreds of mere office buildings, is not only not a wonder of the world any longer, but something of a reproachful reminder in an unpleasant way. One poet has even consigned her to the New York City dump, in a millennium, to be thereafter covered over with marsh mud. This is a picture limned in a sonnet by Arthur Upson, a leal descendant of the Pilgrims and Puritans, though resident somewhere in Central New York:

THE STATUE OF LIBERTY.

(New York Harbor, A. D. 2000.)

Here once, the records show, a land whose pride Abode in Freedom's watchword! And once here The port of traffic for a hemisphere, With great gold-piling cities at her side, Tradition says, superbly once did bide Their sculptured goddess on an island near. With hospitable smile and torch kept clear, For all wild hordes that sought her o'er the tide, 'Twas centuries ago. But this is true: Late the fond tyrant who misrules our land, Bidding his serfs dig deep in marshes old, Trembled, not knowing wherefore, as they drew From out this swampy bed of ancient mould A shattered torch held in a mighty hand. —Boston Transcript.