

of the attractive force which she exercises in common with the Sun, excites motion in our ocean—the liquid portion of the Earth—gradually changes the surface by periodical floods, and the outlines of continental coasts, by the destructive agency of the tides, hinders or favors the labor of men; affords the greater part of the material from which sandstones and conglomerates are formed, and which are again covered by the rounded, loose, transported detritus.* Thus the Moon, as one of the sources of motion, continues to act upon the geognostic relations of our planet. The indisputable† influence

cet astre. Alors la Lune, sans cesse en opposition au Soleil, eût décrit autour de lui une ellipse semblable à celle de la Terre; ces deux astres se seraient succédé l'un à l'autre sur l'horizon; et comme à cette distance la Lune n'eût point été éclipsée, sa lumière aurait certainement remplacé celle du Soleil." "Several partisans of final causes have imagined that the Moon has been given to the Earth to light it during the night; in that case, nature would not have attained the object which she had proposed, because we are frequently deprived at the same time of the light of the Sun and Moon. To have attained this end, it would have been sufficient in the beginning to place the Moon in opposition with the Sun, in the same plane of the ecliptic, at a distance equal to the hundredth part of the distance of the Earth from the Sun, and to give to the Moon and the Earth velocities parallel and proportional to their distances from that body. Then the Moon, constantly in opposition to the Sun, would have described an ellipse round it like that of the Earth; these two bodies would have succeeded each other in the horizon, and as at that distance the Moon would never have been eclipsed, its light would certainly have replaced that of the Sun." Liouville finds, on the contrary, "Que, si la Lune avait occupé à l'origine la position particulière que l'illustre auteur de la *Mécanique Céleste* lui assigne, elle n'aurait pu s'y maintenir que pendant un temps très court." "That if the Moon had occupied at the beginning the particular position assigned to her by the illustrious author of the *Mécanique Céleste*, she would not have been able to maintain it for more than a very short time."

* *On the Transporting Power of the Tides*, see Sir Henry de la Beche, *Geological Manual*, 1833, p. 111.

† Arago, *Sur la question de savoir si la Lune exerce sur notre Atmosphère une influence appréciable*, in the *Annuaire* for 1833, p. 157–206. The principal advocates of this opinion are Scheibler (*Untersuch. über Einfluss des Mondes auf die Veränderungen in unserer Atmosphäre*, 1830, p. 20); Flangergues (*Zwanzigjährige Beobachtungen in Viviers, Bibl. Universelle, Sciences et Arts*, tom. xl., 1829, p. 265–283, and in *Kastner's Archiv f. die ges. Naturlehre*, bd. xvii., 1829, secs. 32–50); and Eisenlohr (Poggend., *Annalen der Physik*, bd. xxxv., 1835, p. 141–160, and 309–329). Sir John Herschel considers it very probable that a very high temperature prevails upon the Moon (far above the boiling-point of water), as the surface is uninterruptedly exposed for fourteen days to the full action of the Sun. Therefore, in the opposition, or some few days after, the Moon must be, in some small degree, a source of heat for the Earth; but this heat, radiating from a body far below the temperature of ignition, can not reach the surface of the Earth. since it is