

LECTURE VII.

1. Introductory remarks. 2. The carboniferous system. 3. The coal measures. 4. Coal-field of Derbyshire. 5. Coalbrook dale. 6. Coal-shales, and vegetable remains. 7. Carboniferous, or mountain limestone. 8. Derbyshire lead mines. 9. Carboniferous system of Devonshire. 10. The Devonian system, or old red sandstone. 11. Geographical distribution of the carboniferous system. 12. Volcanic rocks of the carboniferous system. 13. Trap-dikes of the carboniferous system. 14. Organic remains of the carboniferous system. 15. Organization of vegetables. 16. Coniferous trees. 17. Climate and seasons, indicated by fossil wood. 18. Vertical trees in carboniferous strata. 19. Trunks of coniferæ in Craigleith quarry. 20. Microscopic examination of fossil trees. 21. Nature of coal. 22. Mineral oil, naphtha, and petroleum. 23. Bitumen, amber, and mellite. 24. The diamond. 25. Anthracite, cannel coal, and plumbago, or graphite. 26. Nature of petrification. 27. Artificial petrifications. 28. Different states of the fossilization of wood. 29. Hazel-nuts filled with spar. 30. Silicification, or petrification by silex. 31. Plants in agates, &c. 32. Plants of the coal formation. 33. Fossil mare's-tail, or equisetum. 34. Fossil ferns. 35. Sigillariæ, or fossil arborescent ferns. 36. Lepidodendron. 37. Fossil club-moss, or lycopodites. 38. Stigmaria. 39. Seed-vessels in coal. 40. Coniferæ. 41. Review of the carboniferous flora. 42. Formation of new coal-measures. 43. Corals and crinoidea of the carboniferous system. 44. Shells of the carboniferous system. 45. Crustacea. 46. The limulus, or king-crab. 47. Trilobites. 48. The eyes of the trilobite. 49. Insects of the coal formation. 50. Fishes of the carboniferous and Devonian systems. 51. Retrospect—the flora of the ancient world.

1. **INTRODUCTORY REMARKS.**—The examination of the recent and fossil zoophytes, which formed the subject of the last discourse, will enable us to comprehend many of the phenomena relating to the