

The Second Law of Thermodynamics.

Is it not true that the Second Law of Thermodynamics is contradicted by the known facts of diffusion? When, for instance, masses of hydrogen and nitrogen are separated by a palladium partition, a difference of pressure is set up, owing to the diffusion of some of the hydrogen into the compartment which at first contained only nitrogen. In this condition the system is able to do work at the expense of its own heat, or heat entering from without. The palladium, in fact, takes the place of Clerk Maxwell's Sorting Demon, though, in this case, the process cannot be made continuous.

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Christ's College, Cambridge, November 19.

BRITISH EXCAVATIONS IN THE NEAR EAST, 1904-5.

DURING the past year British archæologists have carried on the work of disinterring the remains of the ancient civilisations of Greece, Egypt, and Mesopotamia with energy. The excavations of the Trustees of the British Museum at Ephesus have resulted in interesting discoveries. The work was intended to supplement and complete that carried out under the auspices of the Trustees from forty to thirty years ago on the site of the Great Temple of Diana of the Ephesians. That work, carried out by the late Mr. J. T. Wood, resulted in the planning of the temple and the removal to England of many valuable antiquities now in the British Museum. The present work was entrusted by the trustees to the distinguished archæologist Mr. D. G. Hogarth. It has resulted in the discovery, undreamt of by Wood, of the remains of two earlier temples below that of the Cræsus temple, which he supposed to be the earliest, and of a vast number of votive objects of the eighth and seventh centuries B.C., among them many of gold and silver, besides Egyptian blue composition scarabs of the early twenty-sixth dynasty period. These were found underneath the second or "præ-Cræsus" temple. By the laws of Turkey, the antiquities, especially those of precious metal, must go to the Museum of Constantinople, but duplicates will come to the British Museum. Much new knowledge of the third or Cræsus temple, discovered by Wood, has also been gained. The two earlier ones seem to have been of interesting construction. Much heavy pumping work had to be carried out in the temple area, which had become filled with water. Mr. Hogarth is to be congratulated on having brought this interesting work to a successful conclusion.

On the mainland of Greece, Lakonia has been handed over by the Greek Government to the British School of Athens for excavations. Several minor discoveries of interest have been made, including that of a fifth-century local *heroön*, or hero-shrine, with its equipment of cultus-images, reliefs, figurines, and votive cups, &c., near Monemvasia. The work was carried out by Mr. R. C. Bosanquet, the Director of the School, and Mr. F. C. Hasluck.

The Cretan work of the British School has now been brought to a conclusion. The excavation of the site of Palaikastro, in the province of Sitia, has not yet been completed, but is suspended, let us hope not for long. Mr. R. McG. Dawkins was in charge, and carried out his work most successfully under adverse conditions, owing to the now unhappily renewed troubles in the island, due to the fixed determination (whether it be right or wrong) of the Cretan people to effect their union with Greece. We can, parenthetically, only pray that Candia may not be the scene of riots, not for the sake of the Cretans, but for that of the museum, which contains all the trophies of the last few years' wonderful discoveries

at Knossos and Phaistos, the destruction of which would be an irreparable loss to the whole civilised world.

This by the way. Mr. Dawkins's work has resulted in the discovery of the complete stratification of the temple site back to the first post-Neolithic age, and the discovery of fine pottery of the various stages of the Minoan period. It is evident that the later temple was built over the Minoan settlement, probably as the result of a survival of religious tradition in connection with the site. The exploration of the Minoan town has been regularly continued. In the hills near by Mr. Dawkins also discovered a Neolithic settlement with a very interesting deposit of twenty stone axes, "more than half of them in brand-new condition. This discovery gives us, for the first time in the Ægean, a definite idea of a Neolithic homestead."

The explorations of Messrs. Arthur Evans and Mackenzie at Knossos have been continued with the assistance of Mr. Doll as architect. By the kindness of Dr. Evans we are enabled to give a short sketch of the results of his work this season in advance. The chief work has been the exploration of the magazines on the paved way leading west from the "Stepped Theatral Area" (see NATURE, October 5). More stores of tablets relating to the royal chariots and armoury have been found, and a complete building excavated. On the hillside beyond the Candia road, the building to which the way led from the palace has been found and partly excavated. It proved to be a late Minoan house, larger than any other *dépandance* of the palace, and in it were found the remains of a shrine containing fetish images in the shape of natural stalagmite blocks of quasi-human form, together with a painted clay goat and other figures. Owing to heavy rainfall, the modern wooden pillars of the quadruple staircase in the main palace gave way, and Dr. Evans was obliged to rebuild the whole. This he did in more solid form with stone pillars of ancient shape and appearance. More interesting discoveries were made during the course of the work. We regret to learn that owing to absence of outside support for the Cretan Exploration Fund the Knossian excavations may shortly be brought to an end. It is evident that an excavator cannot go on bearing indefinitely the greater part of the cost of his excavations himself, as Dr. Evans has done. There is much more of the greatest importance to science to be found at Knossos, and we again appeal to those who are interested to subscribe to the Cretan Exploration Fund. There ought to be some money somewhere for the most important archæological exploration of the decade, which, despite the claims of Egyptian excavations, Dr. Evans's work must undoubtedly be admitted to be. We hope and confidently expect that, after a pause of a year or two devoted to the full publication of the momentous results hitherto obtained, Dr. Evans will be enabled to proceed afresh with the exploration of Knossos.

In Egypt the chief excavations of the year have been those of the Egypt Exploration Fund. The excavators employed by the fund were, as before, Profs. Naville and Petrie, and Messrs. Hall, Currelly, and Ayrton, Mr. Hall being lent, as last year, by the British Museum. To Messrs. Naville, Hall, and Ayrton was assigned the continuance of the excavations at Dêr el-Bahari, with the assistance of Mr. and Mrs. H. Garnett-Orme, who kindly gave their services to the Fund for this work. Messrs. Petrie and Currelly, with a party of helpers, among whom may be mentioned Captain Weill, of the French *génie*, were commissioned to investigate and clear