

they can only be interpreted as the result of crossing-over.^{3, 25} In ring-forming *Enothera*,²⁸ chiasmata occur interstitially between a pair of chromosomes associated terminally with two others to give a 'figure-of-eight'. Such an arrangement also can arise only on the assumption of crossing-over. These demonstrations confirm Belling's interpretation of the *Hyacinthus* trivalents, which was not in itself indisputable.⁵ Whether the observations are of universal application (the simplest assumption) or not, can only be shown by cytological tests of organisms which have been studied genetically.

A second problem is that of ring formation. Since, on the present hypothesis, the pairing of chromosomes at metaphase is conditioned by the formation of chiasmata at prophase between parts of chromosomes of identical structure, it follows that ring formation (where one chromosome pairs in different parts with parts of two others) must always be due to different arrangement of parts, that is, different structure, in the chromosomes contributed by opposite parents.^{26, 27, 9} Thus the relationship of the chromosomes of two organisms can always be specified from the observation of the pairing behaviour of the chromosomes at

meiosis in the hybrid. It is therefore possible to study differences of such a magnitude as will sterilise a hybrid and are therefore not susceptible of genetical analysis. This method is now being widely applied.

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Landscape at the Royal Academy.

IN "Cape St. Vincent" (669) we have an example of the work of the late W. L. Wyllie in which the revered veteran showed undiminished mastery of his craft. The rush of the Atlantic rollers as they mount and comb on nearing the headland will recall to many, besides the present writer, a notable incident on the voyage from England to the East.

In "Moonlight: Scilly Isles" (90), Mr. Julius Olsson renders with his usual skill one of the most beautiful aspects of the coastal scenery of Great Britain, and the spark of the beacon on the headland both focuses the attention of the eye and adds to the emotional appeal of the picture. In "Sunlight" (130), Sir Hughes Stanton depicts a promontorial town of the Mediterranean coast silhouetted against sea and sky, a picturesque relation of architecture and Nature for which we must seek foreign shores. The austerities of Spanish landscape have attracted Mr. Sydney Lee ("The Ox Cart", 79), Mr. Guy Kortright ("Spanish Cactus", 243), and Mr. Oliver Hall ("A Town of Southern Spain", 414). In the case of several pictures which embody either the golden glow and dark shadows of evening or lurid light and sombre clouds of storm, the artists have enhanced both the height and depth of tone and colour by a frame of black and gold. Notable examples of this judicious device are "The Storm" (80) by Mr. Philip H. Padwick, "Evening in the Mountains" (268) by Mr. William Clarkson, and "Mountains near Beddgelert" (281) by Mr. Oliver Hall.

In the fine study of "Amiens" (258) by Mr. Terrick Williams, the shadowed cathedral owes

its immensity to the foreground of small houses, caught by sunlight, on the quay. It is an intriguing fact that impressiveness of size should bear so little relation to that which the astronomer calls the 'apparent magnitude' of an object. A notable example of the dependence of the impression of size upon grouping is afforded by Windsor Castle, which when seen above the houses of the Borough assumes the appearance of a walled town crowning the hill.

In "The Estuary" (301) by Mr. Arnesby Brown, we have one of the characteristic landscapes of the British coast, with fine effects of atmosphere. Towering clouds fill the larger part of the picture, the horizon of the land and sea lying very low in the field of view. Underlying this practice or device of pictorial composition is the singular fact that although the eye is keen to note any lateral divergence from the vertical, it receives no warning sensation of a considerable departure from level outlook. Hence great sky views are not so much determined by the circumstance of there being more sky, as by a natural grouping which lures the eye to an upward outlook.

In "Northleach" (479), Mr. William A. Rixon gives us a faithful picture of Arcadian England; the harvest field and church tower, undulating landscape, and rounded masses of spreading trees, with soft white clouds floating overhead. We may travel the world over but only in England will such a scene be found. This is our particular heritage, which we should cherish and preserve.

In Room X., devoted to Water-Colours and Tempera, Mr. Cecil A. Hunt, in "Glen Brittle, Isle of Skye" (933), has rendered with poetic feeling a

landscape of Britain which stands in greatest contrast to Arcadian England, the rugged range of the Cuillin Hills, pinnacles of dark, volcanic rock, rising above mists hanging in the hollows, where shadows are suffused with the atmospheric colour characteristic of the climate of the Western Highlands.

In the Architectural Room, a perspective drawing of "Sydney Harbour Bridge, Australia" (1401), Sir John J. Burnet and Partners, displays the latest triumph of steel construction, one of those great lattices which, when left unenclosed by masonry, stand out so splendidly against the sunset and the dawn.

The Sculpture Gallery is of particular interest to the scientific community on account of portrait busts, including that of Mr. G. Buckston Browne (1530) by Mr. Charles L. Hartwell, Lord Dawson of Penn (1592) by Mr. Henry Pegram, Dr. Henry S. Wellcome (1513) by Mr. Edgardo Simone, Sir George Makins (1550) by Mr. M. Pownall Bromet, Miss Joan B. Procter (1624) by Mr. George Alexander, and Mr. Allan G. Wyon's fine rendering of the striking features of the late Sir Henry Wickham (1501), pioneer planter of para rubber in India.

VAUGHAN CORNISH.

Obituary.

PROF. A. A. T. BRACHET, FOR.MEM.R.S.

ON Dec. 27 the death took place, after a painful illness of several months' duration, of Dr. Albert Brachet, of Brussels, professor of anatomy and director of the Laboratory of Embryology of the Faculty of Medicine in the University of Brussels. He was a foreign member of the Royal Society and *correspondant* of the Paris Academy of Sciences, and was a distinguished leader in embryological science. He was also well known in circles wider than those of professional embryologists as the author of the admirable "Traité d'embryologie des Vertébrés".

Born at Liège on Jan. 1, 1869, Brachet received his early training in embryology at the hand of Edouard van Beneden. Later he became pupil and assistant to Auguste Swaen. In 1904 he was appointed to the chair in Brussels, where he immediately instilled new life into anatomical study in that University.

Brachet's permanent place in the history of vertebrate embryology will probably rest mainly upon his investigations into the morphological facts of development. His early work with his master Swaen, upon the origin of the mesoderm and vascular system in Teleosts, was followed by a series of valuable investigations upon the early development of Batrachians, and these in turn by researches along corresponding lines upon Ganoid fishes and reptiles. His morphological work bears the impress of a passing phase in the history of embryological science which followed as a natural consequence the flood of uncritical morphology poured out by the enthusiasts of the first few decades after Darwin. The hasty work and ill-balanced speculation of those days naturally brought in its train a spirit of disillusionment as its errors became apparent—with the deplorable incidental result that one of the most fascinating branches of biological science became reduced for the time being to the level of mere fact-collecting.

Brachet was not entirely unaffected by the sterilising spirit of the day. He views the process of gastrulation merely as the attainment of the two-layered condition; the ectoderm and endoderm of the embryo merely as ectoblast and entoblast—without any recognition of that splendid and inspiring idea which appreciates their homology and

consequent evolutionary significance. Or again, as regards that other great idea of vertebrate morphology, the protostoma theory, Brachet, while showing intimate knowledge of the actual facts of observation, will have nothing to do with the evolutionary hypothesis which alone provides an explanation of the phenomena observed, and raises them from the level of mere facts to that of constituent parts of a consistent philosophy. Nevertheless, without doubt, Brachet's name will live as one of the important builders of vertebrate embryology.

Like so many of his contemporaries, Brachet became eventually drawn aside from the path of morphology into the territory of experimental embryology. The spirit which animated the work of himself and of his department in later years cannot be better expressed than in his own words, as quoted in the birthday notice contributed on his behalf to NATURE of Jan. 3, p. 41:

(1) "... l'analyse de localisations germinales et du déterminisme de la morphogénèse chez les Vertébrés, spécialement les Amphibiens"; (2) "... l'étude de la physiologie de la mise en marche du développement et des cinèses de segmentation".

Along such lines, Brachet did much careful and interesting work. It is clear that the reproductive cell of a complicated animal such as a vertebrate, possessing all its potentialities for reproducing the peculiarities of the parent, down even to comparatively trivial details, must have a physiology of immense complexity, far transcending human powers of investigation; and certainly the time is not yet for evaluating finally the achievements of experimental embryology. It is one of the chief merits of Brachet's admirable experimental studies on the egg of the frog that he was able to demonstrate convincingly to what an extent the substance of the egg is already differentiated in its various regions before the act of fertilisation. The further conclusion he reaches as to the active part played by the spermatozoon in readjusting and fixing the localisation of the various organ-forming portions of the egg rests on a less firm foundation.

Brachet was no mere laboratory recluse. Endowed with a lovable personality, a high idealism, and that power of oratory that caused him to be dubbed 'the Jaurès of Anatomy', he wielded great