in the genetical constitution of pollen and ovules Dr. Bateson called anisogeny, in opposition to isogeny, the normal state in which they are equivalent. The example of anisogeny in flax he attributed to somatic segregation occurring at the formation of male and female organs. In the course of last year, however, he considered the possibility of applying a scheme similar to that above described and illustrated, but, owing to two or three inconsistencies in the experimental material, he was not wholly satisfied with it. The inconsistencies remain; but critical evidence is now available in flax, which, though incompatible with the original interpretation, is in perfect harmony with that now proposed. Additional evidence is also provided by a similar case of anisogeny in Geranium, observed here by W. C. F. Newton and Miss A. Sverdrup (unpublished).

It is perhaps needless to say that the present scheme does not apply to Matthiola, or at least does not do so in any simple form.

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Chinese Alchemy.

IT is generally agreed that chemistry had its origin about the first century A.D. at Alexandria, where the Egyptian metallurgical and technical arts combined with speculative philosophy and theosophy to form a belief in the possibility of the transmutation of metals into gold. On the conquest of Egypt by the Arabs in A.D. 640 this knowledge passed to Arabia, largely through the intermediary of Syriac translations of the Greek treatises. Arabic chemistry is not earlier than the seventh-eighth century A.D. and appears to be greatly dependent upon that borrowed from Alexandria.

Berthelot ("Archéologie et histoire des sciences," Paris, 1906) considers that Chinese alchemy was derived from the Arabs. He relies principally on a correspondence with Terrien de la Couperie, but the opinion of the latter is not quoted in detail. Since the late origin of alchemy in China which this implies is very definitely in contradiction to the Chinese accounts, Berthelot assumes that the latter are largely interpolated, and that the parts dealing with alchemy are additions made after about A.D. 700. He supports this theory by the statement that information about China is really comprised in eighteenth-century native editions of works not usually earlier than A.D. 1000, that is, after the best Arabic period.

There seems to be no evidence that Chinese alchemy is of Indian origin. The earliest treatises on alchemy in India are definitely later than the Arabic period and are probably based on Arabic sources, although if Chinese chemistry is earlier than this the possibility of Indian alchemy coming from China may be considered. Writers on Chinese science, except Giles, all claim its originality, but they do not seem to be acquainted with the activity of the school at Alexandria, and generally assume that chemistry began with the Arabs in the eighth century A.D., which was the usual idea until Berthelot's publication of the Greek treatises of the Alexandrian school, portions of which had been published by Hoefer. The earliest of these are about seven hundred years before any chemistry was known to the Arabs. Giles ("Encycl. Britt." art. China) states that Chinese chemistry is of Greek origin, but the date he gives for it, about 150 B.C. (in agreement with native accounts), is much too early for that source to be possible, unless there was a school of chemistry flourishing in Europe of which we have now no trace whatever. This is highly improbable.

The occupation of Taoist circles with the preparation of an elixir of life and the philosopher's stone is mentioned by Se-Ma-Tsien as prevalent in the reign of Wu Ti (140–86 B.C.). The accuracy of Se-Ma-Tsien seems to be unquestioned, and the account is nearly contemporary. Berthelot refers to this, but is forced to conclude that these Chinese accounts have been interpolated since A.D. 700. It is stated in Chinese sources which are available in translations that Hoei-nan-tsze was an alchemist, and a chapter of his works called "On Bodily Things" deals with alchemy. A translation of part of this has been published by de Harlez and seems to confirm this, but one cannot be sure unless the whole account is considered. Se-Ma-Tsien also reports that a magician Li Siao Kiun advised the Emperor Wu Ti to sacrifice to the alchemist's furnace so that he could call on supernatural beings who would help him to change cinnabar into gold. If the dates are authentic, this is before the earliest alchemy otherwise known.

The most celebrated Chinese alchemist is stated to have been Ko Hung or Pao Pu Tse, who lived in the fourth century A.D. This would be just about the period when the Alexandrian school was very active, and the possibility of his being influenced by it is rather important, but it is long before the Arabic period. He is said to have written a book called "Niu pien," part of which deals with alchemy. Berthelot refers to this text but doubts its authenticity. Extracts from Ko Hung are published by Edkins (*Trans. China Branch Roy. Asiatic Soc.*, Hong Kong, 1855, part 5, pp. 83-99), whose memoir is practically the only source of information on the subject, and they indicate an advanced theory and practice of alchemy.

My object in directing attention to this subject is to make it clear that any conclusions which may be drawn as to the dates of Chinese texts which are based on the belief that accounts in them of alchemy must have come from Greek or Arabic sources are highly doubtful, since the actual position is uncertain. A consideration of all the information on Chinese alchemy which is available to me in European languages has left me with the conviction that the matter is still quite open and that any other view, such as the one adopted by Berthelot, is doubtful. It is to be hoped that the attention of competent Chinese scholars may be attracted to what would be a most interesting and valuable period in the history of chemistry.

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Formation of Calcareous Tubes round the Siphons of Teredo.

AT the beginning of June 1926 a quantity of wood heavily infected with Teredo (probably all *Teredo norvegica*), taken from the experimental rafts moored near the Plymouth breakwater, was placed in one of the tanks in the Plymouth laboratory. It was left undisturbed for almost four months, and when examined at the end of September was found covered with fæcal deposits consisting of wood fragments cut away by the shell valves of Teredo and passed out by way of the exhalent siphons. These deposits were, on the average, rather less than half an inch thick, and when they were washed away there were revealed, projecting from the wood, great numbers of fine calcareous