

between the actual damage sustained and any other physical defect present. The curious logic of the French mind is illustrated by the reference to the evaluation of disability in cases of castration following accident: this operation, it is said, reduces a man to a state intermediate between a male and a female; as the average earnings of women are half those of men, disability is assessed at 25 per cent. There is a good discussion of the proper requirements of an amputation stump, but cineplastic amputations are dismissed as unpractical—with no reference to the important work of Kessler or others in this field. The author is alive to the possibility of malingering, but regards this as rare, and makes the wise remark that "one is deceived more often by an excess of distrust than by an excess of confidence." The surprising statement is made that about one-third of all industrial injuries affect the eye. (According to the Home Office figures the proportion in this country is only about 2 per cent., but Minton points out that this takes no account of injuries entailing not more than three days' disability, which probably amount to something like a quarter of a million per annum.)

The book closes with a section devoted to a summary of legislation in France relating to industrial injuries, including the Act of 1938, which came into operation on January 1, 1939. This abolishes the "waiting period" of three days, making compensation payable as from the date of the accident; the scale for total permanent disability is raised from two-thirds to three-quarters of pre-accident earnings; if the injuries are such as to oblige the workman to employ someone to attend to him the rate of compensation is raised to 100 per cent., and in addition he may claim up to 3,000 francs per annum to pay his attendant. The standard rate remains at one-half of wages up to the thirty-second day of disability, after which it is raised to two-thirds. Employers are now, for the first time, made liable for the cost of providing and maintaining any prosthesis required; medical costs are to be paid by the employer even when the injured workman is able to continue at work; and provisions are now made to enable a claim which has been settled to be reopened if the workman suffers a relapse of an old disability. These features of the French system, it may be suggested, merit the careful study of the Royal Commission which is now making an inquiry into workmen's compensation arrangements in this country.

GENETIC PROBLEMS IN PLANTS

Neue Gesichtspunkte in der Vererbung. By Professor August Bier. (Pp. 70. R.M. 3.60.) Berlin: Julius Springer, 1938.

The famous German surgeon August Bier, who retired from his professorship and clinic in Berlin in 1932, while investigating genetic problems in plants, happened to find seeds of *Lupinus luteus* which by particular circumstances had been delayed in germinating for fifty-five years (from 1869 to 1924). Many of these seeds developed into plants of quite a different species. In the author's opinion *Lupinus polyphyllus* differs from the original plant not as a negro differs from a white man but as an ape from a human being. Therefore the alteration cannot be called a simple mutation, for that only occurs within the range of a species, and only consists in the new appearance of one particular trait or of some single traits, but never in the complete change from one well-defined species into another just as well defined. This change the author calls a transmutation, and to explain its occurrence he wrote the little book under review, because no genetic journal was willing to print his revolutionary explanation in spite

of his renown. It is closely related to his philosophical ideas published in various papers during past years (partly also in the English language).

Scientific research is not enough if not supported by natural philosophy. At all periods of human history two conceptions of the world were opposed to one another: the teleological, which in everything that occurs sees the action of the *λόγος*, the world reason (Heraclitus, Hippocrates); and the mechanical, which believes in the action of blind natural laws. An example of the incapacity of these two conceptions to solve scientific problems is the problem of inflammation (Bier, 1934): to decide whether this process is itself a disease process or a defensive response to disease. To overcome this difficulty we need, besides the most general scientific system of logic, another which Bier calls that of harmony. In the problem of genetics this means that there are two opposite principles in heredity—stability and variability. In the particular seeds under investigation the latter principle wholly prevailed. This fact might be due to the slow action of Nature during the fifty-five years of delayed germination, while ordinary mutations are brought about by short and sudden influences like change of temperature, x rays, and other similar stimuli. The author made use of his "system of harmony" to explain allopathy and homoeopathy, and the seeming contradiction of medicine, surgery, and natural treatment. He applied it practically in his forest in connexion with plants, animals, climate, and soil; in pathology for bridging the contradiction between humoral and cellular physiology and pathology, in philosophy that of teleology and materialism, of soul and body. And now he wishes to introduce it also into genetics while the geneticists are still far from any understanding of it.

EMBRYOLOGY OF THE CENTRAL NERVOUS SYSTEM

Recherches sur l'Embryologie du Système Nerveux Central de l'Homme. By André Barbé. Preface by A. Souques. (Pp. 340; 318 figures. 250 fr.) Paris: Masson et Cie, 1938.

In this book Dr. André Barbé deals with the various stages of development of the central nervous system in man during intra-uterine life. It is divided into two sections—the first part being a description of the central nervous system of each specimen examined, while the second deals separately with the developmental history of particular regions or parts of the axial nervous system. The material on which the work has been based consisted of fifty-two human embryos and fetuses aged between 35 and 252 days. Some of these which were macerated had to be discarded. Of the remaining specimens some were exceptionally good, and were prepared and sectioned with the use of modern methods of neuro-histological technique. These form the basis of a valuable contribution to the general topographical knowledge of the development of the central nervous system. The figures, 318 in number, are excellent reproductions of untouched photographs of various specimens seen as a whole or in section, and one may specially mention the beautiful series of microphotographs of the brain-stem and spinal cord. The parts specially studied are:

(1) The fissure of Rolando, which appears, according to Barbé, as early as the third month, instead of, as is usually supposed, not until the fifth month. (2) The relation of the internal capsule to the corpus striatum. The internal capsule, which is formed by projection fibres coming from all parts of the mantle layer of the hemisphere, as well as fibres from the caudate and lenticular nuclei, does not pass between the caudate and lenticular nuclei but traverses the substance of the lenticular nucleus, and is thus entirely intralenticular.