

pressure on either side of the index is equal, a circumstance which tends to reduce to a minimum the errors due to inertia of the index, and this is of great advantage in estimating the diastolic blood-pressure.

In a valuable booklet recently issued by Dr. Oliver¹ on blood-pressure gauging, he sets forth some of the more important results he has arrived at by means of this ingenious instrument. This physician attaches considerable importance to the study of the pressure in the smallest arteries and capillaries by means of a digital bag. He finds that while arteriolar dilatation lowers the pressure in the larger arteries by lessening peripheral resistance, it tends to augment that in the capillaries and pre-capillary vessels by increasing their supply of blood. During muscular exercise, on the other hand, the pressure throughout the entire length of the systemic arteries is increased, owing to the fact that the dilatation of the arterioles is accompanied by a considerable augmentation of cardiac action. The essential circulatory change attending upon digestion, so far as the systemic system is concerned, is, according to Dr. Oliver, an increment in the capillary and pre-capillary pressure, whereby an increase of lymph-exudation is effected, and the products of recently digested food thus speedily conveyed to the tissues. Such an augmentation in the exudation of lymph he claims to have demonstrated.

Of special interest are Dr. Oliver's observations on the blood-pressure of the aged and elderly. With advancing years the smaller vessels tend to become rigid and impervious, and thus to lose their power of dilating in response to physiological requirements, such as digestion and muscular exercise. When this happens the blood-pressure in them is found to be habitually low, and to fail to rise readily during digestion, or as the result of administering such a drug as nitroglycerine, which normally dilates the smaller arteries. In this way the physician is able to gauge the condition of the blood-vessels with a precision which was quite impossible with the older methods. In cases of premature degeneration of the blood-vessels, Dr. Oliver believes that much may be done to check the degenerative process. Among the methods he employs to this end is the administration of certain substances the deficiency of which in blood is thought by some to be largely responsible for the phenomena of senility.

These brief references suffice to show the practical value attaching to the clinical study of blood-pressure. The student in this important branch of investigation will find great help from Dr. Oliver's book, the more so that only salient and practical points are dealt with, and these in clear and simple language.

MENDEL'S CORRESPONDENCE WITH NÄGELI.²

THESE letters constitute a valuable addition to the pile of literature that has accumulated under the name of one of the most remarkable figures in the history of biology—Gregor Mendel; for we doubt if ever has so great a fame been built on the contents of a single short paper. The fact that this paper remained unknown from 1865, when it was published, until 1900, when it was rediscovered, is both the measure of how much Mendel was before his time and the reason for the uniqueness of the picture of him which presents itself to the eyes of most of us.

¹ "Studies in Blood-pressure: Physiological and Clinical." By Dr. George Oliver. (London: H. K. Lewis, 1906.) Price 2s. 6d. net.
² "Gregor Mendel's Briefe an Carl Nägeli, 1866-73. Ein Nachtrag zu den veröffentlichten Bastardierungsversuchen Mendels." Edited by C. Correns. Abhandl. d. K. S. Gesellsch. d. Wissensch., math.-phys. Kl. xxix. iii. Pp. 189-264. (Leipzig: B. G. Teubner, 1905.) Price 3 marks.

We have, it is true, neat and compendious biographies of Mendel, but they reveal to us little of the man himself, and it is still a distant and mysterious monk that appears to us, with his classical peas in his cloister garden. The value of these letters is that they lift the veil for us here and there, and extend to us an invitation to a "private view" of his work, and offer us an opportunity of a nearer acquaintance with its author.

The correspondence was begun by Mendel, who wrote to Nägeli on New Year's Eve, 1866. In this letter he referred to Nägeli's great services to the study of hybrids occurring in nature, mentioned his own results with peas, gave an account of some new experiments he was starting with the hawksweed, and ended with what was probably the reason for his writing, an appeal for help and advice with these experiments.

Nägeli answered on February 24, 1867, addressing Mendel as Verehrtester Herr College. He recommended some hawksweed species for the proposed experiments, but the chief interest the letter has for us lies in the criticism which it contains of Mendel's well-known formulæ. Nägeli said: "Die Formeln dürften Sie wohl ebenfalls für empirische halten, da dieselben als rationalen nicht zu erweisen wären." Mendel's reply to this criticism is a little difficult to understand, and Prof. Correns remarks in a footnote, "Ich weiss nicht, ob Mendel hier das, was Nägeli unter empirischer und rationeller Formel meinte, ganz verstanden hat." But I suggest Mendel's reply becomes intelligible if we divide it into two sections (the first of which ends with the sentence to which Correns's note is appended), and regard each section as an answer to one of two interpretations, of the criticism, by Mendel, who I imagine was not quite sure what Nägeli meant. In the first part of his answer Mendel interprets the criticism as meaning that the simple formulæ, in which only one pair of characters is concerned, are "empirical," and that the complex ones, in which many are concerned, are "rational." I think we may be pretty sure that Nägeli did *not* mean this; however, I am not here concerned with what he did mean.

Nor do I stop to discuss what Nägeli may have meant when I come to consider the second section of Mendel's reply. The point is that it begins with the words "Was schliesslich die Angaben über die Verschiedenheit der von den Hybriden gebildeten Keimbläschen und Pollenzellen betrifft. . . ." Mendel is discussing an entirely different subject now, and he shows unconsciously by this fact that it never occurred to him that Nägeli might mean by his criticism that while of course it was impossible to deny the numerical proportion of the different categories (1D : 2DR : 1R), that was a very different thing from stating one's belief that the suggested interpretation of that proportion (the random union of

$$50\%D + 50\%R \text{ with } 50\%D + 50\%R$$

was true, and that it was very desirable that these two entirely different things should not be confused. Nägeli may or may not have meant this, but the point of interest is that it did not occur to Mendel that he might have done, which shows that so far was he from confusing these two things that the possibility that he might have done never occurred to him as an interpretation of Nägeli's criticism.

I have discussed this at some length because such confusion is not rare among modern students of heredity.

This second letter of Mendel's was accompanied by several packets of peas, which were sent to set Nägeli's doubts at rest.

The remaining letters, of which there are eight, consist of two things—on the one hand of discussion of the results of the hawksweed experiments and of appeals for rare or unobtainable species of that genus, and on the other of personal and friendly communications. The former are interesting only to the specialist, and to him even the interest is chiefly historical, since Mendel did his crossings without the knowledge which we now possess, that the hawksweed sometimes exhibits parthenogenetic reproduction.

At the beginning of the third letter we get a glimpse of Mendel. He is giving his reason for not having studied the hawksweeds in their natural habitat in the neighbourhood of Brünn, and proceeds: ". . . auch taue ich mich nicht mehr recht für botanische Excursionen, da mich der Himmel mit einem Uebergewichte gesegnet hat, welches sich bei weiteren Fusspartien, namentlich aber beim Bergsteigen, in Folge der allgemeinen Gravitation, sehr fühlbar macht."

Later, in the same letter, we read of him nearly ruining his eyesight by the extremely difficult operation of castrating *Hieracium*, and we can picture him, with bent head close to flower, absorbed in his beloved experiments. That Mendel did this work because he loved it, and not for the hope of any reputation he might gain by it, is abundantly evident. The impatience with which he waited for the blossoming of certain hybrids finds eloquent expression in the last words of the third letter. And Prof. Correns remarks in his introduction: "Die Briefe zeigen, dass das was Mendel veröffentlicht hat, in der Tat in gar keinem Verhältnis steht zu dem, was er gearbeitet hat." The reason that he published so little lies also in the fact that in '68 a great change took place in his circumstances, which robbed him of his time. ". . . Meine Wenigkeit wurde nämlich am 30 März von dem Kapitel des Stüftes, dessen Mitglied ich bin, zum lebenslänglichen Vorstande gewählt."

That Nägeli entertained a high opinion of Mendel is shown by the trouble that he took to obtain the plants which Mendel wanted; and that, as a result of this correspondence, Nägeli grew not only to esteem him as a man of science, but to value him as a friend, is shown by the fact that in the first five letters he addresses Mendel as *Verehrtester Herr College*, but that in the last five he calls him *Hochgeehrter Herr und Freund*. And that, I think, sums up one's feelings when one reads these letters. At the beginning, we feel, Mendel stands to us in the relation of a *College* only; at the end we feel that he is both our *College und Freund*. Is there not something that attracts us in passages like the following, from the end of the seventh letter? "We have been rejoicing here for weeks past in the most glorious spring weather. Compared with the yearly average, the vegetation is thirteen days in advance, and everything is in leaf." A. D. D.

NOTES.

THE pupils of M. Moissan are taking the opportunity presented by the twentieth anniversary of the isolation of fluorine to offer their distinguished master a medal in commemoration of this important event in the history of chemistry. The execution of the medal has been entrusted to M. Chaplain. The promoters of this happily-conceived scheme have decided to extend to men of science generally an invitation to contribute to the expenses. Every subscriber of 25 francs will receive a replica in bronze of the medal. Donations may be sent, up to November 30, to the treasurer to the committee of management, M. P.

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Masson, 120 boulevard Saint-Germain, Paris. Fuller particulars may be obtained from the secretary of the committee, Dr. Guichard, 3 rue Michelet, Paris.

PROF. T. H. MIDDLETON, professor of agriculture in the University of Cambridge, has been appointed assistant secretary to the Board of Agriculture and Fisheries, in succession to Dr. W. Somerville.

THE death of Mr. William Sedgwick, a member of the medical profession who combined the active duties of his calling with the pursuit of scientific investigation, is announced in Wednesday's *Times*. Mr. Sedgwick was born in 1821, and during the 'sixties of last century he devoted much attention to the study of heredity, and published articles upon the subject which were referred to and quoted by Darwin. Soon after his establishment in Marylebone as a general practitioner, London was visited by the great cholera epidemic of 1854; and Mr. Sedgwick devoted much attention to the chemical changes incidental to the disease, and made them, in 1889, the subject of his presidential address to the Harveian Society.

THE death is announced in St. Petersburg, on October 19, of Prof. T. T. Beilstein, the well-known Russian chemist. His numerous researches in organic and analytical chemistry, and especially his work on the aromatic series, enriched science with many new discoveries, and gave a new direction to chemical industry. He also made extensive researches on Caucasian naphtha and coal-tar. His works, written in German, were very numerous, the chief of them being his "Handbuch der organischen Chemie" and his text-book on analytical chemistry. Prof. Beilstein was born in St. Petersburg on February 5, 1838. He studied chemistry under Prof. Bunsen at Heidelberg, and also attended the lectures of Liebig at Munich. He studied physics under Prof. Jolly, and at the age of eighteen published his first work on the diffusion of liquids. At Göttingen he obtained the degree of Doctor of Philosophy. In 1859 he became assistant professor of chemistry at the Breslau University, and in 1866 was appointed professor of chemistry at the St. Petersburg Technological Institute, where he remained the rest of his life. He also lectured at the St. Petersburg Military Academy, and was made an academician of the St. Petersburg Academy of Sciences in 1886.

THE proposed new scheme for the mathematical tripos will be voted upon at Cambridge this afternoon. In a letter to the *Times* of October 22, the professors of mathematics and of the cognate subjects of physics and engineering, and all the other official teachers of mathematics in the University, state the chief grounds upon which they are in favour of the proposed changes. The traditional system of placing the names in the mathematical tripos list in order of merit is shown to be unsatisfactory, and to involve the sacrifice of the educational interests of many students. The number of men who wish to devote their whole course at Cambridge to the study of mathematics is much smaller than twenty years ago. At the present time, however, there are a considerable and increasing number of students of engineering and of physics who require mathematics up to a fairly high level, but do not come into contact with the mathematical school proper. To provide for the needs of the important class of men who ought to spend part, but not the whole, of their time at Cambridge in studying mathematics is one of the chief objects aimed at in the proposed new scheme. It will be for the advantage of the special mathematical students,