are reported to have been obtained by Page and Helmer.[1]

Renin is secreted by ischemic kidneys,[5, 6] and hypertensin is afterwards formed in the blood.[2, 4] Renin is presumably an enzyme and does not act directly on blood vessels but by the intermediation of hypertensin. The hypertensin-precursor in blood was found to increase after nephrectomy and to decrease or disappear after the injection of renin. This fact suggests that there is a slight renin production by normal kidney. Such a production of renin also explains the rise in blood pressure obtained by Govaerts and Muller[7] by grafting normal kidneys to nephrectomized dogs.

While the pressor substance was found to be formed by the action of swine renin on the sera of horse, swine, cattle or dog, none was formed with human serum. When, however, human renin was used, hypertensin was formed with the serum of any of the above species.

This peculiar specificity of renin leads to the prediction that no pressor response should be obtained in man when swine renin is injected intravenously. Our experience, while limited to sick men, came to confirm this prediction, although hypertensin injected intravenously to the same subjects caused a rise in blood pressure. Since other investigators may have tested this action we are eager to know of further confirmatory evidence.

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EXCHANGE PERIODICALS FROM FOREIGN COUNTRIES

THE note in SCIENCE, Vol. 92, November 15, page 452, from the Engineering Societies Library, in regard to the receipt of exchange periodicals from foreign countries (not including the American continents) and the statement that that library has made arrangements to store the periodicals in the country of origin until the end of hostilities, is of great interest to the library of the Marine Biological Laboratory. But is not this decision, asking that all countries that are at war hold their exchange material until hosilities have ceased, somewhat unnecessary at the present time when, as is the case for this library, periodicals from England, Ireland, Wales, Scotland, Australia, Indo-China, China, Tahiti, South Africa, Dutch Indies, India, Egypt, Syria, Newfoundland, Morocco, Portugal, Japan and Siberia are still coming through regularly, though somewhat delayed, and even a few German periodicals are now arriving again by way of Siberia and Japan? The fact that so many countries are able to get their publications through to us has encouraged this library to take a more opportunistic attitude by not stopping in all cases the shipment of exchange material destined for us. This library has asked all its exchange institutions in countries on the continent of Europe to hold their publications but has not as yet made this request to the other countries mentioned above in the hope that the necessity for this may not arise. If and when the necessity arises, a request to have the publications held back will be sent. This is more troublesome and perhaps entails risk, but it appeals to us as a practical method. The above has no reference to the *paid subscriptions* held by this library in foreign countries outside of the Americas, but, in general, the same method for securing the subscriptions continuously or at a later date has been applied.

PRISCILLA B. MONTGOMERY

ANTIQUE GALENICALS

WHILE our British colleagues are deserving of deep sympathy and commiseration in these dark days, one can not feel sorry about their difficulties in obtaining buchu leaves, seneca root, jalap, krameria, galsemium seed, black catechu, aconite, and calumba root, as noted in SCIENCE, October 25, p. 373. Why such antique galenicals are still used by British physicians is hard to understand unless it be on the basis of steadfast British tradition. It seems that if this war has no other good effect, it may at least serve to modernize some features of British therapeutics.

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SCIENTIFIC BOOKS

MATHEMATICAL PAPERS OF SIR WILLIAM ROWAN HAMILTON

The Mathematical Papers of Sir William Rowan Hamilton, Vol. 2, Dynamics. Edited by A. W. CONWAY and A. J. MCCONNELL. xv + 656 pp. Cambridge: Cambridge University Press. New York: Macmillan. 1940. 50 sh.

THIS impressive book is the second volume of Hamilton's collected papers, the first volume of which

[4] E. Braun-Menendez, J. C. Fasciolo, L. F. Leloir and J. M. Muñoz, *Jour. Physiol.*, 98: 283, 1940.

[5] K. G. Kohlstaedt and I. H. Page, *Proc. Soc. Exp. Biol. and Med.*, 43: 136, 1940.

[6] L. F. Leloir, J. M. Muñoz, E. Braun-Menendez and J. C. Fasciolo, *Rev. Soc. Arg. Biol.*, 16: 75, 1940.

[7] P. Govaerts and P. Muller, *C. R. Soc. Biol.*, 131: 1311, 1939.

appeared in 1931. It is devoted to the subject of dynamics and so contains that part of Hamilton's work which many students estimate as the most important of his amazing contributions to knowledge. With the exception of a few minor notes, occupying less than ten pages of the present volume, Hamilton's work on dynamics was done over one hundred years ago during the decade 1830–40. It is only now after the lapse of a century, largely due to the physical successes of the theory known as wave-mechanics, that it is accorded the general recognition that its importance deserves. It is for the present reviewer a striking and welcome coincidence that Schrödinger, the founder of the theory of wave-mechanics, is now a professor at the Royal Irish Academy of which Hamilton has been the most distinguished president. The interest of the volume under review is much enhanced by the fact that more than half of it (over 300 pages) has not previously been published.

It would be out of place, even if space permitted, to attempt to give any detailed account of the contents of Hamilton's papers on dynamics. However, as in most mathematical theories, the important central idea may be described so as to be understandable by any interested, intelligent scientist. The simplest mechanical system consists of a material particle moving in some field of force (say the gravitational field of the earth) and the problem of its motion may be looked at from two quite different viewpoints. We may regard as given the conditions at the start (*i.e.,* the initial position and the initial magnitude and direction of the velocity) and may ask the conditions at some later time; or we may regard as given the initial position and the position at some later instant and may ask the initial magnitude and direction of the velocity. For convenience of reference we term the first point of view the local or differential view-point and the second point of view the ballistic or distant view-point (it being in fact the point of view of a gunner who wishes to hit a distant object). Hamilton's great merit was the emphasis he laid on the ballistic point of view (which led to his discovery of his Principal Function) as opposed to the local point of view which had dominated his great predecessor Lagrange. Once the importance of the Principal Function (which is determined by the initial and final positions of the particle) is realized, the theory of partial differential equations assumes full sway; and the interplay between this theory and the theory of ordinary differential equations (in which the time is the independent or master variable) which dominates the local point of view constitutes the important core of Hamilton's work (which was later perfected by Jacobi). The subsequent development of the Calculus of Variations (which occupies a central position in physical theories) may be largely attributed to Hamilton's work. It is pleasant to be able to say that credit for the recent important developments in this theory must be assigned to American mathematicians (particularly Bliss and Morse). Indeed, one need only point to Birkhoff's work in dynamics and to Morse's emphasis on the "large" as opposed to the "local" point of view, to justify the statement that Hamilton's mantle has fallen upon American shoulders. In this connection we must not forget the important work of Synge (who assisted in editing the first volume of Hamilton's works) on the subject of Hamilton's optical researches.

The physical appearance of the book leaves nothing to be desired. That it could be produced at all in the present difficult times is a real tribute to its publishers. The world of science owes a great debt to the editors, both for their clarifying appendices and for their intelligent restraint.

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RECENT DEVELOPMENTS IN THE STUDY OF ROCKS

A Handbook of Rocks for Use without the Petrographic Microscope. By JAMES FURMAN KEMP, sixth edition, completely revised and edited by Frank F. Grout. viii + 300 pp. New York: D. Van Nostrand Company. 1940. $3.00.

THIS excellent revision of Kemp's well-known book follows much of the plan of the older editions but has been largely rewritten so as to take account of the recent developments in the study of rocks. One who is familiar with the older editions notices that the rather detailed discussion of the chemistry included in the descriptions of the rocks in the older editions has been wisely abridged and assembled in a separate section. The glossary which was very valuable in the old editions has been omitted. Several such glossaries are now available.

This book gives excellent hand specimen classifications and descriptions of the igneous, sedimentary and metamorphic rocks; good brief discussions of the field occurrence, geological relations, and origin of such rocks; and descriptions of the newer methods of study. It includes a chapter on calculations in rock study, and illustrations of rock descriptions.

Much of the text is devoted to the naming and descriptions of rocks, and the classifications adopted are simple but are very well suited to megascopic work by one who is not a professional petrographer. An experienced petrographer can make finer megascopic distinctions and must do so to carry on precise petrographic field work. The sections on the origins of rocks, the relations of rocks to each other, sedimentation, and metamorphism are brief but clear discus-