The function to which I refer is the amazing ability of the heart to handle large, variable streams through markedly angular passages, at vastly different pressures and rates varying from zero to high speed, without provoking therein measurable eddies. Quite an elementary knowledge of engineering teaches us that the onset of eddies in either inlet or outlet ducts is associated with a material drop in efficiency. As the velocities increase, the production of eddies may be so great that finally they themselves may put a top level at which the system may function. Moreover, there are two different ways in which this may occur. On a low pressure induction system, the top rate of the entry stream may be easily and finally limited, while on the high pressure outflow side, the effects may also be similar where limited power is available or, alternatively, markedly increase the energy consumption per unit of flow.

In the living heart, eddies on the very low pressure flow side could very easily cause obstruction leading to acute or chronic venous congestion. On the outflow sides, the development of such eddies would be most importantly connected with a limitation of the total output, both immediately and secondarily, by the onset of unusual cardiac fatigue.

There seems little doubt that this function is associated with at least three factors, namely, the curious arrangements of the muscular bundles; the pattern of the nervous discharge; and the properties of the blood itself. It is also conceivable that the odd lining of the ventricles may have a damping effect on eddy formation. Moreover, it seems highly probable that this function is not entirely located in the heart itself, but is also carried out in the main vessels, especially the arteries where eddies would very greatly increase internal friction.

As eddies are readily discernible by stethoscope or other devices, their onset has many clinical notations. Those that are not occasioned by gross physical damage and tend to be variable in character are called haemic or organic murmurs. That changes in the blood may cause such eddies is known, especially by certain anemias, but it has not been generally recognized that their normal absence is due to a remarkable cardiac function which may itself become disturbed. Consequently, its full significance both in diagnosis and prognosis has been overlooked. Especially might attention be directed to the fact that increase in the loudness of murmurs by reason of increased work is a clear sign that the efficiency of the heart is materially decreased for such higher loading. Eddy formation in the large vessels would not be heard easily, as they are too deeply situated, but, by effectively decreasing the available flow space, they will load the heart with useless counter-friction work. The markedly decreased ability to compensate for loading by some arterio-sclerotics, in the absence of other obvious causes, may be such an example. The importance of eddies in flow systems is very well appreciated in engineering, including electrical, and it seems worth while to recall this neglected factor to students of the circulation, since it has yet to be incorporated in the standard works.

O. S. GIBBS

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A CATALOGUE OF INSECTICIDES AND FUNGICIDES

FOR the past year we have been engaged in surveying the literature and cataloguing all materials which have been tested for insecticidal or fungicidal properties. In our opinion such a compilation will be valuable to research workers and students in the fields of agricultural chemistry, economic entomology and plant pathology, particularly since it will insure a minimum of duplication in any search for new materials. Apparently no catalogue of this nature has been prepared up to the present time.

Our search so far has yielded over 500 literature citations, from which approximately 5,000 individual insecticidal and fungicidal materials have been catalogued. It is obvious that the usefulness of such a catalogue will depend upon its completeness. While we have made every effort to cover the literature completely, there are undoubtedly journal articles, bulletins and other less widely circulated publications which have been overlooked.

In this connection, therefore, we are appealing to all workers in the fields mentioned to supply the undersigned with any unpublished data, reprints or literature citations dealing with insecticidal or fungicidal tests on specific materials, so that all such materials may be included in this catalogue. Particularly we would welcome lists of materials tested by industrial research laboratories, even though the results disclosed may be of a negative nature.

Information should include the name of the chemical compound, its formula, the name of the test organism and a general statement of toxicity. In the case of plant products, the scientific name as well as the portion of the plant used for the test should be included.

It is our intention to prepare this catalogue for publication as soon as possible. Because of the size of the undertaking, it may not be available for wide distribution, but each *bona fide* contributor will be assured of a copy. We shall be very grateful for any comments or suggestion.

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