

mentation. Only certain patterns of painting the body seem to serve that end alone. As badges of authority, class and rank, ornament is little used among primitive men, for such distinctions do not exist there as they do among us, yet even there are seen the beginnings from which have developed the uniforms, gowns and accoutrements of our own military, academic and other degrees.

Space does not permit a discussion of the questions involved in the forms and development of the savage dance, though its rôle is all important in savage life. The pleasure in active and rhythmical movement, the pleasure in imitation and the relief in the expression of pressing emotion are a sufficient explanation of the passion with which primitive man cultivates this art. The significance of the primitive dance is striking. It fulfills not only a sexual end, but to a greater degree even a social one. The uniting of a body of men under the influence of a single emotion as seen in war dances, the union of heterogeneous tribal elements in certain dances of peace, suggest sociological bearings of the highest importance, and the field is one richly deserving the attention of the ethnologist.

It is one of the merits of Grosse's book that it does not attempt too many conclusions from rather scanty material. One point at least becomes evident; primitive art in most of its phases does not serve primarily an æsthetic end; it is first of all practical, and the purely æsthetic result is, so to speak, a by product. In music alone as a rule does the æsthetic appear as the single end in view. For the rest of the numberless questions suggested one can only refer to the book itself.

Herr Grosse is entitled to the greatest credit for what is in the opinion of the writer the most important contribution to this subject in many years.

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L'Année psychologique. 2e année, 1895. H. BEAUNIS and A. BINET. Paris, Alcan, 1896. Pp. 1010.

The second volume of the *Année* presents a decided advance over its predecessor. The plan adopted at the outset included three distinct parts: original articles, summaries of important books and articles appearing during the year, and an annual bibliography of all publications of interest to psychologists. The same general scheme is adhered to in the present volume, but we find several noticeable changes in details. A larger number of articles are summarized, and the summaries themselves are more in keeping, as regards length, with

the value and interest of the works. Under the head of original articles are included a number of 'general reviews,' which add greatly to the value of the *Année*. In the same section, too, the work of the independent contributors is now separated from the more specialized studies of the Paris Laboratory. The fact that the volume has increased in a year from six hundred pages to over a thousand is in itself an indication of the proportions which the enterprise has assumed.

To the outsider this rapid expansion cannot appear as an unmixed blessing. A volume of the present size is not over easy to handle; if the number of original contributions should be further increased (they are still comparatively few), it might actually become unwieldy. We may ask whether, after all, the plan laid down is not too complex to be carried out as a single undertaking. Examination shows that the volume includes two distinct lines of work, which might readily be separated. The first is a general résumé and bibliography of the past year's work in psychology (Parts II. and III.); the second is the collection of original contributions (Part I.). Are these two departments equally well carried out? We think not. The 'Jahresbericht' is conceived and carried out on a magnificent scale. To compare favorably with it the original portion should consist of some of the very best work of the best French writers on psychology. Without wishing to cast a shade of disparagement upon the writers who have contributed to the volume, we are forced to say that the contents fall considerably below this standard. Aside from the general reviews—which are only 'original' in a limited sense—but two or three of the papers are complete or of permanent separate value. As a rule, they are rather studies, very good in their place, but scarcely in keeping with the broad purposes of the *Année*. If the writers would contribute their *best work* it might be well to retain this feature, but as matters stand at present it would seem wiser either to dispense with it or else to transform its character completely.

Another side of the same question appears when we come to the Studies of the Paris Laboratory. Does the *Année* aim to be the organ of that institution? If so, it ought, we think, to gather in a larger proportion of the Studies that are at present scattered about in various periodicals. If not, why fill its pages with material of an obviously fragmentary character? At present the *Année* is neither fish nor fowl—or better, it may be likened to a splendid fowl, hampered and made less beautiful by the presence of a fish's tail!

If we may venture a word of advice, then, it is as follows: The *Année* should be divided into two volumes, one of which, under

another name, might be made the organ of the Paris Laboratory, with other contributions if desired. The *Année* proper could then be restricted to an oversight of the year's work in the various branches of psychology, with greater latitude in the case of 'general reviews.' The introduction of the latter into the present volume is a step in the right direction; with other matter cut out, their number and scope might gradually be enlarged. These changes would give to the *Année* a unity of purpose which it now sadly lacks, and would transform it at once into an encyclopedic work of classic importance.

What has been said above has reference to the appropriateness of a certain class of writings to the *Année*, and is not intended to reflect in any way upon the value of the articles that appear in this particular number. We shall now proceed to examine the contents of the present volume.

Of foremost importance is Dr. A. Forel's paper on the methods of comparative psychology.¹ The author frankly acknowledges his scepticism regarding the value of the results obtained by direct psychological induction. The human mind differs too radically, he thinks, from that of the lower orders, to admit of carrying over to the latter with any degree of assurance the results obtained in the former. When we consider the difficulty in mankind itself of understanding the psychological constitution of individuals differing from ourselves in social grade, intellectual status, or sex, how much more reluctant should we be to assume mental analogies in the case of beings wholly different from mankind in physiological structure!

The author cites in support of his position the case of the social insects—in particular, ants. There is a marked tendency among all writers to describe the mental processes of these insects in terms of our own. But is this comparison warranted? Take the sphere of sensation, for example: the data of the various senses differ not only directly, but also indirectly; the eye gives us accurate notions of space relations, the ear furnishes us with those of time. Both of these senses are well developed in man; in insects the most highly developed sense is that of smell. In man this latter sense gives (explicitly) neither spatial nor temporal data; but in insects it is evidently capable of furnishing 'distinct and rational perceptions' of some sort (p. 44). The sense of smell must then be radically different in insects from what it is in man. Thus we meet, at the very outset, an insuperable obstacle to the direct use of induction in comparative psychology.

¹*Un aperçu de psychologie comparée.*

Passing to the biological problem, which he believes to lie at the root of comparative psychology, M. Forel traces the phylogenetic growth of the nervous system from the original neuron. For the wave of nerve activity, whether chemical or physical in character, the author proposes the name *neurocyme*. The action of neurocyme is comparatively simple within the compass of a single neuron; but when it is called upon to pass from one neuron to another the method of transmission changes: there is now a mass of terminal fibers instead of a single line of conduction. Such an alteration in the mode of transmission, the author argues, must entail a modification in the form of activity—inhibiting it, strengthening it, or causing it to be acted upon by other waves. In this ‘interneuronal action of neurocyme,’ at present so incomprehensible, is contained, says the author, ‘the secret of our mental mechanism’ (p. 27).

Up to this point the nerve phenomena are alike for all biological species; but as we proceed further we meet with a distinction. Instinct and reason denote a fundamental antithesis in the realm of mental action. To these correspond, in the physiological sphere, two distinct modes of activity, which the author terms the *automatic* and *plastic activity of neurocyme*, respectively. These are constantly in conflict with each other, and the type of an organism depends upon which has gained the mastery in its race history. Among social insects the automatic activity is well developed, and the neural coordinations are maintained by a long heredity strictly within the same lines, so that the adaptive, or plastic, activity is crushed out. Plastic activity requires far greater complexity of structure than automatic; and hence the brain of the ant, remarkable though it must be considered, is far less wonderful in its complexity than that of a human being. The distinction between automatic and plastic activity, then, is really the key to the situation, and it is only through studying the facts connected with these physiological phenomena that we can reach a proper basis for comparative psychology.

We give M. Forel’s views somewhat at length, because they seem deserving rather of attention than of criticism. It is an undoubted fact that psychology is to-day leaning for support more than ever on physiology. Whether psychologists will go so far as wholly to subordinate comparative psychology to comparative physiology, in the way he proposes, we very much doubt. At the same time there is no question but that their own inductions have been too hasty, and that considerable reconstruction of the bases of comparative psychology is necessary. The fact that the critic is a student of biology as well as a psychologist certainly lends additional weight to his conclusions.

A fitting companion-piece to Forel's article is Dr. Azoulay's review of recent theories on the mode of function of the central nervous system.¹ Those who are not familiar with the recent work in the histology of the nervous system will find here a compact *résumé* of the present status of that branch. In a few pages the writer details briefly the state of our knowledge regarding the anatomy of the neuron since the late discoveries of Ramon y Cajal and others. He then proceeds to explain the theories of nerve action which have been founded on these facts. Though fair in his exposition of all, the writer shows apparently no leaning toward any of the theories; he seems personally to prefer a modification of the older view, which held to the activity of the entire nerve—now expressed in terms of the individual neuron. The style of this article is remarkably clear, and it is easily within the grasp of those whose biological knowledge is extremely limited.

Individual, abnormal and child psychology are each represented in the *Année* by a single article. *La psychologie individuelle*, by MM. Binet and Henri, is an original contribution placed (rather inappropriately) among the general reviews. It is a plea for the wider development of anthropological tests, which have hitherto been confined almost exclusively to sensation. Citing the results of Lombroso, Galton and others, the authors conclude that the differences existing among normal individuals in the sphere of the senses 'are very feeble and insignificant compared with the differences in the higher faculties' (p. 416). In all such tests of normal individuals there are two principal objects in view: first, to compare individuals and discover what elements vary and how far; and second, to trace the relations that exist between the different faculties of each individual. Both ends can be attained by a single series of representative tests, if the same series be applied everywhere. The authors examine the series proposed by various writers, and find them all incomplete and more or less impracticable; moreover, they are not fairly representative, since all neglect too much the higher intellectual processes. The real object of these inquiries being to determine not all, but merely the most important individual differences, the writers propose a series of ten tests, from which sensation measurements are omitted entirely. They include memory, the nature of mental images, imagination, attention, understanding, suggestibility, æsthetic sensibility, moral sense, muscular power and will power, and quickness of movement and of glance. These tests are described fully in the latter part of the article.

¹*Psychologie histologique et texture du système nerveux: les récentes théories du fonctionnement du système nerveux central.*

M. Th. Ribot's *mémoire* on abnormal and morbid character¹ is suggestive rather than complete. The author discards the historic four-fold division of temperament, and adopts the three-fold classification proposed by Seeland—into strong or positive, neutral, and weak or negative, each including some sub-types. Abnormality of character consists in the union of two or more of these in the same individual. There are three cases. The first consists in the complete transformation of the individual at some period of his life. This type approaches most nearly to the normal. Paul, Augustine, Diocletian and others are given as examples. In the second we find two opposite tendencies present at once in the same person. The third is represented by great instability of character and a rapid alternation between conflicting tendencies. This is the true pathological type.

In an article on *Fear among Children*², Prof. Binet gives the results of a series of questions circulated among some 100 school teachers and others. He finds five principal classes of phenomena with which fear is associated: 1. Night, solitude and mystery. 2. Loud noises. 3. Objects which inspire repugnance. 4. A possible danger exaggerated by the imagination. 5. A past experience whose recurrence is dreaded. The state of the child's health is always an important factor in determining his liability to fear; on the other hand, there appears to be no relation between fear and the degree of the child's intelligence, except in so far as a highly developed imagination is more liable to furnish objects for fear. Prof. Binet notices further the effect of heredity and ill-treatment, and alludes to the well-known fact that fear is contagious. The signs of fear begin to be manifest at the age of two or three, and increase till the ninth year, when they begin to come under control, and the emotion itself tends in normal cases to be suppressed. Some of the replies are conflicting: the proportion of children susceptible to fear is variously estimated, and M. Binet's own deduction (10%) is admittedly a mere assumption. It is scarcely within our province to speak of the author's remarks on the pedagogic treatment of fear in children, but what he says may be recommended to those interested in that subject as both timely and instructive.

Along the line of experimental psychology a number of contributions appear in the *Année*. Prof. Th. Flournoy describes a new treatment of association time. In a list of 24 words, 12 belonged to some well-defined class, while the remainder had no conceptual relation with one another. Given two such lists, the subject was asked to

¹*Les caractères anormaux et morbides.*

²*La peur chez les enfants.*

read in the one case all the A's, in the other all the non-A's. The time of the latter reading was considerably longer. M. Bourdon gives a variation of an old experiment on the comparative frequency of various kinds of association, and M. Xilliez brings forward a method for calculating the influence of the ordinary serial association of numbers upon our memory of a list of figures chosen at random. Prof. Van Biervliet adds a chapter to the recently developed literature on illusions of weight.

M. Victor Henri's two articles on tactile localization may be classed together as a single monograph. In an original contribution, the author describes a series of experiments which substantiate his view that the exactness of localization on the skin is independent of the exactness of two-point discrimination. Taking a number of normal subjects, he finds that the errors of localization are large out of all proportion with the sensory circles; in many cases an impact on one finger was assigned to a closely symmetrical position on another. The paper on the Sense of Locality on the Skin (*Sur le sens du lieu de la peau*) is a review of the work along the same line from Weber down. Though its outline is somewhat influenced by the author's position, just referred to, it is in every respect typical of what a general review in a work like the *Année* should be. M. Henri reproduces tables of figures from the more important authorities, which enable us to compare the results obtained by different methods of research. At the close of the article is a bibliography of 156 titles. The author promises next year a review of the theoretical side of tactile localization.

Owing to the poverty of the data, M. Passy's review of investigations on the olfactory sense is necessarily less extensive. He takes up successively the physiology of smell, olfactometry, the properties of odors, their compounds, and the reaction time for smell, giving in each case a *résumé* of the principal results so far obtained. He neglects to furnish a bibliography of the subject; but the works actually cited are put in reference form in the footnotes. In an appendix, M. Passy sums up the results of an experimental investigation by Prof. Binet and himself on the comparative psychology of smell.

In the department of physiology, MM. Binet and Courtier contribute an article entitled *Circulation capillaire de la main*. They use the graphic method to investigate the relation of respiration, etc., to circulation. The work includes experiments on a number of problems; the tracings, many of which are given, show the changes in form of the respiration and pulse curves due to different positions of

the hand and to various physiological and mental disturbances. The writers discuss at some length the errors incident to different kinds of apparatus, and the best means of avoiding them. The study is long and exhaustive, and the authors promise further researches on several additional points necessary to render it complete. The principal conclusion reached is that 'there exist, in respect to the excitability of the vaso-motor system, important individual differences' (p. 164); these differences are too great to be attributed to the apparatus, and too constant to be due to the disturbing effect of such an experiment upon the emotions of untried subjects.

Our space will permit only a passing reference to the remaining contents. M. Henri gives a *résumé* of the well-known mathematical methods employed in the calculation of probability and error. MM. Binet and Courtier describe an apparatus for recording the intensity of impact with one or more fingers in piano playing. M. E. Gley compares the physiology of hypnotism with the action of stimulants and narcotics, and concludes that all these effects are attributable to a paralysis of the higher centers, rather than to exhaustion of the entire nervous system.

In the analytic portion of the volume the summaries are generally limited to two or three pages. More extended notices (of ten pages or more) are allotted to Delage's book: *La structure du protoplasma*, Exner's *Entwurf*, Merkel's articles in the *Philosophische Studien* on *Reiz und Empfindung*, and Baldwin's book on *Mental Development*.

The general bibliography at the end of the volume is this year, by arrangement, identical with that compiled for THE PSYCHOLOGICAL REVIEW.

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A Study in the Psychology of Religious Phenomena. Parts I. and

II. JAMES H. LEUBA, Fellow in Psychology, Clark University.

The American Journal of Psychology, Vol. VII. Pp. 309-385.

Mr. Leuba happily avoids the common blunder of attempting to frame a definition of religion which will cover all that the word connotes. He recognizes that it was 'in early societies a complex product made up of all the fundamental needs and aspirations of man,' many of which are now clearly differentiated and are known by their several names. The noetic impulse was one of these, but not the chief one and consequently the essence of religion survives many changes of creed. Even the belief in a supersensible world and personal immor-