related to genius as sickness to health; a morbid state may even indicate progression, an orientation of psycho-physical energies toward a more complete harmony, a sign of disintegration preparatory to a higher evolution. The pathological factor may act as an excitant in the case of precocity, as a dissolvent in the progeny of genius. The characteristics of the act of inspiration are impulsiveness, intermittence and unconsciousness, but the mechanical, subconscious characteristics are here no more mysterious than in the normal psychology of association, attention and other primitive phenomena. The irresistibility of inspiration is superficially like the mental explosiveness of the madman and the epileptic, but in them inhibition and self-consciousness are lacking. Not in the mattoid and the paranoic are manifest the laws of psychic resultants (Wundt). Spontaneity, the highest type of genius, is not an infinite capacity for taking pains, but an attitude of finding new combinations: the idea is here not a fixed idea, but a principle of unity in movement. Degenerates may have in common with genius extraordinary mobility and elasticity, they lack the saving sense — good sense. Conversely, certain manifestations of genius are incomprehensible without the reaction of a vast social sympathy; the misunderstood genius is one who has not reached the psychological *optimum*. In the evolution of genius heredity is represented by tradition, rational selection by the critical spirit, spontaneous variations by inventiveness, which last has three factors — intelligence, capacity for work and zeal. The zeal of the genius, the interest in his work, is neither egoistic nor altruistic but disinterested, and it is this absolute disinterestedness which raises the genius to the plane of the hero. (We note some curious misprints on pages 161 and 162 in quotations from Professor Baldwin's works.)

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PLAY.

The Psychology of Football. G. T. W. PATRICK. Amer. Journal of Psychol., 1903, XIV., 104-117.

What is the motive which prompts thousands of men and women to watch, under unfavorable circumstances, a college game of football? is the question Professor Patrick puts in this interesting article. He says it is not due to college rivalry, for other contests such as debates and oratorical contests do not bring together as many hundred. It is not a 'new fad,' for it was played in England during the thirteenth century and the interest in the game has increased since that time.

The Schiller-Spencer 'surplus nervous energy' theory and the Groos 'practice and preparation' theory of play are inadequate for explaining this 'peculiar fascination.' He adopts the 'reversion' theory. This fascination is but an echo from the remote brute-man stage of the race. The ancient life of personal combat is mirrored in all plays. This 'peculiar fascination' is but the persistence of deep-rooted race habits.

Football is more sport than tennis or baseball and such games, because it reverts back to activities more primitive. There is a more complete relapse into latent habits and therefore a more perfect rest of the higher brain centers. It is not a return to savagery. There is a momentary return to the serious manners of ages past in order that in the serious affairs of to-day these manners may be more completely left behind.

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ANIMAL PSYCHOLOGY.

The Sense of Hearing in Fishes. G. H. PARKER. American Naturalist, 1903, XXXVII, 185-204.

The writer mentions the fact that the earlier scientists believed that fishes could hear, but that Kreidl and Lee, after various experiments, decided that fishes do not hear. He then tells of his own experiments with three kinds of fishes: normal ones, fishes which had had the nerves to their ears cut, and fishes whose skin had been made insensitive by cutting the fifth and seventh nerves, the lateral line nerves and the spinal cord. An aquarium was used which had one end replaced by a deal sounding board with a bass viol string of a vibration rate of forty per second stretched on it so that the vibrations were transmitted to the water. The fishes used in each experiment were confined in a glass cage suspended in the middle, the end of the cage towards the sounding board being open except for a wire netting. One hundred experiments were made on each kind of fish, and it was found that the normal fishes responded ninety-six times, the earless fishes eighteen, and the fishes whose skin had been made insensitive ninety-four times, although they had undergone a more severe surgical operation than the others. Fearing that the bass viol string caused some disturbance in the water, the author substituted an electric tuning fork, which did not jar the aquarium. Making the experiments as before, he found that the earless ones never responded, and that the others generally did. From this he concludes that the killifish (*Fundulus heteroclitus*) can