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Devoted to the Philosophy of Science

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Lombroso

REGRESSIVE PHENOMENA IN EVOLUTION.[1]

THE most paradoxical part of my theory of genius and its psychopathic basis is at once supplemented and confirmed by observing the contradictory phases of natural evolution, that all progress is based upon regress, that every evolutionary movement is based upon a regressive movement, that every new organ or degree of perfection acquired by an animal is formed at the expense of other organs in which progress has provoked a partial or total atrophy. The vertebrates, for instance, gain their greater individual power of defense at the expense of a diminution of their progeny. The superior animals and plants lose in adaptability what they gain in evolution, so that while inferior species may await indefinitely in lethargy the conditions favorable to their development without suffering from it, and withstand even for thousands of years a deficiency of air and water, or may even change their form and needs with a change in their environment (the *Mucor mucedo* for example which in the absence of oxygen transforms itself into a saccharomyces tube), the superior animals die on account of a few degrees of heat, dryness, or pressure more or less than the normal. The metazoans gain their increased differentiation at the expense of the almost eternal life which belongs to the protozoans, the only forms of life which possess the property of rejuvenation.[2] The

[1] Translated from the manuscript of Prof. Lombroso by I. W. Howerth of the University of Chicago.

[2] The protozoans in fact in addition to reproduction by gemmation and by division, have the property of rejuvenation. Two cells come into contact with each other, fuse, their macronuclei and micronuclei are exchanged and each is transformed into a new cell capable of regenerating itself *ad libitum*. *Vid.* Claus, *Zoologie*.

metameric species lose in their differentiation the power to reproduce themselves integrally if broken. Parasites pay for the high development of their reproductive apparatus with the loss of their nervous and digestive systems. Little by little as the animal becomes parasitical the alimentary canal is atrophied and the reproductive apparatus is developed. When the latter begins to function the alimentary canal is filled with cells which little by little destroy it and take its place in such a manner that by and by no trace of it is left.

So also it is at the expense of the tail and the gills, eaten up and digested by other cells, that in the tadpole the lungs and the extremities are formed; it is at the expense of the whole body, literally absorbed by the phagocytes, that during the chrysalis period the caterpillar is changed into the butterfly; it is at the expense of the legs that in the arthropoda the odoriferous glands, copulatory organs, ovipositors and gills, and in the gills flagelliform tentacles, and in the crustacea the swimming appendices and the reproductive apparatus, are formed.

Again it is with the loss of a set of wings that the diptera gain the balancers by which they guide themselves in flight, and it is with the loss of the chlorophyl, that is, of the power of assimilation, that the leaf gains its evolution into petals, stamens and pistils, into floating organs, and even into prehensory and digestive organs; and the loss goes so far beyond the transformation, i. e., it is so complete, that, as in the case of the *Lathræa squamaria*, the plant is no longer able to assimilate air and water, and would die of hunger like the animals if it had not the power of appropriating organic food. And man himself has lost an entire organ, viz., the tail, and many vertebræ, and his natural clothing of fur, in the acquisition of new cerebral convolutions and the abduction of the thumb, and he has lost also the limbic organ which so sharpens the sense of smell.

The white race in comparison with savages and many beasts has lost the sense of direction which even the smallest birds possess. And there are many facts which might be offered to show that with the invention of the alphabet and the development of

speech it has lost important faculties with which some peculiar public functionaries among the ancients, like prophets and magi, were endowed. And it is certainly true that the greater nervous intensity of the life of civilised man, and the greater conveniences of his life, are accompanied by a lesser acuteness of the senses, a weakened power of resisting external agents, a lesser invulnerability. And we of the nineteenth century pay for our greater analytic perfection acquired through the division of labor by the loss of our faculty of synthesis. We boast of surpassing our ancestors in morals, but we have lost their sense of hospitality, and their patriotic and religious altruism ; and if we are not more cruel than barbarians we are able to contemplate their cruelty with indifference, as for example the massacre of the Armenians. And from time to time the infamies of Panama or the Roman Bank reveal to us even among our highest officials a corruption worthy of the Roman Empire.

What has been said of the animal species including man is illustrated in the history of nations, for we see peoples extraordinarily advanced in one direction presenting marked characteristics of regression. The Hebrews, for instance, followed Christ to communism, Moses to monotheism, realised some of the ideas of Marx in socialism, created exchange, formed the nucleus of the *bourgeois* capitalistic class, as now they stir up the fourth estate against it ; present in fact indications of all the later results of evolution. And yet they adopted religiously the quippu (the alphabet with points) in their Talmud, used instruments of stone in circumcision, and in this latter custom preserved a relic of cannibalism. In political life they have always shown the two extremes of progress and conservatism. Having settled in a country for a time they preserved its customs, at least its manner of dress long after it had disappeared in the country from which they derived it.

England has developed the most liberal monarchy of Europe, has quietly put in practice the desiderata of the socialists, and yet it preserves the privileges of its lords who with its judges still wear the peruke and still use phrases peculiar to the time of the Normans. Beyond these superficial practices it has some deep-reach-

ing ones in its fetichism for the Bible, a book neither moral nor modern, and not always original; in its religious exaggeration going so far as to make Sunday idleness a sacred duty. Professing to be a positive and practical people the English maintain a system of division of measures and of money which is in opposition to all modern Europe, and which sometimes constitutes a considerable obstacle in commercial exchange and in scientific research.

The French who are distinguished in industry, in good taste, in fashions, in the arts and in letters, are yet in their excessive warlike passion, in their persecution of foreigners, in their veneration of academies and the nobility, in expecting everything from the government (which, however, they are continually reviling), in their preference of the word to the idea, but little removed from the Gauls. The Italians, superior to all in music, and to many in the sciences, the arts and letters, are still backward in economy, in social organisation, in industry, in commerce, and in true political liberty.

The fact moreover may be demonstrated experimentally. Feré (*Bulletin de la Société de Biologie*, 1896, p. 790) observes that when an egg is exposed to harmful vapors, or if there be injected into it substances soluble in albumen, or if it be subjected to a mechanical action, like placing it upon a table put in vibration by a diapason, the development of the embryo is arrested and a general retardation, or it may be a deformation or even a monstrosity, may be produced. However, it sometimes results in a development more advanced than would be expected from the time of incubation or in an embryo with one part deformed but as a whole more developed than the normal embryo which has not been so subjected.

It is known too that certain influences harmful to development if applied in a certain degree, are favorable when applied to a lesser extent. It appears then that agents capable of exerting an influence upon the development of an embryo resulting in arrest of growth, or deformation, may in the totality of development increase the growth, causing individuals to be produced absolutely superior and which present with partial defects a remarkable general constitution, while some individuals are created weak, deformed or ar-

rested in development. And so, he continues, the most civilised nations are distinguished by their number of exceptional beings, men of genius as well as the most depraved by vice and by intellectual perversion. If all these, he says, are variations and embryonic anomalies they should, however, be carefully distinguished from anomalies characterising degenerations which inevitably accompany evolution. The observation is confirmed by the fact that many regressive forms frequently bear signs of precocious evolution.

I have shown (*Uomo delinquente*, Vol. I.) that in criminals the wisdom tooth is frequently wanting, that the cranial capacity is often greater than the average, that there is a greater neofilia, all ultra-evolutionary characteristics, while they have the median occipital fossette, powerful jaws, and, a fact that is of more importance to us, a number of indications of atavism. Insane people and maniacs frequently present neofilia and great artistic activity, and idiots frequently display special aptitudes in which they become superior to normal men, some of them becoming true prodigies, as is shown by Dr. Peterson in the *Popular Science Monthly*, October, 1896, especially in arithmetical and musical ability, with a particular inclination to imitate in models, drawings, and pictures the objects which they have before them.

One of the most curious examples of this is "Blind Tom," a pure-blooded negro, born in Georgia in 1840. Born blind he showed no intelligence except for sounds. He could not speak a word, but he could repeat any sound which he heard. Merely by the aid of sound he could repeat Greek, Latin, German, and English texts however long after he had heard them recited, could play on the piano from memory any piece, however difficult to follow, and had learned by memory five hundred pieces of music.

Among cases of extraordinary memory in idiots Morel cites a cretin who remembered the date of the funerals of all the persons who had died in his parish within thirty-five years, with the names of those who had taken part in these funerals. Morel also cites the case of an idiot who could not count up to twenty, but who knew

the names of all the Saints in the Calendar with dates of their respective feasts.

As to the imitative faculty the most curious cases are cited. At the asylum of Earlwood there was an idiot who constructed a perfect model of a ship with all its more minute details. Geoffry Mind, a cretin who died in 1814, drew cats with so much skill that his drawings are preserved in all the leading museums of Europe. Gideon Buxton the famous lightning calculator who died in 1702 was stupid; and Zerah Colburn, exhibited at the age of six as a lightning calculator, could never learn anything. He had six toes and many characteristics of degeneracy. Dasah was absolutely a fool, and yet he could multiply mentally numbers of eight and ten figures. Zaneboni, of whom Ferrari and Guiccairdi recently spoke so acutely,[1] is very dull in everything that does not concern figures, has hardly any power of imagination and has very many characteristics of degeneracy, from which the learned doctors conclude that he is morally and mentally imbecile except in the matter of mental calculation.

I have already pointed out that precocity, as Ferrari and Guiccairdi also observed, and spontaneity are the specific characteristics of lightning calculators. And Ferrari justly notes that the memory in such persons is a primitive memory, purely sensorial and simple, by which a thing may be recalled and recognised with the greater part of its elements of fixation and with a clear aspect of the producing sensation without or with slight mental relation, while they are wanting in that secondary memory based upon representative association of sensorial objects, on account of which their imaginations are almost always visual. And among such the few who excel in their studies, like Gauss and Ampère, are lost. It is a question here of one-fourth genius to three-fourths imbecile.

From this to the normal degeneration of the genius the step is easy.[2] And it becomes necessary, almost fatally, that to the most highly developed form of genius should correspond a regression not

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[1] *Rivista di Freniatria.* Reggio, E., 1897.

[2] *L'Homme du Serie.* C. Lombroso, 2d ed. Paris, 1896.

only in other directions but also in the organ itself which is the seat of its evolution. And thus is explained the frequency of sclerosis, hydrocephalus, left-handedness, misoneism, pigmeism, moral insanity, paranoia, at the expense of which anomalies genius has been able to take root and develop.

CESARE LOMBROSO.

TURIN.