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PHYSICAL FACTORS AND CRIMINAL BEHAVIOUR*

By *W. Norwood East***

I

INTRODUCTION

It is instructive to examine general concepts from time to time and consider whether they are as valuable as they are assumed to be. There can be no doubt that many people unthinkingly form a composite picture of what they believe to be the general appearance of the criminal. The portrait is invariably uncomplimentary, and some offenders, particularly perhaps those who engage in fraud, take pains to improve their personal appearance as well as their manners in an attempt to disarm suspicion on the part of their intended victims.

In the seventeenth century Sir Thomas Browne¹ wrote: "There is surely a Physiognomy, which those experienced and Master Mendicants observe, whereby they instantly discover a merciful aspect, and will single out a face wherein they spy the signatures and marks of Mercy. *For there are mystically in our faces certain Characters which carry in them the motto of our Souls . . .*" (italics mine).

Among the immortal pictures of William Hogarth, the eighteenth-century satirist, were those which illustrated the principles of good and evil in scenes from the lives of *The Two Apprentices*. The results of Industry and Idleness were forcibly presented by contrasting success and honour in the one with crime and ruin in the other, and the latter in all its ugliness must have impressed those who reflected upon the lessons which the twelve engravings taught. In the nineteenth century the inimitable illustrations of George Cruikshank depicting Fagin, Bill Sikes and other characters in the works of Charles Dickens also emphasized the association of crime and evil-doing with personal ugliness. And although the criminologist before the opening of the twentieth century had replaced the theological idea of sin by a mundane con-

*The author published a short study on the subject of this article in *Mental Abnormality and Crime*, London, Macmillan & Co., Ltd., 1944, and while he has received the gracious permission of the Publisher to draw freely on that version, the present paper involves a fresh approach to the subject and a more definitive exploration of the several aspects involved.

**M.D., F.R.C.P., Special Consultant to the Royal Navy; formerly His Majesty's Commissioner of Prisons, England and Wales.

¹Browne, T., *Religio Medici*, (Greenhill ed. 1943) Pt. II, Sec. II.

ception of crime, he often failed to discard the opinion that this also was closely related to a repellant exterior.

Authors as well as artists frequently refer to a connection between physiognomy and antisocial traits of character. Havelock Ellis² stated that when Homer described Thersites as ugly and deformed with harsh scanty hair, and a pointed head, like a pot that had collapsed to a peak in the baking, he furnished evidence as to the existence of a criminal type of man. Ellis mentioned the fact that long ago men referred to the organic peculiarities which they believed separated the criminal from the ordinary man, and quoted in support among others the proverbs: "Salute from afar the beardless man and the bearded woman," and "Distrust the woman with a man's voice."³

The often recalled assertion of Shakespeare's Caesar,

"Let me have men about me that are fat;
Sleek-headed men and such as sleep o' nights:
Yon Cassius has a lean and hungry look;
He thinks too much: such men are dangerous."⁴

stresses the relation between bodily appearance and character.

Although numerous treatises on physiognomy were published in the sixteenth century the development of anatomy in the seventeenth, substituting fact for fiction, diminished the quality of the output at that time. And by the Act of Parliament 17 George II c. 5 (1743), all persons pretending to have skill in physiognomy were deemed rogues and vagabonds and were liable to be publicly whipped, or sent to the house of correction until the next sessions. Nevertheless, public interest in the subject continued, and an English edition of *Essays on Physiognomy* by Lavater (1741-1801) went through at least seventeen editions.

II

SCHOOLS OF PENOLOGY

The so-called classical school of penology is associated with the name of Cesare Beccaria, Italian publicist, mathematician, councillor of state, and magistrate, who in the year 1764 published his famous treatise *Dei delitti e delle Pene* ("On Crimes and Punishments"). He recommended the prevention of crime rather than punishment, and that if punishment was inevitable it should be

²Ellis, Havelock, *The Criminal* (5th ed. 1914) 26.

³*Id.* at 27.

⁴Julius Caesar, Act I, Sc. II, Lines 191-194.

prompt. He condemned confiscation, capital punishment and torture. His humane ideas directly influenced reforming action on the Continent, and were utilized in the French revolutionary code. Voltaire contributed an anonymous preface to Morellet's French translation of Beccaria's pamphlet.⁵

Some forty years later Samuel Romilly, lawyer, politician and friend of Mirabeau commenced his attempt to reform the cruel and illogical criminal law of England, and although he obtained only partial success ensured ultimate victory by exposing its barbarity. His friend Jeremy Bentham, English philosopher and jurist, also devoted his precise and analytical mind to the subject and severely criticized the state of the law. His theories upon legal subjects influenced legislation in other countries as well as at home. In his *Introduction to the Principles of Morals and Legislation* Bentham⁶ considered that mankind was governed by two sovereign motives, pain and pleasure, and that the object of all legislation must be "the greatest happiness of the greatest number" — a phrase used twenty-five years before by Beccaria in his famous treatise.

In France, Rousseau, Voltaire and Montesquieu were associated with the humanitarian teachings of Beccaria, Romilly and Bentham, which assumed that every criminal act was a deliberate choice determined by a calculation of its prospective pleasures and pains. All that was needed to overcome the criminal purpose was to provide for every crime a penalty sufficient to outweigh its apparent advantages. It was believed that excessive penalties, such as death, were unnecessary and therefore unjust.

It is interesting to note that in the index to the text of Bentham's volume, *The Theory of Legislation*, reference is made to crime, offenses and criminality, but none to criminals or offenders. In fact, although this school was seriously concerned with abolishing injustice and the vindictiveness of punishment, and believed that the function of punishment was solely deterrent, it paid little attention to the individuality of the offender.

The neo-classical school of the revolutionary period in France which followed, although not departing from the doctrine of the classical school that criminals are normal persons who have succumbed to temptation, modified the rigidity of Beccaria's view and accepted the fact that there might be differences among

⁵3 Encyc. Britt. (14th ed. 1937) 285.

⁶Bentham, J., *The Theory of Legislation* (Ogden ed. 1931).

criminals. It insisted on the recognition of different degrees of moral and legal responsibility in the case of children and lunatics for whom justice demanded special treatment. The new school also demanded the recognition of mitigating circumstances in general, and whilst the older school was concerned merely with the deterrent effect of punishment the latter considered also that the reformation of the offender was one of the purposes of the award.

The modern doctrine that the punishment of the individual rather than of the crime he has committed is of paramount importance is an outcome of the fundamental principle of the neo-classical school.

The positive or anthropological school was a later product. It differed from the view of Beccaria and his successors and returned to the original view that the man who commits crime is specifically different from the man who does not. It went further, and believed that the criminal was predestined to a criminal career on account of his inherited traits and that he was therefore wholly irresponsible. Although society must be protected from his criminal behaviour the positivists considered that it was wrong and foolish to punish the criminal as if he were a free agent and able to select his course of conduct. This school aimed at the positive methods of science, and although many of the assumptions and alleged facts upon which its conclusions were based are no longer accepted by the modern school, which has arisen during the last quarter century, a brief reference is due to some of its apostles.

III

ANTHROPOLOGICAL RESEARCH

The discoveries of Francis Joseph Gall in the anatomy of the brain will remain outstanding for all time. It is to be remembered, as the late Sir Henry Head pointed out in the Hughlings Jackson Lecture for 1920, that the idea that the underlying structure of the brain has an effect upon the formation of the skull, and in consequence that character could be foretold from the external conformation of the head, is only a small part of the theory put forward by Gall.

It is a calamity that Gall's scientific work is remembered for its mistakes rather than for its great achievements.

Although Gall mapped on the skull organs of murder and theft, his co-worker Spurzheim, and his disciple Combe modified the

nomenclature in order to avoid discredit to the system of phrenological deduction.

In an article published in the *Transactions of the Phrenological Society* in 1824, Combe referred to the discovery by Gall that the size of the particular portions of the brain bears a relation to the energy of particular mental powers and dispositions. He stated that the phrenologist produces the actual skull of the criminal, or a cast of it, as evidence of the development, and proves the one exhibited to be authentic and genuine. Having done so, he specifies the development of organs which it indicates. If the skull shows that Combateness and Destructiveness and Acquisitiveness are large, but Benevolence and Conscientiousness small, and the trial shows that the criminal was an unprincipled thief and an obvious murderer, he draws the conclusion that the organs and dispositions correspond, and that he is entitled to represent the case as additional proof that those parts of the brain are connected with the tendencies ascribed to them in the phrenological system. Combe believed that if the real cause of human offences was excessive size and activity of the organs of the "animal propensities" it followed that mere punishment could not abolish crime, because it overlooked the cause and left it to operate with unabated energy after the infliction has been endured.

Combe particularly insisted that criminal legislation and prison discipline should be based upon physiology, and especially the physiology of the brain and nervous system, in order to be efficient. He published a pamphlet to this effect under the title *The Principles of Criminal Legislation and the Practice of Prison Discipline Investigated*, and Mr. Baron Alderson referred to it in his Charge to the Grand Jury at the Yorkshire Winter Assize of 1854 as a work which contained most valuable material for careful thought and observations, which every sincere reformer of the criminal population ought to weigh well and consider.

C. J. A. Mittermaier,⁷ Professor of Criminal Law in the University of Heidelberg, in a letter to George Combe written in 1842, suggested that phrenology could be applied with advantage to form a correct conception of the nature of certain crimes, and a sound judgment of the method of punishment necessary to deal with and prevent them. He believed that phrenology was of special importance in reference to questions of responsibility, in view of the consideration that certain organs of the mind which should

⁷East, W. Norwood, *The Medical Aspects of Crime* (1936) 221.

guide a man's conduct aright might be extremely deficient, and other organs which in excess incited to certain crimes might be enlarged, and in proportion circumscribe an offender's responsibility.

Although anatomy, physiology, endocrinology, psychology and practical experience discredit today the phrenological diagnosis of character, the criminologist remains indebted to Gall and his followers. For they directed attention to the importance of the study of the individual offender, and to the fact that criminal legislation and prison discipline must be based upon scientific data in order to be effective.

Gall's observations on the cranial formation of criminals induced Lauvergne to study the convicts at Toulon who were under his care.⁸ He considered that the assassins presented "a peculiar face stamped by a seal of a brutish and impassible instinct. Their heads were large and receding with notable lateral protuberances, enormous faces, and masticatory muscles always in motion." A year before Carus stated that delinquents were to be distinguished by a narrow forehead, the insufficient development of the occiput and the length of the cranium.

Broca, who established the Anthropological Society of Paris in 1859, gave attention to the peculiarities of the skulls and brains of criminals. Ten years later Dr. G. Wilson⁹ read a paper at the Exeter meeting of the British Association on *The Moral Imbecility of Habitual Criminals as Exemplified by Cranial Measurements*. He measured the heads of 464 criminals, and concluded that habitual thieves presented well-marked signs of insufficient cranial development, especially anteriorly. In 1879 Francis Galton¹⁰ illustrated a lecture to the Royal Institution with a composite portrait of Alexander the Great made by combining his image on six different medals and pursued this method of investigation in his studies on health, disease and criminality. He wrote: "I have made numerous composites of various groups of convicts, which are interesting negatively rather than positively. They produce faces of a mean description, with no villainy written on them. The individual faces are villainous enough, but they are villainous in different ways, and when they are combined, the individual peculiarities disappear, and the common humanity of a low type is all that is left."

Among the criminologists of the latter half of the last century

⁸Ellis, Havelock, *op. cit. supra* note 2.

⁹*Id.* at 37.

¹⁰Galton, Francis, *Inquiries into Human Faculty*, (2nd ed. 1908) 11.

Lombroso held a foremost place. Havelock Ellis considered that he was influenced by the anthropological studies of Broca, the illuminating genius of Virchow, and Darwin's *Origin of Species* which furnished him with an "atavistic key."¹¹ In 1876 Lombroso published his *L'Uomo Delinquente* and considered the criminal as an anatomical and physiological organic anomaly. He was aided by Ferri, who later became interested in the social aspects of criminology, by the anthropometrical studies of Marro, and by Garofalo who applied the conception of criminal anthropology to the law.

Lombroso's anthropological investigations of criminals appear to have arisen accidentally from his discovery of anomalies in the skull of a brigand. In a statement before the Congress of Criminal Anthropology held in Turin in 1906 he described how ". . . at the sight of these strange anomalies as a large plain appears under an inflamed horizon, the problem of the nature and origin of the criminal seemed to me resolved; the character of primitive men and of inferior animals must be reproduced in our time."

A study of the skulls of 383 criminals caused him to believe that certain anomalies present were more marked in criminals than in the insane. He considered that a comparison with the skulls of savages and prehistoric man showed the atavistic character of some of the anomalies. He asks: "Is it possible that individuals afflicted with so great a number of alterations should have the same sentiments as men with a skull entirely normal? And note that these cranial alterations bear only upon the most visible modifications of the intellectual centre, the alterations of volume and of form."

Lombroso's anthropological and physiognomic observations were the result of the examination by himself and other workers of 5,907 criminals. He said: "The study of the living, in short, confirms, although less exactly and less constantly, this frequency of microcephalies,¹² asymmetries, of oblique orbits,¹³ of prognathisms,¹⁴ of frontal sinuses¹⁵ developed as the anatomical table

¹¹Ellis, Havelock, *op. cit. supra* note 2, at 41. Atavism: The recurrence, in a descendant, of characters of a remote ancestor, as a great-grandparent; reversion to a more primitive type.)

¹²Microcephalus: Small head, an idiot or fetus with a very small head.

¹³Oblique orbits: The orbit is the bony socket which contains the eye.

¹⁴Prognathism: Marked projection of the jaw; having a gnathic index above 103.

¹⁵Frontal sinuses: Two air cavities in the lower border of the frontal bone beneath the supraciliary ridge: these communicate with the nasal fossa. Frontal sinuses are thus situated in that part of the cranium which the layman refers to as the "forehead."

has shown us. It shows new analogies between the insane, savages and criminals. The prognathism, the hair abundant, black and frizzled, the sparse beard, the skin very often brown, the oxycephaly,¹⁶ the oblique eyes, the small skull, the developed jaw and zygomas,¹⁷ the retreating forehead, the voluminous ears, the analogy between the two sexes, a greater reach, are new characteristics added to the characteristics observed in the dead which bring the European criminals nearer to the Australian and Mongolian type; while the strabism,¹⁸ the cranial asymmetries and the serious histological anomalies,¹⁹ the osteomates,²⁰ the meningitic lesions,²¹ hepatic²² and cardiac,²³ also show us in the criminal a man abnormal before his birth, by arrest of development or by disease acquired from different organs, above all, from the nervous centres as in the insane; and make him a person who is chronically ill."

C. Mercier²⁴ criticizing the deductions of Lombroso wrote: "As no two human beings are precisely alike, as everyone departs in some respect from the average, and as no fixed average was ever ascertained by the criminologist, it was easy to pick out in every criminal some character or other that appeared exaggerated or defective to a prejudiced eye, and to declare that this character is a 'stigmata of criminality.'"

Lombroso believed that his anatomical studies enabled him to distinguish the criminal he believed to be born as such from the criminal of habit, passion or occasion whom he believed to be born with very few or no abnormal characteristics. He believed in the identity of the "born criminal" and the "moral imbecile" and demonstrated many similarities between the former and the epileptic in height and weight, the brain and skull, the physiognomy, the flat and prehensile foot,²⁵ the sensibility, the visual field,²⁶ motility,²⁷

¹⁶Oxycephaly: A condition in which the top of the head is pointed with a vertical index above 77; the effect is to produce a steeple-shaped head.

¹⁷Zygoma: The arch formed by the zygomatic process of the temporal bone and by the malar bone. The malar is the cheek bone.

¹⁸Strabismus: A squint deviation of one of the eyes from its proper direction, so that the visual axes cannot both be directed simultaneously at the same objective point.

¹⁹Histological anomalies: Marked deviations from the normal architectural pattern of tissues discernible by microscopic study.

²⁰Osteomates: An osteoma is a tumor composed of bone tissue, or a hard bone-like structure or protuberance developing on a bone and sometimes on other structures.

²¹Meningitic lesions: Injury to membranes of inflammatory character.

²²Hepatic: liver.

²³Cardiac: heart.

²⁴Mercier, C., *Crime and Criminals* (1918) 209.

²⁵Prehensile foot: A foot adapted for grasping and seizing.

²⁶Visual field: That portion of space which the fixed eye can see.

²⁷Motility: The ability to move spontaneously.

tattooing etc. (Parmelee). And he found: "Criminality is therefore an atavistic phenomenon which is provoked by morbid causes of which the fundamental manifestation is epilepsy."

In a later volume, *Crime, Its Causes and Remedies*, Lombroso wrote the complement to his study on *Criminal Man*, and refuted the accusation that his school neglected the social and economic causes of crime. He stated in the preface to the later work that "certain practical nations, less smothered than our own under a too glorious past, and for that reason less infatuated with the ancient codes, have already here and there arrived empirically, without knowing a word of criminal anthropology, at several of the reforms that I shall suggest. The asylum for the criminal insane, the truant schools, the ragged schools, the societies for the protection of children, and the asylums for alcoholics, and institutions which, without being a part of the criminal code, have been applied more or less completely in North America, England and Switzerland . . ."

L. Grimberg,²⁸ discussing emotional instability, which he considers is emotional defectiveness due to endocrine deficiency²⁹ and an actual organic inferiority, finds in this sense a glimmer of truth in the Lombrosian theory of the born criminal. He thinks that the frequent physical defects found in habitual criminals have their explanation in the involvement of the endocrine glands concerned with growth and life activities.

Hermann Mannheim writes: "Did Lombroso's enthusiasm, however, really succeed in discovering the special criminal types that he sought, and are these types capable of definition according to anthropological characteristics? The almost unanimous opinion of today, as is well known, answers the second question in the negative. It is especially Lombroso's identification of the born criminal type with the notions of atavism and degeneration; the exceeding importance which he attributed to epilepsy; his belief in an anthropological criminal type of even international uniformity that are commonly rejected. The main features of his theory of the anthropological stigmata of the born criminal have been disproved by Baer and Goring, who independently examined the problem. Many of the statements made by Lombroso in this respect are today at best no more than curiosities, and even so far as they are partly confirmed by later researches, they cannot be

²⁸Grimberg, L., *Emotion and Delinquency* (1928) 112.

²⁹Endocrine deficiency i.e., a deficiency of the internal secretions of the so-called ductless glands, e.g. pituitary, thyroid, adrenals, etc.

regarded as sufficient foundations for his sweeping conclusions."³⁰

Havelock Ellis³¹ in 1914 agreed with the statement of Hepworth Dixon in 1850 that the criminal countenance was at once repulsive and interesting. In the same volume he reproduced a series of imaginative portraits from the note books of Vans Clarke, a former medical officer of Pentonville prison. The artist stated that the portraits were necessarily taken in haste, but they were true and were considered to be successful likenesses. Later, Goring,³² when medical officer of Parkhurst prison, compared them with a series of photographic outline profiles traced by him from a series of photographs selected at random from the official portraits of convicts at Parkhurst. Goring's composite portrait suggests the ordinary citizen. The composite imaginary portrait resulting from the drawings of Vans Clarke favours imbecility.

On my introduction to prison medical work at the opening of the present century I was impressed by the unattractive appearance of the convicts at Portland prison and attributed it to their criminality. The experience of later years proved this view to be mainly incorrect, and the unattractiveness to be due to four principal causes. One disappeared when the Mental Deficiency Act, 1913, came into operation and withdrew from the prison population an appreciable number of mentally defective persons. Further improvement was noticeable as soon as prisoners were allowed to grow their hair instead of having it cut close to the scalp with clippers. Betterment increased when their clothes no longer bore the broad arrow stamp and the ungainly uniform of the prisoners was altered so as to approximate ordinary civilian clothing. Perhaps the greatest change was observed when the harsh penal discipline was replaced by humane understanding, for the facial expressions of many prisoners altered when they were no longer treated as criminals to be suppressed, but as men and women whose co-operation was necessary for their reformation.

I have stated elsewhere³³ that the student of criminal physiognomy is rightly concerned with more than mere facial and cranial outlines. For if we accept modern psychological teaching that the instincts with their accompanying emotions form the basis of character and temperament and thereby affect human conduct, and if we consider that the emotional reaction is reflected in part by an

³⁰Mannheim, H., Lombroso and His Place in Modern Criminology (1936) 27 Sociol. Rev. 31-49.

³¹Ellis, Havelock, *op. cit. supra* note 2, at 87.

³²Goring, C., *The English Convict* (H. M. Stationery Office, 1913).

³³East, W. Norwood, *op. cit. supra* note 7, 226.

alteration of facial expression, we can believe that permanent and characteristic changes will be engraved upon the features by a frequently repeated emotion, or its corresponding mood if long continued. There can be little doubt that in certain cases the facial expression so impressed may suggest the nature of the crime and the habit of the criminal. But it is a suggestion only. For although everyday experience tends to show that some observers are particularly gifted in the accurate interpretation of the facial expressions of casual acquaintances, estimations of character by this means in any series of criminal cases are so frequently at fault as to be quite unreliable unless corroborated by ascertained facts.

Havelock Ellis³⁴ referred to anomalies of the teeth, ears, hair, trunk and limbs in criminals which various disciples of Lombroso enumerated and regarded as stigmata of degeneration. It is unnecessary to consider them here. Considerable stress was attached to the fact that tattooing was common among criminals. In the year 1901 I examined 500 convicts at Portland to ascertain the frequency, and found that 43 per cent were decorated in this manner. It seemed to be a smaller proportion than was usual in the personnel of the navy and army at the time.³⁵

Although much of the research work carried out during the latter part of the nineteenth century failed to stand the test of time we recognize today the debt we owe to the men who were groping to find a trail which would lead towards the scientific understanding of crime and the informed treatment of criminals. As Mannheim³⁶ states Lombroso "saved criminal science from the shackles of merely academic abstractions." Moreover, Lombroso and his co-workers and followers taught us the fallacy of assuming that the use of a current scientific method of research is necessarily as valuable as an enduring scientific method of thinking. They also illustrated the fact that whilst progress depends largely upon new ideas, scepticism and suspended judgment, as Wilfred Trotter pointed out, are the very essence of the scientific mind. When considering their work we shall do well to remember Trotter's declaration "The only way to the serene sanity which is the scientific mind—but how difficult consistently to follow—is to give to every fresh idea its one intense moment of cool but imaginative attention before venturing to mark it for rejection or suspense."³⁷

³⁴Ellis, Havelock, *op. cit. supra* note 2, at 63 *et seq.*

³⁵East, W. Norwood, Physical and Moral Insensibility in the Criminal (1901) 47 J. Ment. Science 737-758.

³⁶Mannheim, H., *supra* note 30, at 32.

³⁷Trotter, W., Collected Papers (Milford, 1941) 28.

The positive school studied the individual criminal as a bio-social phenomenon with the scientific means at its disposal. The rapidly developing interest in the psychological aspects of morbid mental conditions since the earlier years of the present century has brought about an important change of emphasis from the anthropological to the psychological associations of criminal conduct, and the research worker today studies the criminal as a bio-socio-psychological phenomenon.

IV

ANTHROPOMETRICAL RESEARCH

Kinberg states that the tendency of European criminology is rather towards the individual, endogenous theory of criminality, while Northern American criminologists are more inclined to see its chief causes in social factors. He considers that one of the reasons for these divergent attitudes to the causal problem may well be the considerable differences in the social conditions in Europe and America. He writes: "European society is old, its roots go far back into antiquity. Customs, traditions, moral standards, and behaviour-patterns have been inherited from father to son for countless generations, the growth of the population and material progress has been slow and continuous without sudden changes. . . . America, on the other hand, is a young country and has in a century doubled its population many times over, not by a natural growth, but chiefly owing to a stream of immigrants from all parts of the world . . . Owing to the enormous natural resources of the American continent the material advance has frequently been almost explosive . . . In this heterogeneous population there are also a great variety of moral conceptions which at the same time are more mobile owing to, among other things, the intensity of the social processes of disorganization and reorganization. Being uprooted from his mother country and its standard of behaviour the quondam moral ideals of the immigrant become more or less completely demolished. That demolition means that for a longer or shorter period after his arrival in the new country and until he has had time—if he ever does—to adapt himself to the new social conditions, he is in a critical and dangerous state."³⁸

Grimberg³⁹ considers that not only may there be a conflict between a native-born child and his immigrant parents but also

³⁸Kinberg, Olof, *Basic Problems of Criminology* (Heinemann, 1935) 167.

³⁹Grimberg, L., *op. cit. supra* note 28, at 47.

with the imposed concept from the outside with which the family itself is in conflict. Sheldon and Eleanor Glueck⁴⁰ stress the fact that social workers and criminologists have often referred to the probable conflict of points of view and standards between the native born younger generation and the foreign born elder, and consider this an important causal factor of criminality in America.

Can there be any doubt that the personal and social dissimilarities of, say, the United States of America and Great Britain make it desirable for each country to view the problem of crime in the other through lenses provided by that other?

During the first decade of the present century seven medical officers of the Prison Service of England and Wales carried out a series of anthropometrical measurements in the convict prisons. Service conditions enabled Charles Goring to examine a larger number of men for this purpose than any other one of us in the team, and he was eminently suitable for collating the material. This he did between May, 1909, and November, 1911, in the Biometric Laboratory of University College, London, under Professor Karl Pearson. The results were published in 1913.

Goring summarized the results of this inquiry into the physical characters of criminals thus: "We have exhaustively compared, with regard to many physical characters, different kinds of criminals with each other, and criminals as a class with the law-abiding public. From these comparisons *no evidence has emerged confirming the existence of a physical criminal type, such as Lombroso and his disciples have described* (italics in original text). Our data do show that physical differences exist between different kinds of criminals: precisely as they exist between different kinds of law-abiding people. But when allowance is made for a certain range of probable variation, and when they are reduced to a common standard of age, stature, intelligence, and class etc., these differences tend entirely to disappear. Our results nowhere confirm the evidence nor justify the allegations of criminal anthropologists. They challenge their evidence at almost every point. In fact, both with regard to measurements and the presence of physical anomalies in criminals, our statistics present a startling conformity with similar statistics of the law-abiding classes. The final conclusion we are bound to accept until further evidence in the train of long series of statistics may compel us to reject or modify an apparent certainty—our inevitable conclusion must be that *there*

⁴⁰Glueck, S. and Glueck, E., 500 Criminal Careers (1930) 118.

is no such thing as a physical criminal type"⁴¹ (italics in original text).

Goring believed that "the tendency to be convicted and imprisoned for crime is influenced by the force of heredity in much the same way, and to much the same extent, as are physical and mental qualities and conditions in man."⁴² Elsewhere, discussing the Aetiology of Crime he stated that his anthropometrical investigation assumed "the possibility that environmental, as well as constitutional, factors play a part in the production of criminality."⁴³

Earnest Albert Hooton⁴⁴ is a recent critic of Goring's work. In his anthropometrical study of *The American Criminal* Hooton states: "There are many portions of Goring's work which are of great value. His notable contributions are in the study of criminal physique which he finds definitely inferior, thus confirming the conclusions of Lombroso, in the influence of age upon crime, in the vital statistics of the criminal, in the mental differentiation of the criminal (which again agrees with Lombrosian ideas), and in his investigations of 'force of circumstances,' fertility and heredity. He cannot be denied great credit for his painstaking investigation of these important aspects of crime. He also deserves abundant praise for the variety of delicate and ingenious statistical devices he employs, although his method of using them is frequently culpable.

"In his efforts to disprove physical differentiation of the criminal Goring displays most of the faults which he charges to Lombroso, and others of which Lombroso was never guilty. In an early stage of Goring's work, Professor Karl Pearson asked him the question, 'And what if Lombroso's theory be established by your analysis?' 'I shall accept it as the foundation of criminology, but shall none the less condemn Lombroso as a traitor to science.' Professor Karl Pearson quotes this reply with apparent approbation, but it seems to the present writer⁴⁵ to epitomise the lack of an objective view-point and the prejudice which inevitably vitiates the work of the scientist who approaches his task with an emotional preconception of its issue. Actually Goring left the problem of the relation of the criminal's physique to his offence unsolved. Mathematical formulae and verbal sophistries may be-

⁴¹Goring, C., *op. cit. supra* note 32, at 173.

⁴²Goring, C., *op. cit. supra* note 32, at 372.

⁴³Goring, C., *The Aetiology of Crime* (1918) 64 J. Ment. Science 129-146.

⁴⁴Hooton, E. A., *The American Criminal* (1939) 104.

⁴⁵I.e., Hooton.

fuddle lay readers, but no one who reads and understands Goring's *English Convict* can accept his conclusions until he shares the prejudice of the author."

It is not my intention to enter into this controversy. It must always be remembered that Goring dealt with a limited class of prisoners—recidivists and others convicted of serious crimes.

Hooton considers that "Criminals are inferior to civilians in nearly all their bodily measurements. These differences attain statistical significance and general criminological validity in body-weight, in stature, in biacromial breadth,⁴⁶ chest depth, chest breadth, cranial circumference, nose height, ear-length, head height, and upper facial height. Criminals also diverge from civilians in having higher fronto-parietal indices,⁴⁷ lower facial indices, higher nasal indices, higher zygo-frontal indices⁴⁸ and greater relative sitting height. These differences appear to be independent of age and state sampling."

He declares that several outstanding morphological differences exist between criminals and civilians. For example, we are told that tattooing is commoner among criminals than among civilians, that criminals probably have thinner beard and body hair and thicker head hair; that criminals have more straight hair and less curved hair and have more red-brown hair and less grey and white hair. That low and sloping foreheads, thin lips and compressed jaw angles are commoner in criminals than in civilians, and so on.

Hooton believes that his information definitely proves that it is from the physically inferior element of the American population that native born criminals of native parentage are mainly derived. He says: "My present hypothesis is that physical inferiority is of principally hereditary origin; that these hereditary inferiors naturally gravitate into unfavourable environmental conditions; and that the worst or weakest of them yield to social stresses which force them into criminal behaviour." He recognizes, however, that the results of his investigation, so far, cannot be said to have any great practical utility. In *Crime And The Man* he points out that "No one . . . would conceive it possible to utilize for purposes

⁴⁶Biacromial breadth: The acromion is the outward extension of the spine of the scapula, forming the point of the shoulder. The scapula is the triangular bone at the back of the shoulder.

⁴⁷Fronto-parietal index: This index is based upon the relationship of the frontal and parietal bones both of which are bones comprising a part of the cranium.

⁴⁸Zygo-frontal index: An index based upon the relationship of the zygoma (the arch formed by the zygomatic process of the temporal bone and by the malar bone) and the frontal bone, both being constituent parts of the cranium

of practical criminal diagnosis any rigid multiple combination of morphological features⁴⁹ supposed to constitute a criminal type . . . All that can be expected of the . . . typing of criminals is that excesses of this kind or that kind of offence may be demonstrated for the several sub-groups."⁵⁰

Frank A. Ross reviewing Hooton's anthropological study states: "Hooton appears to have the mistaken idea that all data gathered in any fashion in jails, penitentiaries, etc., are sample data in the sense that they represent the universe of the criminal. He makes brave and convincing defense of his materials and acknowledges certain flaws, even going so far as to correct some differences. But in the light of present day knowledge of sampling methods his data appear to be open at points to specific challenge."⁵¹ William B. Tucker summarizes the objections raised by the critics of Hooton's reports in his *Criminological Studies*. They say Hooton did not take non-physical factors into account sufficiently; his assumption that incarcerated criminals are representative of all criminals is untenable; his controls were inadequate; and some of his statistics are open to challenge. With regard to the first of these objections, Tucker points out that Hooton deliberately chose not to study the non-physical basis of crime, leaving that aspect to the sociologists and criminologists. Concerning the second, Tucker calls attention to the fact that there is some evidence that prison samples are not characteristic of all criminals, but this is a practical problem which is difficult to overcome when one wishes to study a group of criminals, and lacking the perfect group to be studied it may not be unwarranted to accept tentatively the representativeness of the prison group. As to the inadequacy of Hooton's controls, Tucker considers the objection does not pay enough attention to the fact that a total of 3,203 non-criminals were employed in the analysis. He also considers that careful study fails to reveal serious misuse by Hooton of statistical techniques, though the interpretation may be sometimes questioned.

Tucker adds: "Making due allowances, therefore, for such relatively minor faults in Hooton's argument, it still may be conservatively stated that physical (anthropometric) differences have been demonstrated between criminals and non-criminals, but especially among offence groups. If this position is tenable — and it seems to

⁴⁹Morphological features: Morphology is the science of the forms and structure of organized beings.

⁵⁰Hooton, E. A., *Crime and the Man* (1939) 104.

⁵¹Ross, F. A., (1939) 45 *Amer. J. Soc.* 477-480.

be, on the evidence available — there should be no cause for concern, but rather cause for quickened interest, to follow down a lead offering greater or less promise of solving the complex cause of crime.”⁵² He refers to Langfeldt’s⁵³ findings that leptosomes⁵⁴ and schizothymes⁵⁵ were the commonest physical and psychological types amongst criminals; to the work of Berry and Büchner⁵⁶ who found a correlation between the size of the head and intelligence and found criminals to have lower brain capacity than other groups; to the anthropometric study of Illinois convicts by Gray⁵⁷ in which the difficulty of the problem was seen in the fact that a great many of the measurements were affected by the age of the individual, and to the works of de Pina⁵⁸ and Frassetto⁵⁹ who advocate a more comprehensive morphological method than reliance on such indices as the cephalic or nasal index alone.

Attempts to assess the importance of anthropometrical measurements and the physique of arrested criminals must be restrained by two factors. First, it is a matter of common observation that the criminal in custody is frequently drawn from a stratum of society in which the economic position is unfavourable for physical development. The effect of the free issue of milk to school children in England, and a better approximation of their diet to developmental demands, will be watched with interest. It may affect the results of future studies concerning the relation of physique and

⁵²Tucker, W. B., *Physical Basis of Criminal Behavior*, (1940) 31 *J. Crim. Law and Criminol.* 427-437.

⁵³Langfeldt, G., *Der Dieb und der Einbrecher* (Oslo, 1936) 62-64.

⁵⁴Leptosome: A person with a slender, light physique.

⁵⁵Schizothymic: (To divide mind) Schizophrenic: Schizophrenia is a psychosis essentially of the period of puberty and adolescence, characterized by a dementia which tends to progress, though frequently interrupted by remissions. It includes the paranoid, hebephrenic, catatonic, simple, and mixed forms. Patients suffering from schizophrenia comprise by far the largest number of admissions to hospitals for mental disease. Some of the outstanding symptoms of schizophrenia are: marked introversion (withdrawal of the patient’s interests from the outside world as objectively conceived), narcissism (love of one’s self), emotional flattening, negativism, stubbornness, eroticism (sexual excitement on a physical, mental or emotional basis), delusions and hallucinations, all of which gradually leads to mental deterioration.

⁵⁶Berry, R. J. A. and Buchner, L. W. G., *Correlation of Size of Head and Intelligence as Estimated from the Cubic Capacity of Brain of 355 Melbourne Criminals* (1913) 25 *Proc. Royal Soc. Victoria*, N. S. 229-253.

⁵⁷Gray, H., *Body-Build in Illinois Convicts with Special Reference to Age* (1934) 25 *J. Crim. Law and Criminol.* 554-575.

⁵⁸de Pina, Luis, *Delinquencia, alienacao mental e morfologia craniana*, *Arquivo da Reparticao de Antropologia Criminal (Psicologia Experimental e Identificacao Civil do Porto*, fasc. 3, 1931) 265-268.

⁵⁹Frassetto, F., *Les formes normales de crâne humain. Leur genèse et leur classification*. (*Bull. de la Soc. d’Étude des Formes Humaines*, nos 3-4, Paris, 1929).

crime in adolescent offenders.⁶⁰ It may show that both are affected by a common factor. Second, we do not know whether the criminal in custody belongs to a special type—the least intellectually fit, and in consequence the most likely to be arrested.

The criminal is a product of the society in which he lives, and we have no reliable figures to show what the proportion of apprehended law-breakers is compared with those who escape arrest and are accepted as law-abiding samples of the community. The unarrested offenders are undoubtedly numerous, and Total War has made it clear for all to see how many customers are also accomplices who encourage the black-market criminals. Further, from the point of view of moral turpitude and the amount of injury done to society, some observers may consider that persons who for their own gain rob others of the truth, by broadcasting false statements on political and other issues, are more culpable than many necessitous people who appear before a criminal court for a minor offence.⁶¹

V

RECENT RESEARCH AMONGST ADOLESCENT OFFENDERS IN ENGLAND

During the years 1930-1936 inclusive, 4,000 male adolescent offenders from London and the surrounding areas were examined under my direction, at Wormwood Scrubs Boys Prison, for the purpose of statistical study.⁶² Although the investigation was not primarily concerned with anthropometrical data a brief reference may be made to some of the findings. It should be noted that there were no means by which the difficulties arising when an attempt is made to compare large statistics of offenders in custody with a comparable and non-criminal group of the same size could be overcome. Indeed, no one can say how many lads in a non-criminal control group have committed undetected crimes, or how many of them would commit crime in future. The data, however, enabled a comparison to be made between lads with previous convictions and those of the same age with none.

⁶⁰See also the following section.

⁶¹I am considering here moral turpitude in a wide sense. Bentham said: "Moral good is *good* only by its tendency to produce physical good. Moral evil is *evil* only by its tendency to produce physical evil; but when I say *physical* I mean the pains and pleasures of the soul as well as the pains and pleasures of sense." (See Theory of Legislation, p. 3.)

⁶²East, W. Norwood, Stocks, P., and Young, H. T. P., The Adolescent Criminal (1942).

Stature.—There was no evidence of association between repeated offences and stature. The mean height of lads with a record of offences against property and the person was greater than for the sexual and discipline group⁶³ of offenders at ages 16, 17 and 19, and was not exceeded by any other group at 18, but at no age was the excess significant. The other groups did not show any significant variation either.

Weight.—There was no appreciable difference of mean weight between the first and second offenders; the excess was only apparent for those with a record of two or more previous convictions, but was not statistically significant for any age taken alone. The consistent excess in weight of lads with more than one previous offence at every age could scarcely be fortuitous and could not be accounted for by the difference in mean stature. It probably indicated a slightly better average nutrition or muscular development amongst the lads who had served several sentences, and since the first sentence is usually one of probation the excess may be accounted for by the lads having received a more carefully balanced diet during the period of detention in an Approved School or Borstal institution than when at liberty.

Hooton reached the opposite view, and found that recidivists⁶⁴ among native white prisoners of native parentage, and at all ages in certain prisons and reformatories in America, tended to be lighter in weight than first offenders.

As I have said, the lads investigated at Wormwood Scrubs prison were selected from London and the surrounding areas. A comparison of their mean heights and weights with the mean heights and weights found by Cathcart, Hughes and Chalmers in 1929-1932, in employed males of the same ages and mostly of the artisan class taken from London and other large towns in England and Scotland, shows no tendency for the lads convicted of crime to differ from them in stature, and there was no certain evidence of any association of criminal tendencies and underweight.

Chest Girth.—Among the Wormwood Scrubs lads a slight excess of chest girth for repeated offenders compared with first offenders

⁶³The discipline group included breach of recognisances (other than committing fresh offences), absconding from a Home Office School, some cases of wilful damage, using insulting words and behaviour, obstruction, road traffic offences, refusing labour, causing the police unnecessary trouble, and Army offences, e.g. mutiny.

⁶⁴Recidivist: One who tends to relapse; especially a person who tends to return to criminal habits after treatment or punishment.

was found in nine out of ten half-year age groups, but in no case did the excess amount to twice the standard error, and only in three groups was it greater than the standard error. Lads with a record of two previous offences showed excess over the first offenders at each age, whilst those with three or more previous offences registered an excess at 16-19 years, but only at age 16 was the excess statistically significant. Hooton found that recidivists in the American criminals tended to be different in chest breadth in comparison with first offenders. When grouped according to the nature of the offences no significant differences were noted at any age in the lads at Wormwood Scrubs, nor was there any consistent tendency for any of the groups to have high or low chest measurements throughout the age scale (i.e., 16-21 years).

Pre-pubertal or pubescent development was noted in 20 per cent of the lads of 16 and 17 years, in 6 per cent of lads of 17 and 18, falling to about 2 per cent in lads at 20 years. There was no significant difference according to the nature of offences.

In connection with the hypothesis of physical inferiority among criminals accepted by Lombroso, Goring and Hooton it may be noted that the physique of the present population in England has greatly benefited by modern hygienic improvements as well as nutritional betterment, and that this has chiefly affected the social groups from which most offenders are drawn. The causality of environment cannot be denied.

An observation in the year 1883 by Francis Galton, when he was 61 years of age is instructive. He stated: "I may be permitted to give an example bearing on the increased stature of the better housed and fed portion of the nation, in a recollection, of my own as to the difference in height between myself and my fellow colleagues at Trinity College Cambridge in 1840-4. My height is 5 feet $9\frac{3}{4}$ inches, and I recollect perfectly that among the crowd of undergraduates I stood somewhat taller than the majority. I generally looked a little downward when I met their eyes. In later years, whenever I have visited Cambridge I have lingered in the ante-chapel and repeated the comparison, and now I find myself decidedly shorter than the average of the students. I have precisely the same kind of recollection and the same present experience of the height of crowds of well-dressed persons. I used always to get a fair view of what was going on over or between their heads. I rarely can do so now."⁶⁵

⁶⁵Galton, F., *op. cit. supra* note 10, at 15.

Vision.—About 12½ per cent of the lads investigated at Wormwood Scrubs had bad or impaired vision. The proportion was rather higher at ages 19 - 20, but the excess over that at ages 16 - 18 was of doubtful significance. The group with a record of sexual offences showed a significantly higher proportion with poor vision at ages 19 - 20, but not at ages 16 - 18. Combining all kinds of offences, the frequency of poor vision among the first offenders was rather less than among the repeated offenders at each age group and significantly so at ages 18 - 19. The association of poor vision with multiple offences was not significant when all ages were treated together.

Hearing.—Only four per cent of the lads had bad or impaired hearing. The proportion was significantly higher at ages 19 - 20 than at ages 16 - 18. No evidence was found of any association between impaired hearing and the number of offences.

When considering the physique of adolescents, however, it is important to remember the phenomenon of occasional acceleration of growth noted — as Duckworth⁶⁶ points out — by Quetelet in 1870, and of periodic variation of growth investigated by Godin. The latter observer during a period of five years studied a large number of adolescents and measured 100 of them at intervals of six months during the period and found sudden augmentation of the increment of growth at the fifteenth year. His figures were supported by those of Carlier although Quetelet's failed to exhibit a similar increase. Duckworth suggests that this may be due to the deliberate selection by Quetelet of his subjects. He adds that more recent researches distinguish two particular periods of growth activity in respect of stature, namely from 5 to 7 years and from 13 to 16 years respectively, and that with these two periods alternate others when circumferential growth predominates.

G. E. Friend⁶⁷ found that the school boys at Christ's Hospital, Horsham, attained a maximum rate of increase in height during spring, while that for weight occurred in the autumn. He also found that during the latter half of the period when rationing was in force during the war 1914 - 18 the rate of growth as measured by the height tended to slow down in the sixteenth year, whereas under the more satisfactory nutritional conditions which later prevailed the retardation was not normally observed until late in the seventeenth year.

⁶⁶Duckworth, W. L. H., 2 Encyc. Britt. (14th ed. 1937) 56.

⁶⁷Friend, G. E., *The Schoolboy, His Nutrition, Physical Development and Health* (1935).

VI

OTHER RESEARCHES

Age may be an important factor in the causation of crime. The Criminal Statistics, 1937, for England and Wales⁶⁸ show that the number of male offenders found guilty of indictable offences per 100,000 of the population is greater in the age groups fourteen and under sixteen years than in the age group ten and under fourteen years. After the age of sixteen the rate per 100,000 shows a decrease in each successive age period. Thus in the years 1930 to 1937 the average number of offenders of the ages ten and under fourteen years per 100,000 of the population in that age group was 788; at the ages of fourteen and under sixteen, 822; at sixteen and under twenty-one years 708; at twenty-one and under thirty years 446; at thirty years and over, 171; whilst the average for all ages of the male population over the age of ten was 354 per 100,000.

Although no figures are available to show the amount of misconduct in children between the ages of 5 and 7 years, such as would constitute a legal offence if they had been aged 8—when criminal responsibility in England and Wales may be proved—and which might be connected with growth activity, it is perhaps significant that Duckworth's second period of growth activity, namely from thirteen to sixteen years of age, corresponds with the period of most lawlessness. It would almost seem that the organism is so occupied with its physical development at this period that there is no surplus energy for social development. The problem, however, is complex. Physiological, psychological and environmental factors may all press heavily upon the individual during puberty and adolescence.

W. Healy⁶⁹ found poor physical condition was relatively infrequent either as a major or minor factor in the causation of delinquency. C. Burt⁷⁰ found among 197 boys and girls whose ages varied from 5 to 18 years that in 12 per cent of the boys and 5 per cent of the girls an excessive or inadequate development of the physique figured as a probable factor in causing delinquency. Of these the delinquent boys were commonly undersized and the delinquent girls were usually overgrown. Burt states that the clearest instances of adolescent crime in his cases occurred when physical

⁶⁸Criminal Statistics, England and Wales (H. M. Stationery Office 1938).

⁶⁹Healy, W., *The Individual Delinquent* (1935).

⁷⁰Burt, C., *The Young Delinquent* (1925).

development was unusually early and mental and moral development retarded or delayed. He found premature or excessive sexual development among nearly 10 per cent of the girls and only 4 per cent of the boys. In the typical case size, strength, figure and form, sexual functions and sexual consciousness were developed prematurely together. He also found that defective physical conditions were, roughly speaking, one and a quarter times as frequent among delinquent children as they were among non-delinquent children from the same schools and streets.

Verner Wiley,⁷¹ in 1930, reported to the London County Council on 803 children (696 boys and 107 girls) admitted to Ponton-road place of detention. The group showed "a very marked inferiority in respect of nutritional state and physical make-up when compared with the average London children as met with in the age group examinations."

In an investigation into Juvenile Delinquency in the Liverpool area J. H. Bagot⁷² found among the delinquents and the general school population the most significant difference was a considerably greater amount of subnormal nutrition among the delinquents. He considered that there might be some reason to think that inferior health is an important factor in causing delinquency.

In 1936 A. Royds⁷³ carried out an inquiry, under the auspices of the Oldham Council for Mental Health, into the relationship of delinquency and environment. He reported that 48.9 per cent of the offenders were of normal physique, 18.8 per cent were above normal, and 32.2 per cent were below normal. Any case which deviated in its height and weight ratio by more than 5 per cent from the Anthropometric Ratio given in the Board of Education Medical Report was regarded as above, or below normal for the purposes of this classification.

F. E. E. Schneider,⁷⁴ when medical officer at Pentonville Prison, estimated the vital capacity of 600 adult recidivists on reception into and discharge from the prison. The results led him to conclude, within the limits of the investigation, that the vitality or health of the average criminal recidivist is not much below that of other men, that his health improved in favourable surroundings,

⁷¹Wiley, Verner, Report, London County Council. Vol. III. Pt. II. (1930) 76 *et seq.*

⁷²Bagot, J. H., Juvenile Delinquency (1941) 50.

⁷³Carr-Saunders, A. M., Mannheim, H., and Rhodes, E. C., Young Offenders (1942) 24, 31.

⁷⁴Schneider, F. E. E., Physical Fitness of Recidivists Assessed by Vital Capacity (1935) 167.

which implied that his surroundings were not favourable when he committed the offence, and that imprisonment had a beneficial effect on his health.

Benjamin Frank and Paul Cleland⁷⁵ studied a group of 504 inmates of the New Jersey State Reformatory and concluded that there was no significant relationship between physical capacity and mental level, nor between physical capacity and the type of crime committed. The evidence of a relationship between physical capacity and the number of institutional commitments was inconclusive. On all tests of force the guards were superior to the inmates, but the latter were superior to a group of guards in the same institution with respect to velocity measures. The authors used MacCurdy's test and defined physical capacity as the capacity of the large muscle groups to translate power, and that it is "conditioned by two factors, that of muscular force inherent in the innervation of the muscle cells. Ideally these two factors should so combine in the expression of physical power that the result is efficient movement with the least expenditure of energy."⁷⁶

The degree of criminality in different offence groups, or even in persons in the same group, may be incorrectly assessed unless studies are made of individual offenders and the circumstances associated with their offences. Murder, for example, is necessarily punished more severely than theft, but the murderer who is reprieved, and is not insane, is unlikely to repeat his offence, whereas the criminal tendency of the thief often urges him to steal again as soon as he regains his liberty. Only experience can assess the degrees of turpitude in different cases of murder or theft.

The anthropological school believed the criminal was irresponsible on account of faulty inheritance, the environmental school placed the blame for criminality upon the society which allowed adverse social conditions to exist. The modern school, recognizing the importance of both inherited and environmental factors, finds sometimes one and sometimes the other predominates; and since physical and mental qualities sometimes overlap in a perplexing manner a reference to some modern observations is warranted.

A striking contribution to the study of the hereditary constitution of the criminal has been made by Johannes Lange in his investigation of criminal twins in Germany. His method involves a

⁷⁵Frank, B. and Cleland, P. S., *Physical Capacity of the Criminal* (1935) 26 J. Crim. Law and Criminol. 578-586.

⁷⁶MacCurdy, H. L., *A Test for Measuring the Capacity of Secondary School Boys* (N.Y.U. Ph.D. Thesis, 1933) Ch. I.

study of the behaviour of monozygotic twins, dizygotic twins and other siblings.⁷⁷ Monozygotic twins are the result of fission of a single ovum, and dizygotic twins develop from two separate ova and their inherited qualities are no more alike than those of siblings who are not twins. The childhood environments of both classes of twins, however, are likely to be similar. If so, and if hereditary factors dominate behaviour, a closer similarity in conduct may be expected in monozygotic than in dizygotic twins. If the hereditary factor is of little importance the criminality of pairs of monozygotic twins will show no more similarity than in pairs of dizygotic twins and the dissimilarity in the criminal behaviour of monozygotic twins will provide material which will enable the environmental factors to be assessed. Since the environmental factors will be more nearly the same in dissimilar twins than in any other pairs of siblings (except mono-ovular twins whilst the hereditary endowment will be the same), differences between the behaviour of pairs of the former and pairs of the latter will tend to increase as the influence of the hereditary factor decreases. If, however, the hereditary factor is important and the environmental factor is unimportant, the criminal behaviour of monozygotic twins will be more alike than that of the dizygotic twins, and that of the latter will show no more similarity than is found in any other pair of siblings. In 13 monozygotic pairs of twins Lange found both twins had been sentenced for an offence in 10 cases, and in 3 cases only one twin had broken the law whilst the other had not. Of 17 dizygotic twins both twins had only been sentenced in two cases, whilst in all the rest only one twin had come before the courts and the other had not. A comparison between the criminality of dizygotic twins with the criminality found in ordinary siblings showed that both of a pair of dizygotic twins were not sentenced more frequently than was expected. Lange concluded that: "Heredity does play a role of paramount importance in making the criminal. Our rough figures also permit the conclusion that heredity alone is not exclusively a cause of criminality, but that one must also allow a certain amount for environmental influences. Even our monozygotic pairs did not by any means show complete agreement in their attitudes to crime. The fact that in about one quarter of the cases only one of the monozygotic twins was sentenced must be interpreted as showing that in these cases some environmental influence or other determined the criminal behaviour."⁷⁸

⁷⁷Sibling: One of two or more offsprings of the same parents.

⁷⁸Lange, J., *Crime As Destiny* (Translated by C. Haldane 1924) 210.

The Rosanoffs and Handy⁷⁹ found in 97 pairs of twins of an adult criminal group 33 pairs of male twins who were probably monozygotic. In 22 cases both twins were criminal, in 11 only one was criminal, the other not. There were 23 pairs of dizygotic twins in the group, and in only 3 cases were both of the twins criminal. A similar result was found for female monozygotic and dizygotic twins.

Heinrich Kranz⁸⁰ found in 32 monozygotic twins 21 (66 per cent) were concordant, each twin of the pair having a criminal record; and 11 (34 per cent) were discordant. Of 43 dizygotic twins of the same sex 23 (54 per cent) were concordant and 20 (46 per cent) were discordant, and of 50 dizygotic twins of different sex 7 (14 per cent) were concordant and 43 (80 per cent) discordant. He adds: "This indicates that of the monozygotic twins, about two-thirds were concordant in respect of criminality; of the same sexed dizygotic, about one half were concordant, and of different sexed twins about one seventh were concordant."

Friedrich Stumpf⁸¹ found in a modern study that the number of criminal pairs was 11 out of 18 identical pairs, and 7 out of 19 fraternal pairs. These deductions, like those of Lange, are based upon small numbers, but personal experience leaves me in no doubt that certain crimes are almost entirely endogenous;⁸² for example, those directly due to constitutional types of mental disorder. Others appear to be almost entirely exogenous;⁸³ for example, offences committed by normal persons under the stress of particular circumstances.

In the investigation at Wormwood Scrubs prison a criminal heredity was significantly associated with a history of more than one conviction in lads with a record of offences against property, and it appeared probable that for about 60 lads in the group of 3,622 a criminal family history was a causative factor in the commission of further offences after the first conviction. There was no evidence of any association between an insane heredity and the number of convictions. The figures suggest that a family history of mental defectiveness may have been responsible for about 6 lads committing offences in the discipline and sexual groups, and that a family history of epilepsy might be considered responsible for about 8 lads

⁷⁹Rosanoff, A. J., Handy, L. M. and Rosanoff, I. A., *Criminality and Delinquency in Twins* (1934) 24 J. Crim. Law and Criminol. 929.

⁸⁰Kranz, H., *Zebenschicksale Krimineller Zwillinge* (1936).

⁸¹Stumpf, F., *Die Urspruenge des Verbrechens dargestellt am Lebenslauf von Zwillingen* (Leipzig, 1936).

⁸²Endogenous: Originating within the organism.

⁸³Exogenous: Originating outside the body.

committing offences in the discipline group. But I have no reason to consider from our work at Wormwood Scrubs, or from other personal experiences over many years that criminality, as such, is transmissible.

VII

CONSTITUTION TYPES

Kretschmer's work on *Physique and Character*⁸⁴ led him to consider that there is a distinct relationship between the two, and he classified the physical characteristics of some 400 men and women into four types: The *asthenic or leptosome* is of slight physique and is essentially deficient in thickness and of average unlesened length, the deficiency in thickness is present in all parts of the body so that the average weight as well as the total circumference and breadth measurements are below the general average for males. The *athletic type* is recognized by the strong development of the skeleton, musculature and skin; the height is above the average and the torso broad. The *pyknic type* is characterized by middle height, rounded figure, deep vaulted chest and prominent abdomen. The *dysplastic type* is, for the most part, undersized, in the face there is a scanty and insufficient modelling of the prominent parts of the nose, lips and chin. The bony relief of the forehead is correspondingly weak.

Kretschmer divides the temperaments into schizothymic—the reserved shut-in, solitary, day-dreaming type, and the cyclothymic—who present well marked mood-swings, at one time elated at another depressed. He divides these two main groups into sub-groups and considers that schizophrenic patients⁸⁵ are derived from the former group, and manic-depressive patients⁸⁶ from the latter. He formulates his results thus: "There is a clear biological affinity between the psychic disposition of the manic-depressives and the pyknic body type. There is a clear biological affinity between the psychic disposition of the schizophrenic and the bodily

⁸⁴Kretschmer, E., *Physique and Character* (trans. by W. J. H. Sprott from 2nd ed. 1925).

⁸⁵Schizophrenic patients: See note 55 *supra*.

⁸⁶Manic-depressive patient: In this condition there occur alternating periods of excitement (mania) and depression with usually, but not always, a comparatively normal period (lucid interval) between the two. The duration and severity of the attacks, and the duration of the relatively normal period are very varying. During the manic stage there is a feeling of happiness and unusual well being with overactivity in speech, thought (flight of ideas) and action; during the depressed stage the patient is sad, has difficulty in thinking and acting, and is generally retarded. See, in this Symposium series, the following study: Coon, Gaylord P., *Psychiatry for the Lawyer—The Major Psychoses*, (1946) Corn. L. Q.

disposition characteristic of the asthenics, athletics and certain dysplastics. Vice versa, there is only a weak affinity between schizophrenic and pyknic on the one hand, and between circulars and asthenics, athletics and dysplastics on the other."⁸⁷

E. Mezger⁸⁸ considers the pyknic type of person, being more sociable and adaptable, is less likely to commit crime and is more easily reformable. G. Aschaffenburg⁸⁹ believes the pyknic type is prevalent among occasional offenders, and that the asthenic and athletic types have a larger share among habitual offenders.

Werner S. Landecker⁹⁰ refers to two studies, each based on 100 cases, one published by Kurt Boehmer⁹¹ dealing with inmates of a German prison, the other by S. Blinkov⁹² dealing with murderers of Turkish descent in the Russian province of Aserbaidzan. In both groups the proportion of pyknics was considerably lower than that of the other types. The German study does not substantiate the assumption that pyknics commit acts of violence but the athletic type appeared to be associated with such offences. In the Russian study asthenics outnumbered any other type among the murderers.

Willemse⁹³ records a series of detailed observations upon 177 delinquents in South Africa between the ages of 16½ and 21½ years. But a perusal of the literature will cause many to doubt whether the types are as definite as described or have the importance claimed for them. In a prison population extreme forms, as elsewhere, are seen but transitional forms and mixed types occur. Kretschmer himself acknowledges the fact that mixed types are as frequent as pure. He states: "Our description of types . . . refers not to the most frequent cases, but to ideal cases, to such cases as bring most clearly to view common characteristics which in the majority of instances appear only blurred, but which, all the same, can be empirically demonstrated."⁹⁴

⁸⁷Kretschmer, E., *op. cit. supra* note 84, at 36.

⁸⁸Mezger, E., *Die Bedeutung der biologischen Persönlichkeitstypen fuer die Strafrechtspflege* (1929) 2 *Mitteilungender Kriminalbiologischen Gesellschaft*.

⁸⁹Aschaffenburg, G., *Kriminalanthropologie und Kriminalbiologie. Handwoertbuch der Kriminologie* (1933-36).

⁹⁰Launder, W. S., *Criminology in Germany* (1941) 31 *J. Crim. Law and Criminol.* 551-575.

⁹¹Kurt, Boehmer, *Untersuchungen ueber dem Körperbau des Verbrechers* (1928) 19 *Monatsschrift fuer Kriminalpsychologie und Strafrechtsreform*, 193-209.

⁹²Blinkov, G., *Zur Fragenach dem Körperbau des Verbrechers*, (1929) 20 *Monatsschrift fuer Kriminalpsychologie und Strafrechtsreform*, 212-216.

⁹³Willemse, W. A., *Constitution Types in Delinquency* (1932).

⁹⁴Kretschmer, E., *op. cit. supra* note 84, at 19.

Numerous leptosomes and athletics were met with by Olof Kinberg⁹⁵ in a group of murderers examined by him, but only one pyknic. He found pyknics also were rare among habitual criminals, but leptosomes, athletics and mixed forms were numerous. He does not, however, state the number of murderers in the group nor the proportion of pyknics to asthenics and athletics in the general population of Sweden.

The difficulties of relating temperament and physique in individual cases is apparent from the literature. For example, S. Kraines⁹⁶ states that in studying a freshman medical school class he found it almost impossible to classify the majority of students into typical physical categories, and only a few extremes were of a typical character. Linford Rees⁹⁷ in a recent investigation into physical constitution and abnormal mental states in 389 soldiers who were successive admissions to hospital found no evidence for definitely segregating physical types of the kind envisaged by Kretschmer. He formed the opinion, however, that the physical aspect of human constitution is more than an incidental factor, not only in determining susceptibility to mental disorder but also influencing the form and progress of the illness. Rees considers that the study of physical constitution as an integral part of the total personality should prove an interesting study for clinical research in psychiatry.

According to J. I. Cohen,⁹⁸ Kretschmer's work on physique and character offers little that is new. In an analysis of the anthropometric measurements of male and female patients suffering from mental disorder he found two factors, one governing general growth or magnitude, and the other governing differences in proportion. On eliminating the general factor he found a statistically significant relationship was established between physical proportions and a diagnosis of mental disorder.

The relation of physique to temperament is even more elusive in adolescents than in adults, and in the investigation of the adolescent offenders at Wormwood Scrubs prison any attempt to ascertain the connection was intentionally omitted. Nevertheless, the criminologist must keep himself informed with the recent studies of workers in this field. If much of it refers to physical and psy-

⁹⁵Kinberg, O., *op. cit. supra* note 38, at 314.

⁹⁶Kraines, S. H., *Therapy of Neuroses and Psychoses* (2nd ed. 1943) 422.

⁹⁷Rees, W. Linford, *Physical Constitution, Neurosis and Psychosis* (1944) 27 *Proc. Roy. Soc. Med.* 635-638.

⁹⁸Cohen, J. T., *Determinants of Physique* (1938) 34 *J. Ment. Sci.* 495-512.
Cohen, J. T., *Physical Types and Their Relation to Psychotic Types* (1940) 36 *J. Ment. Sci.* 602-623.

chotic types, rather than to those who are criminal, there may be nevertheless an indirect association if crime occurs in a psychotic who belongs to a definite physical type.

However this may be, I entirely agree with Landecker's view: "The thesis of an association between physique and character should be applied in the field of criminology with extreme caution. . . . There are a variety of other factors which contribute also to the formation of behaviour patterns. Science is not yet in a position to determine the share of the constitutional factors as compared with others."⁹⁹

VIII

PHYSICAL ILLNESS AND CRIME

The behaviour of a man who is ill often differs much from his behaviour when well, and although the significance of the association between ordinary physical illnesses and criminal behaviour is often inconclusive a direct connection can sometimes be traced between the illness of an offender and his offense. Such was the case in an elderly invalid who many years ago suffered from a severe attack of bronchitis¹⁰⁰ which confined him to bed seriously ill and made him depressed, anxious and irritable. After a quarrel with his wife he was left alone whilst she sought protection in the house of a neighbour. He left his bed and followed her, supporting himself by the street railings in front of the houses and killed her. Elsewhere¹⁰¹ I have described cases where persistent criminality was attributable to head injuries received during the War 1914-18. Wallace¹⁰² found delinquents more physically mature but presenting a greater number of physical defects than ordinary school children. Lott¹⁰³ found in a series of 100 court cases representing specially difficult problems that physical disabilities were present in 26 and had a very definite bearing on the behaviour of 12 of them. Hrdlicka¹⁰⁴ states that there is not a single physical sign, or collection of such signs, that would justify the diagnosis of anyone as a prospective criminal.

⁹⁹Landecker, W. G., *supra* note 90, at 563.

¹⁰⁰Bronchitis: Inflammation of the bronchial tubes (i.e., air tubes) in the lungs. Acute bronchitis runs a short and more or less severe course. It is due to exposure to cold, to the breathing of irritating substances, or to acute general disease. It is marked by fever, pain in the chest, especially on coughing, some degree of breathlessness (dyspnea) and cough.

¹⁰¹East, W. Norwood, *Forensic Psychiatry* (1927).

¹⁰²Wallace, E. W., *Physical Defects and Juvenile Delinquency* (1940) 40 N. Y. State J. Med. 1586-1590.

¹⁰³Lott, George M., *Criminal Responsibility* (1940) 30 J. Crim. Law and Criminol. 692-700.

¹⁰⁴Hrdlicka, A., *The Criminal* (1939) 1 J. of Crim. Psychopath. 87-90.

Many important new facts are appearing as a result of investigations into the activities of the endocrine glands—for example the pituitary, thyroid, gonads, and adrenals—whose internal secretions affect the functioning of the individual. At the same time it must be admitted that although the resulting knowledge is impressive its present application in the treatment of criminals leaves much to be desired. E. Mapother and A. Lewis, writing in 1937 stated: "Evidence, still inconclusive, is accumulating to suggest that the blind use of the endocrine glands in the theory and practice of psychiatry has had its day."¹⁰⁵

Organic inferiority is not uncommonly associated with criminal behaviour. Many cases of exhibitionism in men and lads is the result of sexual inferiority, and occasionally cases of murder are based upon it. A young man murdered his ardent sweetheart and then attempted suicide because he feared a degree of impotence would prevent his consummation of the marriage. At the same time, as we look out upon the world, we find that although organic inferiority may result in delinquency and crime it frequently leads to great social success.

It may be difficult to decide in particular cases whether the physical or mental condition of an offender has been predominant in causing a crime. A jealous young man murdered his sweetheart and was sentenced to death. He was under the observation of an experienced prison psychiatrist before and after trial and until conviction showed no evidence of physical or mental disease. After the trial he became unusually anxious and developed tachycardia,¹⁰⁶ excessive sweating and fine tremors¹⁰⁷ of the hands. There was no exophthalmos,¹⁰⁸ but the physical and mental state suggested a mild degree of thyroid dysfunction.¹⁰⁹ When I examined him the condition had been present for several days. I attributed it to his position, and this view was corroborated by the fact that all the symptoms disappeared a few hours after his suspense was removed on being told that the sentence was to be carried out.

¹⁰⁵Mapother, E., and Lewis, Aubrey, *Art. Psychological Medicine*, Price's Text Book of Medicine (5th ed. 1937) 1837.

¹⁰⁶Tachycardia: Excessive rapidity in the action of the heart. The term is usually applied to a pulse rate above 130 per minute, anything above 75 to 78 being considered to be a more rapid pulse than normal.

¹⁰⁷Tremor: Trembling.

¹⁰⁸Exophthalmos: Abnormal protrusion of the eyeball.

¹⁰⁹Thyroid dysfunction: Here this would involve excessive secretion by the thyroid gland which regulates metabolism of body cells. Hyperthyroidism or thyrotoxicosis, is accompanied by elevated basic metabolic rate, increased appetite, weight loss, increased nervousness, appearance of tremors, enlargement of the thyroid gland in the neck in most cases, and various diagnostic signs including, very often, a bulging of the eyeballs (exophthalmos). The cause of the eye changes is not known.

A brief reference is here due to the much debated question concerning the advisability of sterilizing criminals. It may be stated with confidence that no physician, biologist, eugenicist, or criminologist is in a position to declare that the criminality of any individual will be transmitted. As I have said elsewhere,¹¹⁰ amidst so much difficulty, doubt and perhaps misunderstanding, eugenic sterilization, as a means of combating crime, appears to be unwarranted. The minor operation is inappropriate as a prevention of sexual crime. Even the major operation does not necessarily castrate the mind. It may be harmful to the individual operated upon, and may also lead to a false sense of security in the public mind. At the present time there is insufficient evidence to determine its value in this connection. Both minor and major operations, as punitive expedients, are contrary to public sentiment.

IX

CONCLUSION

In this matter as in other human affairs the picture is inevitably one of constant change, and the relation of physical factors to criminal behaviour demands further exploration in many directions. For example the treatment of certain forms of criminal behaviour by organotherapy;¹¹¹ the treatment of emotional imbalance in adolescents on the lines recently advocated by Harold S. Hulbert;¹¹² a large scale comparison of the electroencephalographic records of aggressive criminals and normal people;¹¹³ the effects of hypoglycaemia,¹¹⁴ hydration,¹¹⁵ and hyperventilation;¹¹⁶ and so on. Misconceptions in the past have often obscured research, and the findings should always be compared with those of other field workers, whilst patience, scepticism and suspended judgment should be our watchwords.

¹¹⁰East, W. Norwood, *op. cit. supra* note 7, at 362.

¹¹¹Organotherapy: The treatment of disease by administration of animal organs or their extracts.

¹¹²Hulbert, Harold S.: Calcium for "Fractiousness" (1943) 34 J. Crim. Law and Criminol. 233-235.

¹¹³Electroencephalographic record: Electroencephalograms, or brain-wave tracings, are made possible by the fact that the cerebral tissue constantly gives off feeble action currents which may be amplified. Electrodes are placed on the head of the subject at various points and from these leads the current is taken away, amplified and traced on a revolving tape. See, in this Symposium series, the following paper: Gibbs, Frederic A., *Medicolegal Aspects of Electroencephalography* (July, 1936) *Journal of Clinical Psychopathology and Psychotherapy*; to be submitted also for legal publication.

¹¹⁴Hypoglycaemia: A deficiency of sugar in the blood.

¹¹⁵Hydration: The act of combining or causing to combine with water. The condition of being combined with water.

¹¹⁶Hyperventilation: Abnormally prolonged and deep breathing.