

CHAPTER X

SCIENCE THE ALLY

There is but one hope Ignorance, poverty, and vice must stop populating the world This cannot be done by moral suasion This cannot be done by talk or example This cannot be done by religion or by law by priest or by hangman This cannot be done by force physical or moral To accomplish this there is but one way Science must make woman the owner the mistress of herself Science the only possible savior of mankind must put it in the power of woman to decide for herself whether she will or will not become a mother

Robert G Ingersoll

‘SCIENCE is the great instrument of social change,’ wrote A J Balfour in 1908 all the greater because its object is not change but knowledge, and its silent appropriation of this dominant function, amid the din of religious and political strife, is the most vital of all revolutions which have marked the development of modern civilization” The Birth Control

movement has allied itself with science, and no small part of its present propaganda is to awaken the interest of scientists to the pivotal importance to civilization of this instrument. Only with the aid of science is it possible to perfect a practical method that may be universally taught. As Dean Inge recently admitted: "We should be ready to give up all our theories if science proved that we were on the wrong lines."

One of the principal aims of the American Birth Control League has been to awaken the interest of scientific investigators and to point out the rich field for original research opened up by this problem. The correlation of reckless breeding with defective and delinquent strains has not, strangely enough, been subjected to close scientific scrutiny, nor has the present biological unbalance been traced to its root. This is a crying necessity of our day, and it cannot be accomplished without the aid of science.

Secondary only to the response of women themselves is the awakened interest of scientists, statisticians and research workers in every field. If the clergy and the defenders

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of traditional morality have opposed the movement for Birth Control the response of enlightened scientists and physicians has been one of the most encouraging aids in our battle

Recent developments in the realm of science—in psychology in physiology, in chemistry and physics—all tend to emphasize the immediate necessity for human control over the great forces of nature The new ideas published by contemporary science are of the utmost fascination and illumination even to the layman They perform the invaluable task of making us look at life in a new light, of searching close at hand for the solution to heretofore closed mysteries of life In this brief chapter I can touch these ideas only as they have proved valuable to me Professor Soddy's *Science and Life* is one of the most inspiring of recent publications in this field, for this great authority shows us how closely bound up is science with the whole of Society how science must help to solve the great and disastrous unbalance in human society

As an example a whole literature has sprung into being around the glands the most

striking being "The Sex Complex" by Blair Bell. This author advances the idea of the glandular system as an integral whole the glands forming a unity which might be termed the generative system. Thus is reasserted the radical importance of sexual health to every individual. The whole tendency of modern physiology and psychology in a word seems gradually coming to the truth that seemed intuitively to be revealed to that great woman, Olive Schreiner who in *Woman and Labor* wrote: "Noble is the function of physical reproduction of humanity by the union of man and woman. Rightly viewed that union has in it latent, other and even higher forms of creative energy and life dispensing power and its history on earth has only begun as the first wild rose when it hung from its stem with its center of stamens and pistils and its single whorl of pale petals had only begun its course and was destined as the ages passed, to develop stamen upon stamen and petal upon petal, till it assumed a hundred forms of joy and beauty."

And it would indeed almost seem that on

the path toward the higher development of sexual life on earth as man has so often had to lead in other paths, that here it is perhaps woman by reason of those very sexual conditions which in the past have crushed and trampled her who is bound to lead the way and man to follow. So that it may be at last that sexual love—that tired angel who through the ages has presided over the march of humanity, with distraught eyes and feather shafts broken and wings drabbed in the mires of lust and greed, and golden locks caked over with the dust of injustice and oppression—till those looking at him have sometimes cried in terror

He is the Evil and not the Good of life and have sought if it were not possible to exterminate him— shall yet at last bathed from the mire and dust of ages in the streams of friendship and freedom, leap upwards with white wings spread resplendent in the sunshine of a distant future—the essentially Good and Beautiful of human existence

To day science is verifying the truth of this inspiring vision. Certain fundamental truths concerning the basic facts of Nature and humanity especially impress us. A rapid survey

may indicate the main features of this mysterious identity and antagonism

Mankind has gone forward by the capture and control of the forces of Nature. This upward struggle began with the kindling of the first fire. The domestication of animal life marked another great step in the long ascent. The capture of the great physical forces—the discovery of coal and mineral oil, of gas, steam and electricity—and their adaptation to the everyday uses of mankind wrought the greatest changes in the course of civilization. With the discovery of radium and radioactivity, with the recognition of the vast stores of physical energy concealed in the atom, humanity is now on the eve of a new conquest. But, on the other side, humanity has been compelled to combat continuously those great forces of Nature which have opposed it at every moment of this long indomitable march out of barbarism. Humanity has had to wage war against insects, germs, bacteria, which have spread disease and epidemics and devastation. Humanity has had to adapt itself to those natural forces it could not conquer but could only adroitly turn to its own ends. Neverthe

less all along the line in colonization in agriculture in medicine and in industry mankind has triumphed over Nature

But lest the recognition of this victory lead us to self satisfaction and complacency we should never forget that this mastery consists to a great extent in a recognition of the power of those blind forces, and our adroit control over them It has been truly said that we attain no power over Nature until we learn natural laws and conform and adapt ourselves to them

The strength of the human race has been its ability not merely to subjugate the forces of Nature but to adapt itself to those it could not conquer And even this subjugation, science tells us has not resulted from any attempt to suppress, prohibit or eradicate these forces but rather to transform blind and undirected energies to our own purposes

These great natural forces, science now asserts are not all external They are surely concealed within the complex organism of the human being no less than outside of it These inner forces are no less imperative no less driving and compelling than the external forces

of Nature As the old conception of the antagonism between body and soul is broken down, as psychology becomes an ally of physiology and biology and biology joins hands with physics and chemistry, we are taught to see that there is a mysterious unity between these inner and outer forces They express themselves in accordance with the same structural, physical and chemical laws The development of civilization in the subjective world, in the sphere of behavior conduct and morality has been precisely the gradual accumulation and popularization of methods which teach people how to direct, transform and transmute the driving power of the great natural forces

Psychology is now recognizing the forces concealed in the human organism In the long process of adaptation to social life men have had to harness the wishes and desires born of these inner energies the greatest and most imperative of which are Sex and Hunger From the beginning of time, men have been driven by Hunger into a thousand activities It is Hunger that has created the struggle for existence Hunger has spurred men to the discovery and invention of methods and ways of

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avoiding starvation, of storing and exchanging foods. It has developed primitive barter into our contemporary Wall Streets. It has developed thrift and economy—expedients whereby humanity avoids the lash of King Hunger. The true economic interpretation of history might be termed the History of Hunger.

But no less fundamental, no less imperative, no less ceaseless in its dynamic energy, has been the great force of Sex. We do not yet know the intricate but certainly organic relationship between these two forces. It is obvious that they oppose yet reinforce each other,—driving, lashing, spurring mankind on to new conquests or to certain ruin. Perhaps Hunger and Sex are merely opposite poles of a single great life force. In the past we have made the mistake of separating them and attempting to study one of them without the other. Birth Control emphasizes the need of re-investigation and of knowledge of their integral relationship and aims at the solution of the great problem of Hunger and Sex at one and the same time.

In the more recent past the effort has

been made to control civilize and sublimate the great primordial natural force of sex, mainly by futile efforts at prohibition, suppression restraint and extirpation Its revenge, as the psychoanalysts are showing us every day, has been great Insanity, hysteria neuroses, morbid fears and compulsions weaken and render useless and unhappy thousands of humans who are unconscious victims of the attempt to pit individual powers against this great natural force In the solution of the problem of sex, we should bear in mind what the successful method of humanity has been in its conquest or rather its control of the great physical and chemical forces of the external world Like all other energy that of sex is indestructible By adaptation, control and conscious direction, we may transmute and sublimate it Without irreparable injury to ourselves we cannot attempt to eradicate it or extirpate it

The study of atomic energy the discovery of radioactivity and the recognition of potential and latent energies stored in inanimate matter throw a brilliant illumination upon the whole problem of sex and the inner energies

of mankind Speaking of the discovery of radium Professor Soddy writes Tracked to earth the clew to a great secret for which a thousand telescopes might have swept the sky forever and in vain, lay in a scrap of matter, dowered with something of the same inexhaustible radiance that hitherto has been the sole prerogative of the distant stars and sun Radium this distinguished authority tells us, has clothed with its own dignity the whole empire of common matter

Much as the atomic theory, with its revelations of the vast treasure house of radiant energy that lies all about us, offers new hope in the material world so the new psychology throws a new light upon human energies and possibilities of individual expression Social reformers like those scientists of a bygone era who were sweeping the skies with their telescopes have likewise been seeking far and wide for the solution of our social problems in remote and wholesale panaceas, whereas the true solution is close at hand,—in the human individual Buried within each human being lies concealed a vast store of energy which awaits release, expression and sublimation

The individual may profitably be considered as the atom of society. And the solution of the problems of society and of civilization will be brought about when we release the energies now latent and undeveloped in the individual. Professor Edwin Grant Conklin expresses the problem in another form though his analogy it seems to me is open to serious criticism. The freedom of the individual man he writes¹ is to that of society as the freedom of the single cell is to that of the human being. It is this large freedom of society rather than the freedom of the individual which democracy offers to the world free societies, free states free nations rather than absolutely free individuals. In all organisms and in all social organizations, the freedom of the minor units must be limited in order that the larger unit may achieve a new and greater freedom, and in social evolution the freedom of individuals must be merged more and more into the larger freedom of society.

This analogy does not bear analysis. Restraint and constraint of individual expression, suppression of individual freedom for the

¹ Conklin *The Direction of Human Evolution* pp 125 126

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good of society has been practised from time immemorial and its failure is all too evident. There is no antagonism between the good of the individual and the good of society. The moment civilization is wise enough to remove the constraints and prohibitions which now hinder the release of inner energies, most of the larger evils of society will perish of inanition and malnutrition. Remove the moral taboos that now bind the human body and spirit, free the individual from the slavery of tradition, remove the chains of fear from men and women, above all answer their unceasing cries for knowledge that would make possible their self-direction and salvation, and in so doing you best serve the interests of society at large. Free rational and self-ruling personality would then take the place of self-made slaves who are the victims both of external constraints and the playthings of the uncontrolled forces of their own instincts.

Science likewise illuminates the whole problem of genius. Hidden in the common stuff of humanity lies buried this power of self-expression. Modern science is teaching us that genius is not some mysterious gift of the gods,

some treasure conferred upon individuals chosen by chance. Nor is it, as Lombroso believed, the result of a pathological and degenerate condition, allied to criminality and madness. Rather is it due to the removal of physiological and psychological inhibitions and constraints which makes possible the release and the channeling of the primordial inner energies of man into full and divine expression. The removal of these inhibitions, so scientists assure us, makes possible more rapid and profound perceptions,—so rapid indeed that they seem to the ordinary human being practically instantaneous, or intuitive. The qualities of genius are not therefore qualities lacking in the common reservoir of humanity but rather the unimpeded release and direction of powers latent in all of us. This process of course is not necessarily conscious.

This view is substantiated by the opposite problem of feeble mindedness. Recent researches throw a new light on this problem and the contrasting one of human genius. Mental defect and feeble mindedness are conceived essentially as retardation or arrest of development differing in degree so that the victim is either

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an idiot, an imbecile feeble minded or a moron, according to the relative period at which mental development ceases

Scientific research into the functioning of the ductless glands and their secretions throws a new light on this problem. Not long ago these glands were a complete enigma owing to the fact that they are not provided with excretory ducts. It has just recently been shown that these organs such as the thyroid the pituitary, the suprarenal the parathyroid and the reproductive glands exercise an all powerful influence upon the course of individual development or deficiency. Gley to whom we owe much of our knowledge of glandular action has asserted that the genesis and exercise of the higher faculties of men are conditioned by the purely chemical action of the product of these secretions. Let psychologists consider these facts

These internal secretions or endocrines pass directly into the blood stream and exercise a dominating power over health and personality. Deficiency in the thyroid secretion especially during the years of infancy and early childhood, creates disorders of nutrition and mac

tivity of the nervous system. The particular form of idiocy known as cretinism is the result of this deficiency which produces an arrest of the development of the brain cells. The other glands and their secretions likewise exercise the most profound influence upon development, growth and assimilation. Most of these glands are of very small size, none of them larger than a walnut, and some—the parathyroids—almost microscopic. Nevertheless they are essential to the proper maintenance of life in the body, and no less organically related to mental and psychic development as well.

The reproductive glands, it should not be forgotten belong to this group, and besides their ordinary products the germ and sperm cells (ova and spermatozoa) form *hormones* which circulate in the blood and effect changes in the cells of distant parts of the body. Through these *hormones* the secondary sexual characters are produced, including the many differences in the form and structure of the body which are the characteristics of the sexes. Only in recent years has science discovered that these secondary sexual characters are brought about by the agency of these internal

secretions or hormones passed from the reproductive glands into the circulating blood. These so called secondary characters which are the sign of full and healthy development, are dependent, science tells us upon the state of development of the reproductive organs.

For a clear and illuminating account of the creative and dynamic power of the endocrine glands, the layman is referred to a recently published book by Dr Louis Berman². This authority reveals anew how body and soul are bound up together in a complex unity. Our spiritual and psychic difficulties cannot be solved until we have mastered the knowledge of the wellsprings of our being. 'The chemistry of the soul! Magnificent phrase!' exclaims Dr Berman. 'It's a long long way to that goal. The exact formula is as yet far beyond our reach. But we have started upon the long journey, and we shall get there.'

The internal secretions constitute and determine much of the inherited powers of the

² *The Glands Regulating Personality*. A study of the glands of internal secretion in relation to the types of human nature. By Louis Berman, M. D. Associate in Biological Chemistry, Columbia University. Physician to the Special Health Clinic, Lenox Hill Hospital, New York, 1921.

individual and their development. They control physical and mental growth, and all the metabolic processes of fundamental importance. They dominate all the vital functions of man during the three cycles of life. They cooperate in an intimate relationship which may be compared to an interlocking directorate. A derangement of their functions causing an insufficiency of them, an excess or an abnormality upsets the entire equilibrium of the body with transforming effects upon the mind and the organs. In short they control human nature and whoever controls them, controls human nature.

Blood chemistry of our time is a marvel undreamed of a generation ago. Also these achievements are a perfect example of the accomplished fact contradicting a prior prediction and criticism. For it was one of the accepted dogmas of the nineteenth century that the phenomena of living could never be subjected to accurate quantitative analysis. But the ethical dogmas of the past no less than the scientific may block the way to true civilization.

Physiologically as well as psychologically the

development of the human being, the sane mind in the sound body, is absolutely dependent upon the functioning and exercise of all the organs of the body. The moralists' who preach abstinence, self denial, and suppression are relegated by these findings of impartial and disinterested science to the class of those educators of the past who taught that it was improper for young ladies to indulge in sports and athletics and who produced generations of feeble undeveloped invalids bound up by stays and addicted to swooning and hysterics. One need only go out on the street of any American city to day to be confronted with the victims of the cruel morality of self denial and sin. This fiendish morality is stamped upon those emaciated bodies indelibly written in those emasculated, underdeveloped, undernourished figures of men and women in the nervous tension and unrelaxed muscles denoting the ceaseless vigilance in restraining and suppressing the expression of natural impulses.

Birth Control is no negative philosophy concerned solely with the number of children brought into this world. It is not merely a question of population. Primarily it is the in

strument of liberation and of human development

It points the way to a morality in which sexual expression and human development will not be in conflict with the interest and well being of the race nor of contemporary society at large. Not only is it the most effective, in fact the only lever by which the value of the child can be raised to a civilized point but it is likewise the only method by which the life of the individual can be deepened and strengthened, by which an inner peace and security and beauty may be substituted for the inner conflict that is at present so fatal to self expression and self realization.

Sublimation of the sexual instinct cannot take place by denying it expression nor by reducing it to the plane of the purely physiological. Sexual experience, to be of contributory value must be integrated and assimilated. Asceticism defeats its own purpose because it develops the obsession of licentious and obscene thoughts the victim alternating between temporary victory over 'sin' and the remorse of defeat. But the seeker of purely physical pleasure, the libertine or the average sensualist,

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is no less a pathological case living as one sided and unbalanced a life as the ascetic for his conduct is likewise based on ignorance and lack of understanding. In seeking pleasure without the exercise of responsibility in trying to get something for nothing, he is not merely cheating others but himself as well.

In still another field science and scientific method now emphasize the pivotal importance of Birth Control. The Binet Simon intelligence tests which have been developed expanded and applied to large groups of children and adults present positive statistical data concerning the mental equipment of the type of children brought into the world under the influence of indiscriminate fecundity and of those fortunate children who have been brought into the world because they are wanted the children of conscious voluntary procreation, well nourished properly clothed the recipients of all that proper care and love can accomplish.

In considering the data furnished by these intelligence tests we should remember several factors that should be taken into consideration. Irrespective of other considerations, children

who are underfed undernourished crowded into badly ventilated and unsanitary homes and chronically hungry cannot be expected to attain the mental development of children upon whom every advantage of intelligent and scientific care is bestowed Furthermore, public school methods of dealing with children the course of studies prescribed may quite completely fail to awaken and develop the intelligence

The statistics indicate at any rate a surprisingly low rate of intelligence among the classes in which large families and uncontrolled procreation predominate Those of the lowest grade in intelligence are born of unskilled laborers (with the highest birth rate in the community) the next high among the skilled laborers and so on to the families of professional people among whom it is now admitted that the birth rate is voluntarily controlled³

But scientific investigations of this type can not be complete until statistics are accurately obtained concerning the relation of unre

³ Cf Terman Intelligence of School Children New York 1919 p 56 Also Is America Safe for Democracy? Six lectures given at the Lowell Institute of Boston by William McDougall Professor of Psychology in Harvard College New York 1921

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strained fecundity and the quality mental and physical of the children produced The philosophy of Birth Control therefore seeks and asks the cooperation of science and scientists not to strengthen its own case but because this sexual factor in the determination of human history has so long been ignored by historians and scientists If science in recent years has contributed enormously to strengthen the conviction of all intelligent people of the necessity and wisdom of Birth Control this philosophy in its turn opens to science in its various fields a suggestive avenue of approach to many of those problems of humanity and society which at present seem so enigmatical and insoluble