Book Reviews

Etiology of Psychosis

Schizophrenia and Genetics. A Twin Study Vantage Point. IRVING I. GOTTESMAN and JAMES SHIELDS. Academic Press, New York, 1972. xviii, 434 pp., illus. $19.50. Personality and Psychopathology, vol. 13.

Born 56 years ago, psychiatric genetics undertook from its inception to determine the genetic causes and modes of inheritance that underlay the generally recognized mental illnesses of the 20th century. European psychiatrists flocked to the scene of the nativity—the Psychiatrische Forschungsanstalt in Munich—to learn about genetic applications to the developing discipline called psychiatry, to discuss theoretical issues, research strategies, empirical findings, and the modes of inheritance for the two major recognized psychoses, dementia praecox (later called schizophrenia) and manic-depressive psychosis. It was an exhilarating and innovative time for these psychiatrists, who believed, and had reason to believe, that they were carving out a scientific domain for themselves that would not only lead to important and exciting discoveries but would insure them an esteemed place within the scientific community.

To a certain extent they succeeded. They produced estimates of the illnesses in the population at large and in the families of probands suffering from the investigated disorder. They found that the frequencies in probands' relatives exceeded the population rates appreciably. They then turned to studies of twins and found much higher concordance rates in monozygotic twins than in dizygotic twins. These findings bolstered the investigators in their belief that they were on the right track and that the disorders were indeed genetic. But alas, the mode of inheritance eluded them, and prolonged discussion and debate could not produce any consensus regarding this key issue. Nothing approaching Mendelizing distributions could be found. Reports turned up regularly that some metabolite or compound had been found to be implicated in or the cause of the illness, especially schizophrenia, but alas again, each report generated its shining day of excitment only to die on a gray tomorrow. Thus, the two holy grails of psychiatric genetics were to remain elusive, although the debates and the searches continue. The imminent breakthrough seems always to be with us, but the moment of discovery has yet to arrive.

Some changes have occurred, however. A new sophistication regarding research methodology has developed in the past two decades, and recent exciting pharmacological discoveries have suggested that we are now *really* about to understand the biology of schizophrenia and manic-depressive psychosis. The psychiatrists who pioneered these genetic searches have by and large either passed away or earned their retirement, and people from other disciplines have infiltrated this area of study that once was a psychiatrists' monopoly. Of the five books that have appeared on this topic since 1970, the first was written by a clinical psychologist, the second was edited by a behavior-genetic psychologist, the third was written by two collaborating psychiatrists, the fourth was edited by a geneticist, and the fifth, which is the book under review here, is by a clinical psychologist and a psychiatric social worker.

Twenty-five years ago such a breach of the discipline barrier could not have been foreseen or tolerated, but today this state of affairs is accepted without comment or notice, probably because all barriers, disciplinary as well as social, cultural, racial, and class, have developed a permeability that betokens an age which decries inequalities and credentialism and permits everyone to approach public or scientific issues in his own way. Today's layman or student scientist freely passes judgment on whether mental disorders fall within the province of medical issues or are merely forms of behavioral or psychological expression such as one might expect in social or interpersonal contexts, or whether the names given to mental illness and various treatments of "patients" are merely devices for subjugating people, sometimes for political or discriminatory reasons, and whether genetics is an ally of psychiatry in this sense. One of the ironies of our time is that many leading psychiatrists are advocating abandonment of the medical model in regard to mental disorders, whereas leading researchers who come from other disciplines defend the medical model staunchly. Gottesman and Shields utilize the medical model, although they are reluctant to call schizophrenia a disease.

Against this background, we may now evaluate *Schizophrenia and Genetics: A Twin Study Vantage Point.* The idea of the "twin study vantage point" is central to the book, which is essentially a thorough presentation of a study, carried out in London, of schizophrenia in twins. Since there are 11 such studies in the literature, including the authors' own, one might ask what is new, why there should be a book-length expansion of one twin study among many, of which all but one find significantly higher concordance rates for monozygotic than dizygotic twins.

The answer is compellingly clear. The authors provide the most intensive, circumspect, and sophisticated assessment of their material that has ever been made in any twin study. They provide a brief but excellent summary of what is known in regard to the genetics of schizophrenia. They examine a wide range of issues that have been raised in past studies and examine how each one fares in their own sample, for example, the relation between severity and concordance, morbidity risk, nonschizophrenic abnormalities in monozygotic co-twins, psychiatric abnormalities in first-degree relatives, sex and concordance, symptoms and subtypes, course, duration and outcome, and premorbid personality. Every effort was made in their study—successfully—to allay any doubts regarding sampling bias, zygosity determination, and diagnosis. Interviews were taped. Outside "blind" judges made independent diagnoses according to "broad" or "narrow" definitions of schizophrenia, and these were compared to see which ones gave maximal discrimination of monozygotic and dizygotic pairs. Psychological tests were employed as well, the Minnesota Multiphasic Personality Inventory and the Goldstein-Scheerer Test of Concept

Formation, to assure more "objective" assessment and analysis. A search was made for environmental factors that might be implicated in the genesis of clinical schizophrenia, and for factors that may have led to discordance. The authors employ their keen grasp of the basic knowledge in this field to theorize about and provide a model for the etiology of schizophrenia. They conclude that specific genetic factors clearly underlie schizophrenia, whereas environmental factors are nonspecific and idiosyncratic. Schizophrenia is described as the "outcome of a genetically determined developmental predisposition."

Although the book addresses itself primarily to an audience conversant with both schizophrenia and genetics, any scientist or intelligent layman willing to dig into the book to satisfy his questions regarding heredity in schizophrenia will find his reading time well rewarded. But the fundamental answers to current questions about genetics in schizophrenia still remain outside our grasp. They probably will come not from twin studies, which Gottesman and Shields seem to have exhausted, but from new and innovative approaches to the problem.

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Public Health Program in China

Fun-Zhi Schistosomiasis Shou Chai (Prevention and Control of Schistosomiasis Handbook). Compiled by the Revolutionary Committee of Shanghai Schistosomiasis Research Institute. People's Press, Shanghai, ed. 2, 1971. 140 pp., illus. Paper.

Schistosomiasis, a deadly parasitic disease affecting 200 million people in the world, is an illness that can be better attacked by prevention than by treatment. It is caused by three species of blood flukes of the genus *Schistosoma*. In China, it is caused by *Schistosoma japonicum* lodged in the blood vessels of liver and intestine, damaging these organs through the enormous number of eggs laid by the worms. The disease is transmitted by amphibious snails, *Oncomelania hupensis*, which discharge larval parasites, cercariae. People acquire the disease through contacting the cercariae in infected water. It has been an endemic disease in the coastal and central area of China. According to an official estimate, 10 million people in China were affected in 1958. If the disease is untreated, death can result after 4 to 5 years of illness. The Chinese word for schistosomiasis means literally "blood-sucking worm disease."

This compendium on schistosomiasis is for sale in China to foreigners as well as to local people. (Some books are not for sale to foreigners.) It opens with Chairman Mao's 1958 poem lamenting schistosomiasis among the peasants, followed by his quotations on health care and his exhortation that "schistosomiasis must be wiped out." There are seven chapters with 29 figures and 18 tables or charts. The first chapter deals with the life history of *Schistosoma japonicum*. The second and third chapters deal with methods of eliminating the vector snail and with disposal and treatment of excreta. The fourth chapter gives instructions for water safety and measures to prevent contracting the larval parasite in water. The fifth and sixth chapters are on surveying and treatment of the disease. The last chapter is on the prevention and treatment of schistosomiasis in cattle.

In general, the book deals with attacking the disease on two major fronts: (i) to eliminate the snail vectors, and (ii) to treat the affected people and farming cattle. To generate motivation, quotations of Chairman Mao appear here and there, and especially at the beginning of each major topic. Throughout the book there is a call for an all-out effort, with Mao's quotations serving as booster shots. Samples are: "United with cooperation," "Be brave and not afraid of hard work," "Bear responsibility with deep concern for people," and "Survey and analyze the situation, arm with proper preparation, lest you fight an aimless war."

The chapters dealing with the control of snails start with methods and problems of surveying snail populations with instructions for attacking snails in eight different kinds of habitat: rivers; canals; rice paddies; fish ponds; swampy land; the so-called "infectable environment," which includes piles of roof tiles, plant roots, and bridge legs; rural housing areas; and plantations. Snails are being attacked on all levels and by utilizing all means and manpower. The campaign involves changing the entire ecological picture if necessary. Thus, land is flooded to drown snails, leveled to bury snails, sprayed to poison snails, burned to kill snails. Wherever snails are found, people are instructed to turn over the soil and plough under, or to drain canals, to dredge riverbeds, to fill ditches, to cover swamps, to cultivate wasteland. Regardless of the method, the principle always is to combine snail control with agricultural production. In short, wet land may be changed to dry land and dry land to wet land if necessary.

The major molluscicides used are sodium pentachlorophenate, calcium cyanamide, and "schistosome preventive 67," a Bayer-73 mixture synthesized in China through the cooperative efforts of the People's Liberation Army, barefoot doctors, and the revolutionary committee on research and prevention of schistosomiasis.

The chapter on control of parasites in the excreta describes the construction of latrines and of septic tanks with sedimentation compartments so that when the egg-containing excreta reach the last compartment the material will be safe for use as fertilizer. To take advantage of the ammonium hydroxide, an egg-deteriorating agent in urine, the fecal materials of man and animals are piled together, mixed with urine, and stored for a set time before being utilized. Ammonium hydroxide and calcium cyanamide are also mixed with the excreta to kill parasite eggs. Safety of drinking water is emphasized. The peasants are taught how to drill a well and cover it properly. People are advised to avoid direct contact with cercariae in areas where there is infected water and to wear shoes and clothing treated with chemicals when wading. The diagnosis for disease is entirely Western and is updated to include step-by-step fecal examination and identification of eggs as well as tests for serum response to eggs.

The chapters on treatment include many forms for doctors to fill out, from which data can be compiled easily for research studies. The major drugs used are "schisto. 846," an antischisto drug combined with milk powder; antimony-273; and F30066, a furane compound. All these drugs are given by names and numbers with descriptions of their appearance but no information on chemical composition. Dosages are carefully calculated, with warnings and detailed instructions for the treatment of undesirable side effects. Chinese herb medicine is also used.

In general, this is a handy book, cov-