BOOK REVIEWS

GENETIC FACTORS IN "SCHIZOPHRENIA"

Compiled and edited by Arnold R. Kaplan, Ph.D., 698 pp., Illustrated, Charles C. Thomas, Springfield, III., 1972, $43.00.

This is a tremendous book and one which ought to be studied by all persons who are interested in schizophrenia. Although several of the writers give abundant evidence to show that schizophrenia is commonly inherited, and is likely to show up in an immediate relative of a schizophrenic, there are some doubters and there is still much argument as to how the inheritance takes place. The contributors to the great compilation are some of the leading experts in the study of this common and puzzling disease.

For example, in her fine chapter, written with Gloria Faretra, Dr. Lauretta Bender tells much about the relationship between childhood and adult schizophrenia. These two experts on psychotic children say that out of 100 cases seen at Bellevue Hospital, 50 were considered to have had an autistic onset. The writers say, "Autism has been seen as a defense mechanism occurring in young schizophrenic children who withdraw to protect themselves from the disorganization and anxiety arising from the schizophrenic processes." As early as the first and second years of life, the syndrome is characterized by an extreme aloneness; an obsessive desire for sameness in the environment, the daily routine, and personal experiences; a language disturbance with mutism or non-communicativeness, echolalia, bizarre language, thought disturbances, and a failure to use the first-person pronoun; there is a poor object relationship, except for non-human objects, and a low level of intellectual functioning on psychological tests, with some evidence of isolated areas of high cognitive ability.

Drs. Bender and Faretra describe the characteristics of childhood schizophrenia at different periods of age. They emphasize the fact that schizophrenic children may require psychiatric hospitalization in childhood, not only because of schizophrenic illness itself, but also because of unfavorable environmental conditions, organic brain damage, lack of adequate community resources, and school failures. "More important are their life-long patterns of deviate behavior, poor adjustments, distorted interpersonal relationships, overt psychotic behavior, either continuously or episodically, and other schizophrenic features." While these children were all diagnosed as schizophrenic, the symptoms varied considerably; the manifestations and variations peculiar to each child seem to persist at least into the early adult years.

In Chapter 4, "The Unfortunate Concept of Schizophrenia," Dr. Lawrence S. Kubie emphasizes the point that there are a number of clinical pictures listed under the term schizophrenia. He said that "as psychiatric scientists, we must be interested primarily in the process of sickness (i.e. its essence, its origins, and the forces which keep it going),

whereas as social scientists, we are interested in the sick life which results, and in its human and social and familial consequences."

In Chapter 5, by Dr. Roland Fischer, there are many scientific reports of research on schizophrenias. Dr. Fischer tells much about the chemicals in the body which may cause a psychosis due first to abnormalities in perceptions. He tells also of experiments showing what happens to people who are given an excess of several chemical compounds. He says (p. 89) that the reports of Professor Heath showing that there is a chemical that can make schizophrenia have not been confirmed. Also, he has no faith in the "pink spot" idea; he says that it does not seem to have any practical value in diagnosis or therapy. He speaks (p. 90) about the "mauve" spot, but does not mention the abundant work on this feature by Drs. Hoffer and Osmond. However he speaks of Dr. Hoffer's idea of the breakdown products of adrenalin as causing psychoses. And he mentions Dr. Linus Pauling's statement (made in 1956), "I am sure that most mental disease is chemical in origin." Dr. Fischer's work is commendable if only because he has 356 references in his bibliography.

Several writers, like Dr. K. Planansky deal with the details of possible genetic origins of schizophrenia. Dr. Planansky says (p. 143) that schizophrenia has been found in 45 percent of all relatives of schizophrenics, and in 25 percent of direct ancestors. He gives statistics that indicate that in one family there can be both schizophrenics and manic depressives. He says (p. 155) that "some men, like Dr. Heston, have noticed what looked like neurosis in many relatives of schizophrenics, but a lot of other men say that there isn't a relation between neurosis and schizophrenia." In many parts of this magnificent book one finds such conflicts between the opinions of different writers.

Chapter 8 is by Theodor Abelin, who gives much information on changes in the body chemistry of schizophrenic bodies. He does not appear to be hostile to Heath's idea of taraxein (p. 201). Interestingly, we read (p. 211) that between 5 and 10 percent of the children of schizophrenic parents are mentally deficient. Two other research workers said that between 5 and 10 percent of the children of schizophrenic parents are retarded. Dr. Abelin said also that schizophrenia is most commonly met with "in the lowest social class," but, as he said, some schizophrenics may drift down into the lower class because of their handicaps.

Chapter 9 is by Lewis A. Hurst, on "Hypothesis of a single-locus recessive genotype for schizophrenia." On page 238 we read that Tedeschi and Freeman made a study of sex chromosomes in 248 male schizophrenics, and did not find any changes greatly dissimilar from those in normal and also mentally defective males.

In Chapter 10 I note the very able Dr. J. L. Karlsson's interesting statement that Iceland's statistics show that the rates of eminence are high in the same families that have a high rate of mental illness. "This supports the view that the principal gene of schizophrenia is involved not only in the predisposition to psychosis, but also to the development of giftedness."

Juda and Heston also have reported high rates of colorful personality among children of schizophrenic mothers. Some schizophrenics are capable of superior scholastic performance.

In Chapter 12, Hisatoshi Mitsuda mentions the relation between atypical psychosis, especially atypical schizophrenia, and epilepsy. Also, he discusses the relationship between schizophrenia and manic-depressive psychosis. Throughout this huge book one keeps finding that several of the writers had difficulty in describing what were "atypical" psychoses.

Chapter 13 is on "Theoretical considerations on schizophrenia genetics," by P. A. P. Moran. Dr. Moran mentions the work of Drs. Huxley, Mayr, Osmond, and Hoffer, who maintained that schizophrenics are

particularly resistant to surgical shock and to physiologic reactive substances. Dr. Moran quotes Essen-Mbller who studied 2,509 schizophrenics and found that they had a greatly reduced reproduction index compared with normals, in contrast to manic depressives whose index was only slightly below normal. The low reproduction rate of schizophrenics is probably due partly at least to their low marriage rate.

Chapter 14, by J. H. Edwards, is on "The genetic basis of schizophrenia." Dr. Edwards sums up matters very well when he says, "The genetic basis of schizophrenia has appeared mysterious to some authors, simple to others, and non-existent to a few." Dr. Edwards says that relatives of schizophrenics are far more likely to become schizophrenic than are relatives of other people. "Schizophrenia is very variable in expression, but close relatives, particularly identical twins, show great similarity."

In Chapter 15, Sheldon C. Reed quotes Kallmann's (1953) statement that with monozygotic twins the concordance of schizophrenia was 85.8, while with dizygotic twins it was only 14.7.

In Chapter 17, on "Biochemical aspects of schizophrenia," Arnold J. Friedhoff tells of evidence that schizophrenics do not see things as normal people do. If they draw a picture, it has things distorted. The doctor tells of a number of powerful chemicals that are found in urine taken from some schizophrenics.

In Chapter 18, Dr. Arnold R. Kaplan discusses "Chromosomal aneuploidy, genetic mosaicism, and occasional acentric fragments, with schizophrenia; also an association of schizophrenia with rare cytogenetic anomalies." This is a chapter for trained geneticists.

In Chapter 19, "A new approach to the use of twin study data in studies of the pathogenesis of schizophrenia and neurosis," Dr. William Pollin has a table showing the results obtained by 11 research workers on twins. All but one found a definitely higher concordance of schizophrenia in monozygotic twins.

In Chapter 20, Dr. E. James Anthony tells of "A clinical and experimental study of high-risk children and their schizophrenic parents." Of the children, 15 of those with pre-psychotic symptoms came mostly from severely disturbed families with grave parental illness. This chapter is full of a mass of genetic information.

In Chapter 21, H. B. M. Murphy tells about "The evocative role of complex social tasks." In some places in the world, perhaps extra strain on people can increase the incidence of schizophrenia.

In Chapter 22, Muriel Hammer tries to answer some of the questions as to what is schizophrenia. She discusses some questions about definition, and the cultural perspective. Her table of characteristics of schizophrenics (p. 437) is excellent; she says the intelligence quotient of siblings of schizophrenics was found to be higher than average.

In Chapter 23, Dr. Helm Stierlin tells what happened to the Genain quadruplets, as described by Dr. David Rosenthal in his big book. They were said to have schizophrenia in different degrees.

Chapter 24 on "Schizophrenia: the unhappy vicissitudes of a clinical concept," is by Robert Cancro; the doctor says, "The naive reader who first embarks upon a search of the literature that relates to schizophrenia will soon discover that it is overwhelming, both in its size and its contradictions." As the doctor says, in this big volume, the authors often do not agree.

In Chapter 25, entitled, "One, two, or many!," Per Dalen also discusses contradictions in definition and theories of causation of schizophrenia.

In Chapter 26, Dr. V. Elving Anderson discusses "Genetic hypotheses in schizophrenia." He is puzzled to see in the big volume so many theories as to how the disease is inherited.

In Chapter 27, Dr. Eiji Inouye tells of "A

search for a research framework of schizophrenia in twins and chromosomes." As one would expect, he gives Japanese statistics.

In Chapter 28, the great British psychologist, Dr. H. J. Eysenck, tells about "An experimental and genetic model of schizophrenia." As he says, the families of schizophrenics not only show an increase in the probability of getting psychotic, and particularly schizophrenic, disorders, but they also show an increased incidence of minor psychosocial defects. Also there can be psychopaths, criminals, alcoholics, and schizoids.

In Chapter 29, Richard Allon writes about "Problems of definition and measurement in process-reactive schizophrenia research."

In Chapter 30, Dr. Theodor Abel in discusses "Essence and measurement of process and reactive schizophrenia." This is a highly technical discussion.

In Chapter 31, Richard Allon writes an article "On measurement of process-reactive schizophrenia."

In Chapter 32, Ernst Mayr says, "Perhaps the most amazing aspect of schizophrenia research is the drastic change in the intellectual climate in recent years. Only a few years ago, there was still a wide divergence of opinion as to whether genetic factors were involved at all, and much time and effort had to be devoted to present the supporting evidence, and refute objections. At the present time, virtually no well-informed psychiatrist continues to question the biological nature of the disease." He refers to studies by Heston, and Kety and coworkers that have confirmed the results of earlier twin studies so decisively that there can no longer be any argument about the existence of genetic factors in schizophrenia. Confirming my own studies (W. C. Alvarez) of hundreds of patients, Dr. Mayr says that "schizophrenia-like symptoms are sometimes produced by epilepsy" (see my book, *Nerves In Collision*, Pyramid House.) Dr. Mayr says (p. 532), "The strong difference between monozygotic twins (about 60 percent concordance) and same-sexed dizygotic twins (about 14 percent concordance) as well as the greatly increased frequency of schizophrenia among relatives of schizophrenics leaves no doubt as to the importance of genetic factors."

Dr. Mayr speaks (on p. 534) of Heston, whose "sample of forty-seven children of institutionalized schizophrenic mothers (removed immediately after birth and raised in foundling institutions or foster families) contained five schizophrenics, nine persons diagnosed as sociopathic personalities, and thirteen as neurotics (a few fall in several of these categories)."

In Chapter 33, Robert E. Kuttner discusses "The evolution of schizophrenia."

In Chapter 34, Nathan S. Kline discusses "Reflections on first looking into Kaplan's genetics of schizophrenia." Dr. Kline writes, "The 'penetrance' is sufficiently high in some cases of schizophrenia to produce inevitably the overt disease, but in most, the social or psychological circumstances determine whether or not the disorder becomes manifest." Some men, no doubt, would question that.

Dr. Kline says (p.546), "The similarity of identical twins in pharmacological response, as well as in other aspects of investigation, very strongly favors the idea of a common genetic defect."

In Chapter 35, "Concluding remarks: genetics and schizophrenia," Arnold R. Kaplan says (p. 570), "Malis has reported considerable data to support his hypothesis that schizophrenia is due to the effect of an exogenous agent. His findings are consistent with other researchers' reports indicating that an unusual plasma globulin, combined with a small molecule, may be intimately involved with schizophrenia."

Altogether, this huge book is a tremendous treasure of information which brings some order out of an old chaos in the study of schizophrenia

Walter C. Alvarez, M.D.,
700 North Michigan Avenue,
Chicago, Illinois.