The next important step is to hold in an adequate institution for the criminal insane, those who have definite psychoses and would be benefited by their treatment in such an institution. In 1905, an institution for the insane person charged with felony was provided for by an act of the legislature. The building was started, but not completed. The location was at Folsom, an obviously undesirable place. A suitable building in a suitable location should contain a block of maximum security cells and detention places down to minimum security, according to the condition of the patient. Doctor Cushman and an architect would have no difficulty in designing such an institution. The present hospital at Ukiah is not equipped for persons with criminal tendencies and the ability to escape, and too many of the staff are political appointees. Much of the criticism of the present law arises from that fact. Not so many years ago a defendant, a colored man, was found insane and sent to Ukiah. In a few weeks he was back again before the same judge. The judge asked for an explanation. The defendant gave it. "I was in the yard and an attendant came up and says to me, 'Nigger, you ain't crazy.' 'Why, yes I is,' I says. 'See here, Nigger,' says he, 'I am going away and I am not coming back for fifteen minutes. If you are here when I get back, then you *are* crazy' and, Judge, when he came back I wasn't there."

An institution, properly built and staffed, would solve most of the problems, with no change in the law. The solution does not differ substantially from the English law. There the jury is permitted to find the defendant guilty of the act, but so insane as not to be responsible according to law. The court then orders the prisoner to be kept in custody as a criminal lunatic until His Majesty's pleasure shall be known, and His Majesty is pleased not to release him. The result is that the defense is rarely made by defendants except in capital cases. A conviction for robbery or burglary involves perhaps a two- or three-year sentence to prison, but a finding of guilty but insane means detention for life.

If the medical experts knew that a defendant found guilty under a right and wrong test would be put in an institution for the criminal insane if suffering from a psychosis and in such institution would be cured, if possible, otherwise detained for the maximum term, there would be less reluctance to find the defendant sane according to the law. Under the law as it is at present, the experts for both sides, if reasonably competent, usually agree as to what is the matter with the defendant medically, but the prosecution experts say he knows the difference between right and wrong in relation to the law of the land as applied to the act that he did. The defense experts say that may be so, but a man so seriously diseased ought not to be sent to prison. The absurd hypothetical question makes a difference appear between the experts, where there is none in fact. The defense counsel consumes a couple of hours in reading a question embodying all the testimony favorable to the defense and omitting everything else. The answer of the experts to such a question is, naturally, that the defendant is insane. The prosecution presents its side of the testimony in a similar hypothetical question embodying the testimony for the prosecution and, obviously, the answer is that the defendant is sane. The experts are made to appear in opposition, whereas neither has had an opportunity to answer a question as to the actual state of the defendant based on the evidence and personal examination. Fortunately, as Doctor Cushman points out, reasonable judges are now utilizing the reports of competent nonpartisan experts. The recent power of the judge to comment on the evidence gives him the opportunity to tell the jury the truth about the hypothetical question.

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Milton B. Lennon, M.D. (384 Post Street, San Francisco).—Doctor Cushman's wide experience with the problems of the so-called "criminal insane" gives him the halo of some authority.

We who have had but a minor experience have a sense of overwhelming insufficiency when we view the problem. Its facets are many. The legal side is mixed up with the medical aspects, and yet a certain deal of common sense should help to solve the question. The rights of the individual and of the public must be conserved.

A man is indicted as the perpetrator of a crime. The judge may recognize the fact that he has a psychosis, appoint a psychiatric board, have an investigation, and immediately commit him to a state hospital.

Another indicted individual may make a twofold plea: First, "Not guilty," and second, "Not guilty by reason of insanity." He and his lawyers have a dual purpose. If he is found guilty a second trial on the insanity plea is made, with the hope that the jury will find a verdict of insanity, and that, instead of a long sentence in prison, he will be sent to a state hospital. At the end of a year he can start proceedings to be discharged from the state hospital. Remember, that a lay jury has brought in the verdict of insanity, and that at times this is done in the face of unanimous medical testimony to the contrary. Careful study during the year's stay at the hospital may fail to disclose any psychosis, and hence the superintendent has no alternative than to discharge the patient.

Again a man may be adjudged insane by the jury, and this time in conformity with the medical evidence. At the hospital careful study by the superintendent and his staff may lend further evidence of a psychosis. Even such an individual may, at the end of a year, bring legal action and attempt to be discharged. What is more, men have succeeded in regaining their freedom despite the protests of the hospital superintendent. Now such things do not happen often, but they never should happen.

There should be no double plea, and if there is the usual second part should take precedence over the first. If the plea is made of "Not guilty by reason of insanity," I am in hearty accord with Doctor Cushman's valuable suggestion. An intensive psychiatric study of the individual should be made. In some instances a conclusion can be quickly reached, in others only a time-consuming investigation will lead to a logical diagnosis. Hence, the period of stay at a hospital should be left entirely to the discretion of the superintendent. In this way no psychotic patient will find himself in jail. The malingerer will be ferreted out by observing eyes.

We of the medical profession should use every means to bring about legislative action that will further Doctor Cushman's proposal.

Equally important, in my opinion, is a change in the law that permits a patient to take legal steps toward his discharge at the end of a year. A longer period, say of five years, should be substituted before such an action is permitted. The matter should be far more a medical than a legal question. A proviso might be made that, after a year and at the discretion of the superintendent, a patient may be discharged if the psychosis is cured, and no superintendent would hold a patient if such were the case.

COCCIDIOIDES IMMITIS INTRADERMAL SKIN REACTION*

A PRELIMINARY REPORT OF 449 CASES

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AND
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THE purpose of this paper is to evaluate the coccidioides skin test as a diagnostic measure. To our knowledge there has been no previous similar report in the literature. Jacobson,[1] using a filtrate of a coccidioides growth on Sabouraud's bouillon, tested six noninfected persons and obtained negative results except in one case of blastomycosis. A positive reaction resulted in six patients with coccidioidal granuloma. He stated that coccidioides immitis produces a filterable substance

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Note.—Since this paper was submitted for publication we have encountered a case of coccidioides of the lung in a white male, proved by biopsy, which gave a negative skin reaction.

which gives a characteristic skin test on patients with coccidioidal granuloma, as does tuberculin on patients with tuberculosis. Cooke [2] using (*a*) a filtrate, (*b*) an emulsion of mycelia, and (*c*) a suspension of spores, both intradermally and by the Von Pirquet method, obtained positive results on a case of coccidioidal disease and six controls. He concluded that there is no specific skin reaction in coccidioidal granuloma. Hirsch and Benson,[3] on the other hand, concur with Jacobson [1] that coccidioides immitis, cultured in liquid media, produces a soluble specific substance that yields a cutaneous reaction in infected persons. Furthermore, Hirsch and D'Andrea [4] found that guinea pigs could be sensitized with broth culture filtrates of coccidioides immitis and killed dried mycelia. Positive skin reactions were obtained with different strains of the mold, thus showing that there is no specificity of strain. The testes of sensitized animals produced acute inflammatory exudates in the presence of antigen, so that these observers believed the skin reaction to be on an allergic basis probably.

METHOD

The material used in this study was prepared in the following manner. An old broth culture (1925) of coccidioides immitis, mycelia and spores, isolated from a patient with the disease, was heat-killed, dried and suspended in normal saline. Phenol was added as a preservative. The material was standardized so that each cubic centimeter of solution contained 0.1 milligram of the culture.

One-tenth of a cubic centimeter of the above material is injected intradermally on the flexor surface of the forearm, and the reaction is read in twenty-four, and again in forty-eight hours. Normal saline is used as a control. A positive reaction consists of an area of induration 5 millimeters or more in diameter about the site of injection at the end of the forty-eight-hour period.

DISCUSSION

This series comprises 449 tests done on patients ranging in age from ten months to eighty-five years, and hospitalized in San Francisco, San Joaquin, Kern, and Fresno counties. In this group there were twelve cases of coccidioidal granuloma, 177 tuberculous infections, and 260 miscellaneous diseases. The coccidioides cases cited above were proved either by identification of the organism from the lesions or by autopsy. Table 1 lists the incidence of positive skin reactions in various conditions.

TABLE 1.—*Incidence of Positive Coccidioides Skin Test*

Classification	Total Number of Cases	Number Positive	Per Cent Positive
Coccidioides	12	12	100.0
Tuberculosis	177	49	27.5
Other diseases	260	11	4.2
Total	449	72	16.0

TABLE 2.—*Coccidioidin Reactions in San Joaquin Valley and Other Areas*

Location	Total Number of Cases	Number Positive	Per Cent Positive
San Joaquin Valley	184	37	21.0
Other areas	253	24	9.5

The coccidioides intradermal skin reaction was positive in all twelve patients with proved coccidioidal granuloma. Previously, Miller [5] had pointed out that a positive skin test is invariably obtained in patients with the disease.

A striking feature of our results is the high incidence of positive reactions in tuberculosis. Beck, Traum, and Harrington [6] have called attention to the close relationship between the tuberculin and coccidioidin tests in animals. They observed positive tuberculin reactions in guinea pigs injected with coccidioides immitis. Further investigation of the interrelationship of these two diseases should be attempted.

Occasional positive skin tests (4.2 per cent) were obtained in a group of 260 patients with miscellaneous diseases other than tuberculosis or coccidioides. It may be that a diminution in concentration of the material employed will reduce or eliminate false positive reactions. Further study along such lines is contemplated.

San Joaquin Valley is regarded as an endemic area of coccidoidal granuloma, and a comparison of the results of intradermal skin tests in this region with the other areas is shown in Table 2.

In 184 patients without a previous history or evidence of a coccidioidal infection, resident in the San Joaquin Valley, there were 37 (21 per cent) positive reactors, while in a group of 253 cases living in other regions of the State only 24 (9.5 per cent) were positive. The incidence of tuberculous infection was approximately the same in both series. These results are interesting in view of the fact that it has been suggested [5] that perhaps in endemic areas some inherited resistance may be built up through many generations, or some people may acquire coccidioidal granuloma in a mild form from which they recover and develop a resistance. However, the mechanism of immunity in coccidioidal granuloma remains still unsolved.

SUMMARY

Intradermal skin tests with killed coccidioides organisms were carried out on 449 hospitalized patients. All twelve patients with proved coccidioidal granuloma reacted positively. Positive reactions were obtained in other conditions, particularly tuberculosis. A higher incidence of positive reactors was found in noninfected residents of the San Joaquin Valley, an endemic area, than elsewhere in the State.

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PHASES OF ADOLESCENT DEVELOPMENT IN GIRLS*

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DISCUSSION *by H. Lisser, M. D., San Francisco; William Anthony Reilly, M. D., San Francisco; H. E. Thelander, M. D., San Francisco.*

THE present report is concerned with the significance of individual differences in body build as a factor in growth and development. Physical, physiological, and observational records of a group of about one hundred girls furnish the basis for the study. The physical data include anthropometric measurements, clinical physical examinations, observations, x-rays, and serial photographs. The children studied here, as a part of the seven-year study of adolescence being carried on at the Institute of Child Welfare, have been examined each six months, beginning at the age of approximately ten years.

The longitudinal method has been used, the development of each child being followed over a period of several years. This has required the maintenance of cumulative records, and makes possible both the consideration of status at successive age levels, and of cross-sectional as well as longitudinal relationships. Interrelationships between several of the different types of data have been traced.

As a technique for exploration of relationships, a group of girls of extremely slender build have been contrasted with another group of girls characterized by extremely broad body build. These two samplings at the extremes of the normal distribution were selected [1] on the basis of an index of body build, consisting of bi-iliac diameter divided by standing height. Data from the two contrasted groups reveal certain significant relationships between the anatomic measures and physiological variables. The two groups of children have characteristically different growth patterns. The findings suggest that, in studies dealing with growth and development, proper interpretation of the data from a random sample requires the recognition and measurement of individual differences, and proper allowance for certain individual patterns of growth.

* From Stanford University and Institute of Child Welfare, University of California.
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THE ASSESSMENT OF GROWTH

In the measurement of growth, it is necessary to recognize a number of variables in addition to actual stature or size. The important thing in growth is the maintenance of an adequate rate of progress, normal for the individual, rather than the attainment of uniform size for all individuals at a given age. It is necessary to recognize big-boned family lines and small-boned family lines, as well as the stunting effects of certain serious illnesses. In the present study, interviews with the parents were held in order to gather information on family heredity, as a help in recognizing growth patterns.

The use of x-rays in study of physical growth is comparatively recent, but various methods of measuring the extent of ossification have been devised in order to assess development.[2-4] Appearance of centers of ossification, stages of fusion of epiphyses with their diaphyses, total carpal area, and diameters of the carpus have all been used by various authors to estimate anatomic age. Todd [5,6] used centers of ossification in shoulder, knee, and foot, to supplement hand and wrist in order to judge skeletal development. Both Rotch [7] and Stevenson [8] have demonstrated the wrist to be an adequate indicator of the ossification in all the epiphyses in the skeleton. Since this area can be x-rayed with the least expense or inconvenience of any part of the body, it is the one now generally used. The wrist is a satisfactory area in which to study ossification, because, while cartilaginous at birth, it has eight bones at maturity, and hence in the transition it exhibits many stages of development.

Centers of ossification appear in definite sequence, and failure to appear when they should indicates an illness at or near the time of appearance. The ends of the long bones, particularly the tibia, and the radius, are marked with rings which show pauses in the bone growth following severe measles, scarlet fever, or other long-continued fever. Children from slum districts show more developmental scars of this type than do those in better homes.

The various retardations in development due to illness may be responsible for some of the irregularities in growth noted during the adolescent period. These irregularities are no doubt related to the awkward phases of imbalance between bone growth, muscle growth, and endocrine or organ maturity. The awkward stage of stress and strain is more marked in early adolescence, and disappears as irregularities in growth diminish.

X-rays show no distinction in amount of ossification in boys and girls up to five years. By age ten, the girls show quite a developmental spurt, and the girls finally attain their mature form before boys. The female skeleton reaches approximately its adult level at about fifteen years, when the epiphyses close and there is no further growth in stature. In boys, adult stature and skeletal weight are not attained until age eighteen.

We have used the appearance and growth of centers of ossification in bones, to measure physical