

NOTES ON SOME PAPERS PRESENTED AT THE MADRID CONGRESS

It is impossible to deal satisfactorily with the 200 odd papers presented, for the proceedings of the Congress are not yet published, and the full text of the papers is not available. The abstracts of papers presented at Madrid, were mostly not written in English, two-thirds being either in Spanish or Portuguese. The full papers and abstracts, when they become available, will mostly be in languages other than English. In spite of the difficulties, an attempt to present in broad outline the main points of these papers in the English language appears justified.

Fortunately, Dr. J. Ross Innes has, with what must have been vast labour, translated into English a very large number of the available abstracts and sent them to this office for possible publication. The editor has got a few more translations made of abstracts not included in the manuscript of Dr. Ross Innes. As the result we have available English abstracts of some 200 papers presented at Madrid. (Of a few papers, however, no abstract of any kind is available.)

In the present notes it is proposed to make some general view of this mass of material, and to mention briefly many of the papers. The editor has noticed especially those papers that interested him, sometimes because they reported matters quite new to him, sometimes because they tended to confirm his views, and sometimes because they went quite contrary to his views, sometimes contrary to views generally accepted.

CLASSIFICATION OF LEPROSY. Papers on classification numbered 14. Little discussion of these papers is presented here. Most papers reflect the view that leprosy is of two main more stable types, "tuberculoid" and "lepromatous," but that other less stable and less characteristic forms are seen; and that the classification must be primarily clinical. One paper (Khanolkar and Cochrane) places much emphasis on the lepromin test, and states that "to base classification *solely* on clinical grounds is unscientific" (but no one suggests doing this). Martino Dominguez wants to class "maculo-anaesthetic" cases as almost a third main type. Montel's paper contains some controversial statements; example: the histology of the tuberculoid type is not specific; most cases first present themselves as tuberculoid, and may later become lepromatous; the Mitsuda test is useful, but too variable to provide a criterion for classification.

The view is expressed in several papers that classification must be simple, and should not attempt too much clinical description.

TREATMENT OF LEPROSY. Papers on this subject number 53. Fourteen papers deal with sulphones. It is impossible to notice all of these; many different sulphones are discussed; no outstanding case is made for any one sulphone. Results with all are good, but with the well-known limitations. Laviron *et al* speak highly of the value of intramuscular injections of dapsone suspended in chaulmoogra oil in the large scale treatment of out-patients. They give injections of 1.25 gm. twice monthly, and find that a reasonable blood level is maintained. They think that the amount of oil used is far too small to have any effect, but the oil forms a very good vehicle for slow absorption. They say that 1.25 gm. twice a month is active, non toxic, and practicable for mass treatment.

Herrera records the beneficial effect of sulphone treatment on the menstrual cycle and reproductive systems in female patients. During pregnancy, the puerperium and lactation, improvement under treatment continues. Children born have remained free from leprosy, although remaining with leprous parents.

Five papers deal with thiosemicarbazone, all of them favourably. Laviron *et al* have used weekly intramuscular injections of 600 m.g. in chaulmoogra oil, with benefit.

Nine papers report on isoniazid in human leprosy. All report excellent tolerance and improved sense of well-being, but most record only moderate improvement in the leprosy, and only for a limited period. One report (Laviron and Lauret) deals with isoniazid given alone or in association with other drugs, including DDS, and streptomycin. In neither case could they attribute much

benefit to the isoniazid, though improvement in general condition was recorded.

In murine leprosy, five papers record a marked action of isoniazid in reducing the infection. Two of the five papers record findings indicating the development of drug resistance. Bushby and Barnet record that the beneficial action is only temporary, and that in spite of continued treatment, death from general massive infection occurred at one year. Organisms from these dead animals, when injected into fresh animals, were drug resistant. Drug resistance was demonstrated in animals treated for 6 months. They stated that isoniazid should be used in leprosy only in combination with other known antileprosy drugs.

Tegeler reports that relapse occurred in treated animals when the drug was stopped, and that resumed treatment produced a poor response.

Miscellaneous articles on treatment number 21. A series of articles by Doull, Davison and Guinto reports the methods and findings of the therapeutic trials conducted by the Leonard Wood Memorial. Five treatments were studied, and a control group. Diasone, D.D.S. dihydrostreptomycin, dihydrostreptomycin plus diasone, dihydrostreptomycin plus P.A.S. In general, all the treatment groups showed more improvement than the controls; of the five treatments, none was clearly superior to the others; there is no evidence that a sulphone combined with streptomycin offers any advantage. At one centre, P.A.S. appeared to have some effect.

Wolcott and Ross state " In recent years a number of instances of rapid extension of the leprosy processes have occurred in Carville patients while they were receiving continuous sulphone or other treatment." Their paper gives details and photographs of three such cases, one after seven years' treatment, one after ten years, one after six years. (This paper is reprinted in the *International Journal of Leprosy*, Vol. 21, p. 437).

Ramos E. Silva and Peryassu report excellent results from dihydrostreptomycin, later with oral sulphone added, in tuberculoid cases.

Floch regards sulphones (especially D.D.S. and mono-substituted sulphones), thiosemicarbazones, and the isoniazids, as giving uncontrovertible results in leprosy. Sulphones (particularly D.D.S.) constitute the basic treatment; D.D.S. is active and well tolerated when the dose is increased slowly. Treatment is of great value in the non-lepromatous forms of leprosy, and prevents the development of lepromatous leprosy, which fact may be more important than the cure of lepromatous cases. He uses much adjuvant vitamin therapy, Vitamin B complex, Vitamin C & D,

Vitamin K, Vitamin E, Vitamin P.P. for various complications.

He concludes that for many years the leprologist was appalled by the inefficiency of his therapy. Now this is not so. Modern treatment, particularly D.D.S., encourages the idea that the leprosy problem in French Guiana can be dealt with.

Gay Prieto recommends the use of local injections of cortisone in accelerating the resolution of large lepromatous swellings, especially on the face.

Only two papers discuss chaulmoogra oil as a therapeutic agent. Schujman, while not denying the value of sulphones and other agents, protests that chaulmoogra oil should not be abandoned.

The drugs discussed by others include sulphones and thiosemicarbazones and isoniazid, streptomycin, chloramphenicol, P.A.S., A.C.T.H. and cortisone, aureomycin, succinic acid, and an antigen prepared from a culture obtained from leprosy tissue. No point of major interest is brought out in these papers.

One paper, by F. Contreras *et al*, records good results in cases of lepra reaction from the intravenous transfusion of heterogenous plasma, or whole blood.

One paper by Scippa and Cotlear (of Peru) reports good results in reactional leprosy neuritis by the use of the spinal pumping method of Speransky (removing by lumbar puncture a "certain amount" of cerebro-spinal fluid, and the immediate return of the removed fluid, this procedure being repeated up to 20 times).

Gaté and Rousset write of experiments in treatment of leprosy with the antigen of Marie Suzanne, Sohier and Noel (see under bacteriology). Good results are reported in all forms of leprosy, but the complications include local reactions, general reactions, skin eruptions, neuritis, temporary aggravation of iritis etc. In the tuberculoid type of leprosy, the nerve lesions are said to improve rapidly.

Amendola discusses eye, ear, nose and throat complications in leprosy, and describes how surgical and medical measures and sulphone treatment have greatly improved the outlook.

Farina discusses surgical measures to graft eyebrows and repair deformed noses.

THE LEPROMIN TEST. Twelve papers relate to this test and its mechanism and significance. Bechelli *et al* correlate clinical findings in the patient with the histopathology of the skin at the site of the test and find that weakly positive Mitsuda reactions are often significant.

Wade injected cortisone into dogs, generally, and locally, and

studied the modification of the Mitsuda test produced by this hormone. He found that during the time of its action, the hormone prevented the skin reacting to lepromin, but, when the action of the hormone passed off, the reactions developed normally. In man the same thing was found. Fernandez, making similar studies in man, injected hydrocortisone locally into the skin, immediately following it with an injection of lepromin. The early (Fernandez) reaction was largely inhibited, and also the late Mitsuda reaction. These results appear to be quite different from those of Wade.

Zubiri studied, (as also did Wade) the effect of adding hyaluronidase to lepromin just before injection. The results are difficult to understand in the only available abstract, but apparently the lepromin diffuses widely and reduces the local reaction. Neto and Diniz report that dilution of the standard lepromin produced little reduction in the reactions. Dauden Sala reported that a repeated Mitsuda test frequently induced a swelling at the site of previous tests. He found this commonest in definite "contacts," and that this reactivation is a good prognostic sign.

Dharmendra studied early and late reactions produced with lepromin prepared (a) by long chloroform extraction and grinding of the tissue, (b) by Wade's method, using no chloroform, and (c) short chloroform extraction and grinding. He found that (a) gave more early reaction and less late, (b) gave more late reaction and less early, and (c) gave reactions between (a) and (b).

Fernandez studied the mechanism of the lepromin test, detecting two factors, specific (due to *M. lepræ*) and non-specific (due to *M. tuberculosis*). Tuberculin-negative children who have been exposed to leprosy infection are often Mitsuda positive, and tuberculin- and lepromin-negative children can sometimes be made Mitsuda positive by the injection of lepromin. The effects of repeated injections of lepromin depend on the nature of the antigen used; the bacillary antigen can increase reactivity, and the protein antigen can reduce it, with diminution of the early reaction but persistence of the late one.

A study of the lepromin test was made in tuberculous children, and tuberculous infection was indicated as the cause of the positive Mitsuda test. The injection of an oily suspension of Koch's bacillus killed by heat could produce a lepromin conversion.

B.C.G. in healthy persons produced lepromin conversions in 90% of cases. The early (Fernandez) reaction is thought to indicate hypersensitivity, and the late (Mitsuda) reaction a state of resistance to *M. lepræ*.

Fiorello and Bechelli studied the lepromin test in relation to

plasma protein changes in leprosy and other diseases. In lepromatous leprosy the plasma protein changes are accompanied by a negative lepromin test, but in other diseases associated with similar plasma changes (lymphosarcoma, Hodgkins disease, chronic myelosis, visceral leishmaniasis etc.) the lepromin test was usually positive.

Gaté and Roussel studied the influence of injections of the antigen of the Marie Suzanne, Sohier and Noel on the immunological reactions in leprosy and in tuberculosis. Intradermal injections of this antigen produced no reaction in healthy people; in ten cases of dermatosis the only reaction was in one case of skin tuberculosis in which there was slight late local reaction, but there was reactivation of the von Pirquet and improvement in the lesions. In cases of leprosy (of all types) there was immediate local reaction, all intense, often focal reaction in the lesions, sometimes general reaction. The influence on the lepromin test was (a) if given at the same time as the lepromin, the Fernandez phenomenon, (b) if given after the lepromin, a reactivation of the previous Mitsuda phenomenon, (c) if given before the lepromin, an increase in the positivity.

B.C.G. Fernandez reported over 90% lepromin conversions produced by B.C.G. Souza *et al* reported on a study of the influence of B.C.G., living or dead, on the Mitsuda reaction. Children were given (orally) 600 mg. of B.C.G. living or dead. Conversions were produced by both. Some conversions were seen long after the B.C.G. was given. They noted an absence of relation between the Mitsuda and tuberculin reactions.

De Souza Campos reported favourable early results of B.C.G. vaccination in reducing the incidence and severity of leprosy. (See *Int. J. of Lep.* 21, p. 307).

Bechelli and Quagliato studied the incidence and form of leprosy in contacts who had been treated with B.C.G. One thousand six hundred and fifty-eight contacts were studied for one year. Twelve became definite cases of leprosy, mostly tuberculoid. B.C.G. appeared to reduce the tendency to develop lepromatous leprosy. The authors state that the absence of adequate controls prevents further conclusions.

Convit *et al* report studies of 107 persons originally lepromin-negative and with no clinical evidence of leprosy, in contact with lepromatous cases of leprosy. B.C.G. was given by injection in July, 1950 to 106 of the 107; 95% showed lepromin conversions. The negatives were revaccinated later. In March, 1953, all the 107 were examined and lepromin tested. Three had "incipient" lesions, histologically tuberculoid; all three had strongly-positive

lepromin reactions. The single one of the 107 who had not been vaccinated had developed lepromatous leprosy.

Floch records that the adult is susceptible to primary leprous infection; European adults arriving in French Guiana not infrequently develop the disease. After 100 years of the penal settlement, there is more leprosy among the penal element of the population than among the free Creole population. B.C.G. may modify beneficially the reaction of persons tissues to leprous infection, and its use should be encouraged. Souza *et al* studied lepromin conversions in children (a) given B.C.G. and (b) not given B.C.G. Within one year the spontaneous conversions were considerable in number, but the B.C.G. group showed a higher conversion rate.

Rotberg discusses the immunology of leprosy, repeating his old theory that an inherent constitutional factor (N) influences the ability of the individual's tissues to respond by lepromin positivity to tuberculous infection, to B.C.G. vaccinations, or to other similar but unknown factors. The minority have no N factor, and the value of B.C.G. in this minority is very doubtful.

Schujman reports that in lepromatous cases, Mitsuda negative, in a considerable number the Mitsuda test can be made positive by giving intradermal injections of antigen made from the Stefansky bacillus (rat leprosy), or by giving B.C.G. by mouth. The early (Fernandez) reaction does not become positive; moreover, the Mitsuda conversions are often temporary. The results with the Stefansky bacillus are considered important, as showing that other acid-fast bacilli besides the Koch bacillus are capable of provoking the co-sensitization phenomenon in leprosy. Several papers discuss these temporary lepromin conversions in lepromatous cases produced by B.C.G.

Azulay *et al* gave 57 rats B.C.G. (20 mg. inoculated), and 115 days later infected them with Stefansky's bacillus, 20 other rats being used as controls. The rats inoculated with B.C.G. showed smaller lesions, and less dissemination. The B.C.G. seemed to have some protective value.

Azulay *et al* produced lepromin conversions in guinea pigs by injection of B.C.G.

Several papers discuss lepromin conversions seen in children after living B.C.G., sometimes dead B.C.G., and sometimes spontaneously.

GENERAL IMMUNOLOGY. There were eight papers on other aspects of immunology. Hale and Molesworth, from studies, in Malaya, of lepromin and tuberculin tests in healthy people, persons with leprosy, and persons with tuberculosis, suggest that it is not the

response of a person's tissues to the leprosy bacillus which determines the type of leprosy, but the opposite, the type of the disease which determines the response (allergic or otherwise) to the leprosy bacillus. They feel therefore that B.C.G. vaccination in Malaya will have little effect in prophylaxis.

Gay Prieto and Contreras discuss immunity and susceptibility to leprosy at different ages. They discuss the relative susceptibility of young children and the relative immunity of adults. They give details of one unsuccessful attempt to infect an adult by many injections. They quote however six cases in which natural infections occurred in adult life. They conclude that no age is free from danger of leprous infection.

Blanc reports experimental work with the "Chauviré" antigen (furnished by the Society for the Propagation of the Faith, at Lyons, and derived from a culture of acid-fast bacilli from human leproma). One thousand three hundred and nineteen leprosy patients or contacts have received injections of this antigen. The present report deals with the first 400. The numbers in each group are not given in the available abstract. Mitsuda negative non-leprous persons all became Mitsuda positive. Mitsuda negative persons with leprosy showed a larger proportion of conversions, 100% in tuberculoid cases, 50% in lepromatous cases and 68% in indeterminate cases. Mitsuda positive healthy persons remained positive. Mitsuda positive cases of leprosy sometimes became negative; 36% of indeterminate cases, 20% of lepromatous cases, and 6.5% of tuberculoid cases.

Bechelli *et al* report on the use of the eosinophil test of Thorn and R.P.K. to explore suprarenal function in leprosy in relation to the lepromin test. There was no close correlation between the activity of the suprarenals as revealed by these tests and positivity in the lepromin test.

de Mesquita considers that immunological phenomena in leprosy (presumably the lepromin test with lepra bacilli) are variable because the leprosy bacillus is not the cause of leprosy; the presence of this bacillus is only a useful index of the existence of the symptom-complex which seems to make up leprosy. The arguments he uses to support this view cannot be summarised here.

CLINICAL STUDIES. Papers on this subject number 11. Molesworth and Hale report on the peculiar features of leprosy as seen in Chinese and Malays, the chief feature being the frequent development from tuberculoid to lepromatous leprosy through an atypical intermediate phase, with correspondingly varying lepromin tests and histopathology.

Gay Prieto describes two cases of spontaneous cure of lepromatous leprosy, the cures now being of long standing.

Dauden Valls and Dauden Sala discuss the clinical features and classification of skin lesions in 90 children in a preventorium.

Garcia Perez *et al* discuss the "leprosy of Lucio" which they consider to be an infrequent form of "reaction" in lepromatous cases producing ulceration.

Nunez Magro *et al* discuss the surgery of tendons in leprosy.

Dubois and Radermecker discuss the value of neuro-muscular chronaxy in the study of leprosy. In neuritis and toxic changes in nerves and muscles, chronaxy increases, sometimes markedly. The determination of chronaxy is found to be useful, sometimes in diagnosis, in prognosis, and in studying the effect of treatment.

Miranda and Tramujar describe a case showing nothing but a lepromatous neuritis of one ulnar nerve.

Garcia Perez *et al* describe clinical varieties of the lepromatous type of leprosy.

Hayashi presents a clinical and histopathological study of erythema nodosum leprosum.

Lavalle Aguilar P. *et al* report a case of a hand infected with *M. ulcerans*, with necrosis. It responded to treatment with D.D.S.

PATHOLOGY. Papers on this subject number 18. Sagher writes on the "isopathic phenomenon." In lepromatous patients, injections of the following substances were made into the skin, and skin was later taken by biopsy for histological examination: tuberculin, leishmanin, milk, peptone, B.C.G., living *Leishmania tropica*. He concludes that lepromatous leprosy produces only its own histopathological response (namely lepromatous infiltration), irrespective of the cause of the lesion. This phenomenon he calls the isopathic phenomenon. He thinks it may be useful in diagnosis.

Wade discusses the histopathology of erythema nodosum leprosum. It is not at all distinctive histologically; its nature and causation remain unexplained; it is undoubtedly an allergic phenomenon.

Portugal, studying the same subject, reports on collagen changes in the tissues, commenting on previous reports of others, and presenting his own findings.

Chover Mandramany discusses the pathology of perforation of the nasal septum in leprosy, which is caused by lepromatous infiltration followed by complete absorption of the cartilage.

Aguirre *et al*, and Llombart and Alcacer describe the lesions of the liver in leprosy, and the latter paper describes siderosis (deposit of iron) as common, and cirrhosis as sometimes seen.

Mut Mut describes bone lesions in leprosy as being specific or non-specific. Specific changes are produced in the bone marrow, and in the bone itself, by lepromatous infiltration; it is most marked in the shaft of bones. Bone destruction is followed by very little regeneration. Non-specific lesions are due to neuro-trophic changes and secondary infection. Neurotrophic changes produce rarefaction and absorption, and secondary infection, periostitis, and sometimes osteomyelitis.

Alvaro Lopez *et al* write of radiography of the long bones in leprosy.

A series of four papers, two by Moller Christenson, one by Melsom and one by Waaler, deal with a curious and interesting subject. A farm in Denmark was on the site of a mediæval leper home, with church and burial ground used from about 1250-1550 A.D. The burial ground was excavated and revealed 50 intact graves, and 150 extra skulls, and an estimate was made of the total number of graves as over 1,000. Of the skeletons or part skeletons, 107 were males, 77 females, 6 uncertain and 7 children; average age was 33 years. In 80% of the skeletons in which the hands and feet revealed definite leprous change, the maxilla showed characteristic changes also, atrophy of the alveolar process and of the anterior nasal spine. These changes were found in 110 of the 150 skulls. Moller Christensen calls this "facies leprosa." Moller made similar findings in a Norwegian leper graveyard. Patients with leprosy were x-rayed and showed the same bone changes. Waaler made similar findings of bony changes in autopsy material of cases of leprosy. He attributes it to bone resorption caused by chronic inflammation of the overlying soft tissue.

Wilkinson and Cardama studied the presence of lepra bacilli on the horny epidermis covering lepromatous lesions. They collected the scales from not more than 1 sq. centimetre of unbroken skin. Of 50 examinations, 12 cases, all lepromatous, showed bacilli. In no cases were they abundant, but they consider this discharge of bacilli from unbroken skin to be important.

Hayashi studied the phagocytosis of leprosy bacilli and other acid-fast bacilli by the leucocytes of leprosy patients, by special methods. The leucocytes from lepromatous cases were most phagocytic, from "neural" cases least, and from tuberculoid and indeterminate cases intermediate. In normal persons phagocytosis was little.

Hayashi also presents a study of bone lesions in leprosy based on radiographical, histopathological and anatomical studies.

BIOCHEMISTRY AND SEROLOGY. Miguel *et al* present a study of

plasma proteins in leprosy by electro-phoretic methods. The findings were as have previously been reported by others, a gamma globulin increase with albumen globulin ratio inverted. Other tests were used for comparative purposes, namely the blood sedimentation rate, Cadmio test, Takata Ara reaction, and the Weltmann band.

Arjona *et al* present a study of plasma proteins in the different clinical forms of leprosy, and Mauzé and Arnaud on electrophoresis of serum in leprosy.

Gonzales Medina and Alfonso Gordon studied the urinary secretion of 17-ketosteroids in lepromatous leprosy. Low figures were found in all cases, indicating profound endocrine derangement.

Floch *et al* studied in leprosy some classical serological tests for syphilis and the spirochaete immobilization test of Nelson Mayer. Of 77 sera studied, 37 gave positive results in one or more of the classical tests, but only 11 of the 37 gave positive Nelson Mayer tests. These eleven sera however gave strong positive results in the classical tests, while the other 26 gave only weak positive results. Thirty of the 40 sera giving negative results in the classical tests were Nelson Mayer tested and one positive was recorded.

These results show that in leprosy with strongly positive classical tests, particularly if several different tests are positive, one must not ignore the possibility of syphilis.

Gaté *et al*, and Vilanova and Catusus write of the Nelson Mayer test in the presence of leprosy as being specific for syphilis.

Montestruc *et al* give two papers on the Middlebrook-Dubos reaction of hæmagglutination with an antigen prepared from tuberculin. They find the test to be positive in high titre in severe untreated lepromatous cases, and the titre to fall as the disease subsides under treatment. In non-lepromatous cases the same is true, but at a lower level. The test may be of value in classification and in assessing progress.

Rodrigo Abad and Lopez Contreras write of the Gaté and Papacostas reaction as a test for plasma protein changes in leprosy, and Rodrigo Abad *et al* of the coagulation band of Weltmann in studying the same matter.

BACTERIOLOGY. There were six papers (of three no abstract is available).

Gray and Hanks studied respiration and hydrogen transfer capacity of human and murine leprosy bacilli, and showed persistent endogenous metabolism; anærobiasis reduces respiration and infectivity. Leprosy bacilli differ from cultivable pathogens (a) by inability to acquire energy *in vitro* and (b) by extreme susceptibility

to the inhibitory action of lipo- and muco-proteins in serum and body fluids. Infectiousness depends on metabolic capacity. Apart from immunological mechanisms, two types of antibacterial action appear capable of reducing pathogenicity: (a) anærobiasis and extracellular inhibitors, (b) the reduction by chemotherapeutic agents of access to energy.

Sulphones are fatal to cell cultures; they may modify cells so as to expose bacilli to extracellular inhibitors. Streptomycin is confined to extracellular fluids. Isoniazid inhibits intracellular mycobacteria. Its action depends in part on combination with heme-type compounds in the respiratory system of mycobacteria. It is the most effective drug known in murine leprosy.

Alexander-Jackson reports on a pleomorphic organism consistently isolated and grown, in transferable cultures, from the blood of leprosy patients. Improved media have given more vigorous growth, and vaccines, skin testing, and serological testing agents can be prepared. Reports of such tests are not available.

Marie Suzanne, Noel and Sohier write of anatomo-pathological studies of lesions produced by "*Mycobacterium marianum*" isolated from leprosy lesions. (No abstract is available.)

Rivas presents three papers on studies of mycobacteria found in the ranchos from which come most of the leprosy cases of Colombia. He studies such organisms in the insects found in the ranchos, and in sweepings from a leprosarium. He summarises his 1,669 attempts at culture of acid-alcohol fast bacilli from leprosy material, and from other (natural) sources. He finds such bacilli very common, in nature, and speaks of the need for classification of these innumerable acid-alcohol-fast bacilli.

Gonzales Prendes *et al* write of fluorescent microscopy of the leprosy bacillus, giving details of technique and enumerating its advantages, which they consider great.

EPIDEMIOLOGY AND CONTROL. Thirty-five papers on this subject were presented. Only a few can be mentioned here.

Littann, in two papers, discusses leprosy in Europe, including what is known of its introduction in each country, the developments through the centuries, and the position in 1950. The figure 20-23,000 cases is given for cases of leprosy in Europe in 1950.

Davey describes the large leprosy problem in Nigeria and the organisation of anti-leprosy work.

Blanc writes that in French Cameroons classical isolation has been abandoned as inefficient and impracticable. It has been judged more effective to reorganize the campaign so as to sterilize

the reservoir of the infection by treatment, and to immunize contacts.

Martinez Dominguez writes of the profound influence of sulphone treatment on control of leprosy in Spanish Guinea. He records a great increase in the number of cases recorded (many new patients being attracted by treatment), and a marked fall in the death rate of the patients. He thinks that the voluntary reporting of early cases, the great increase in early diagnosis, the improved results of treatment with reduced infectivity, making possible more out-patient treatment, the marked change in the attitude of the patients, fearful suspicion engendering rebellion, protest and non-co-operation being replaced by willing co-operation and great interest in treatment.

Laviron and Lauret write of the Mobile General Hygiene and Control Service and its work for leprosy in French West Africa, in an area with a population of 16 millions. From 1946 to 1952 three million people have been examined each year for leprosy, and over 120,000 cases recorded. Four hundred and four treatment centres function; 53,000 patients were treated in 1952. The introduction of "deposit therapy" by injection of D.D.S. in oil once a fortnight has recently allowed a great extension of sulphone treatment. The service, by its persistence, by the growing reputation of the treatment centres, the results obtained over several years, is commanding the trust of the people, and it will play a big part in the success of the leprosy campaign.

Guinto describes the field studies carried on for 15 years in Cordova and Talisay by the Leonard Wood Memorial and the Philippine Government, with observation of the entire population. The report records marked changes in the prevalence of lepromatous and non-lepromatous leprosy; the incidence of leprosy according to degree of exposure to various forms of leprosy; lepromin reactions of 2,000 persons; statistical studies of mortality of leprosy cases, and the risk of conjugal exposure. The abstract gives no details on these points.

Buker describes the development of anti-leprosy work where medical and financial resources are meagre, with main stress on the training of lay personnel in the diagnosis and treatment of leprosy, on the establishment of treatment centres, with, later, when time and funds permit, surveys. Laboratory work, detailed examination and records, and "elaborate colonies" can await adequate funds.

Many papers on epidemiology and control deal with limited areas and are mainly of local interest.

Most papers on control reflect the limitations of isolation measures, and lay stress on early diagnosis, chemotherapy, and

sometimes immunization of contacts. These measures are confidently expected to produce results. The changed outlook produced by modern treatment is repeatedly stressed.

SOCIAL ASPECTS. On this subject there are six papers. None calls for special mention. The need for surgical measures to aid in rehabilitation, for occupational training, for the procurement of occupation, and for financial support till rehabilitation is complete, is stated.

Weaver, discussing " Preventoria " for children, states that in Brazil of 5,000 children of leprous parents cared for, only 206 have developed leprosy.

HISTORICAL. Papers number three.

Wolker discusses the old question of leprosy in pre-columbian America, and in another paper studies the records of experimental and accidental transmission of leprosy; cases of accidental transmission are much more numerous.