

Leprosy : summary of recent work no. 6.

Contributors

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LEPROSY :
SUMMARY OF RECENT WORK.

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CONTENTS.

LEPROSY.

	PAGE
DE SOUZA-ARAUJO : Leprosy in Brazil	847 [97]
LIMA : Leprosy in Ceará	847 [97]
FOWLER : Leprosy in China	848 [98]
CALLENDER & BITTERMAN : Leprosy in the Philippines	848 [98]
JASON : Leprosy in Virgin Islands	848 [98]
RAYNAUD : Leprosy in Algeria	849 [99]
COLOMBANI : Leprosy in Morocco	849 [99]
ABBATUCCI : Leprosy in Indo-China	849 [99]
NOËL : Leprosy in French India	849 [99]
GRAM : Leprosy in Norway	850 [100]
GUILLÉN : Leprosy in Spain	850 [100]
BAUJEAN : Prophylaxis and Treatment in Martinique	850 [100]
PUBLIC HEALTH REPORTS ; MUIR : Antileprosy Work in the Philippines	850-851 [100-101]
GRAHAM : Campaign in India	851 [101]
READ : The Nature of the Leucocytosis induced in the Rabbit by the Administration of Chaulmoogra Oil	851 [101]
KERR ; FOWLER ; VURPILLAT ; AOKI, KAWAMURA, KAMIKAWA & FUKAMACHI : Chaulmoogra Treatment	852-853 [102-103]
MALCOMSON : Treatment in the Virgin Islands	853 [103]
O'BRIEN & RUNCHAIYON ; READ & FENG : Treatment by Ethyl Esters : their Preparation	854 [104]
READ : Treatment by Chaulmoogra Orally	855 [105]
MUIR : Modification of Chaulmoogra Treatment	855 [105]
PALMER : The Treatment of Leprosy by Metallic Salts	856 [106]
MUIR : Leprosy—Diagnosis, Treatment and Prevention	856 [106]
HEISER : The Present Status of Treatment	856 [106]
RODRIGUEZ ARJONA : Treatment by Antileprol	857 [107]
ABERASTURY : Proposed National Law in the Argentine	857 [107]
GALLI-VALERIO : Leprosy Investigations	858 [108]
ROSENTUL & KRUGLAK : The Bacteriological Diagnosis	858 [108]
KONDO : The Katabolic Activity of the So-called Lepra Bacilli	859 [109]
KONDO & NODAKE : Significance of the Ion Concentration for the Development of Lepra Bacilli on Artificial Media	859 [109]
CHUMA & GUJO : Leproma Study by means of Vital Staining	860 [110]
SIMON : The Wassermann Reaction in Leprosy	860 [110]
FRAZIER : Blood Serum Globulin in Leprosy	861 [111]
Titles of Unnoticed Papers	861 [111]



LEPROSY.

DE SOUZA-ARAÚJO (H. C.). **The Leprosy Problem in Brazil.**—*Amer. Jl. Trop. Med.* 1925. May. Vol. 5. No. 3. pp. 219-223.

The author states that 10,000 lepers are known in Brazil, but he estimates the true number at 24,000. No active steps to deal with the problem were taken until 1921, when a Leprosy Board was appointed, which in 1923 issued an excellent series of regulations. He agrees with former writers in finding the States of Para, Minas Geraes and S. Paulo to be most infected, and gives figures and data regarding other States. The construction of ten large agricultural leper colonies is to be gradually carried out, but with the present Government grants it will require 15 years to complete them. The regulations provide for compulsory notification and segregation, and the immediate separation of children born to lepers; the isolation at home of uninfected nerve lepers is permitted, and the return of all alien lepers to their native countries is provided for; all excellent measures. Segregated lepers may be treated by their own physicians at their own expense. Cohabiting of married lepers in the leprosaria is permitted.

Leonard Rogers.

LIMA (Atualpa Barboza). **A lepra no Ceará.**—*Arch. Brasileiros de Med.* 1925. Mar. Vol. 15. No. 3. pp. 107-116. With 2 figs.

The author undertook a very thorough investigation into the question of the prevalence of leprosy in Ceará. He examined bacterially each patient and a large number of suspects. As a result he found 428 cases in all, of whom by far the largest numbers, 151, were in Fortaleza, the next in order being Jaquariba-Mirim with 36 and Sobral with 27. There are two Dispensaries for treatment, one at Fortaleza and one at Sobral. Chaulmoogra oil by injection is employed, but, since the patients are not kept in hospital, the treatment is not as thorough and prolonged as is desirable. The results, in consequence, are far from satisfactory. [Details are not given.]

H. Harold Scott.

FOWLER (Henry). **A Survey of Leprosy in China.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 584-590.

The author has collected all the available information by means of questionnaires and extensive travel, but finds it impossible to form even an approximate estimate of the number of lepers in the different provinces. It is clear that the hot southerly coast Provinces of Kwangtung and Fukien suffer most, and the neighbouring Yunan and Kwangsi, as well as the more northerly coast Provinces of Kiangsu and Shantung, and all the Yangtse central Provinces except Anhwei are widely infected; extensive areas in the north and west are reported to be practically free from indigenous cases, including Chihli and Manchuria, and probably Mongolia and Sinkiang. With the exception of the southern Kwangtung, Kweichow and Fukien Provinces no attempt is made to isolate even in villages the begging lepers, and the 20 leper settlements or asylums in these Provinces are all provided by Christian missions, who are trying to extend this work in Shantung and Yunan, for it is considered that "modern scientific methods, coupled with a form of voluntary segregation on the part of the lepers themselves, happily give good prospects of changing the entire outlook of China's lepers and ultimately ridding China of leprosy."

L. R.

CALLENDER (G. R.) & BITTERMAN (Theodore). **An Epidemiological Study in Leprosy.**—*Philippine Jl. Sci.* 1925. May. Vol. 27. No. 1. pp. 9-18. With 1 text fig. [2 refs.]

The authors have carried out some inquiries on the conditions influencing the infection of leprosy, which are in close agreement with those of previous workers. Contact with another leper is admitted in 36.9 per cent., the patients often concealing the information to save relatives being segregated; relative and non-relative contacts were noted in nearly equal numbers; children and young people were most attacked, the age on the appearance of the first symptoms being below 20 years in 38.7 per cent., and men being more attacked than women. They found the average time between the first symptom and diagnosis to be 2.47 years, and that the first symptom in 78.2 per cent. was the appearance of anaesthesia; the location of the first lesion was the exposed parts of the lower extremities in 81.5 per cent., 47 per cent. being on the feet, and if other exposed parts are added, such as the head, face and neck, the proportion was no less than 94 per cent., pointing to infection through the contact of leprosy material with solutions of continuity of the skin surface. Approximately 5,000 lepers in the Philippines are segregated, and probably an equal number of cases are free, now mostly early ones.

L. R.

JASON (Jennie M.). **The Leper Colony of the Virgin Islands of the United States.**—*U.S. Nav. Med. Bull.* 1925. May. Vol. 22. No. 5. pp. 615-617.

A leper colony was opened in 1908 and was taken over by the U.S. Government with the three Danish Islands in 1917. It now has two physicians and a nurse for 70 lepers, the patients being surrounded by a wire fence and guarded, but work and modern treatment is provided.

L. R.

RAYNAUD (Lucien). **La lèpre en Algérie.**—*Bull. Office Internat. d'Hyg. Publique.* 1925. June. Vol. 17. No. 6. pp. 623-626. [7 refs.]

The writer states that in 1897, 58 lepers were known in Algeria, and the number is now estimated at about 150, some 50 being Muslims and 62 Spaniards, most of whom have long been settled in the country. The only prophylactic measure enforced is the exclusion of foreign lepers. The patients are treated in skin clinics at the hospitals.

L. R.

COLOMBANI. **Note sur la prophylaxie de la lèpre au Maroc.**—*Bull. Office Internat. d'Hyg. Publique.* 1925. June. Vol. 17. No. 6. pp. 629-631.

In Morocco there are now 302 known lepers, about half in the Fez region. The disease does not appear to be increasing, although little is being done to check it. The author advises compulsory notification and the formation of several agricultural colonies for the isolation of the lepers and their families, together with complete isolation of infective cases and efficient treatment.

L. R.

ABBATUCCI (S.). **La médecine aux colonies françaises : prophylaxie de la lèpre en Indochine.**—*Presse Méd.* 1925. May 30. Vol. 33. No. 43. p. 723.

A recent census showed 5,813 lepers in Indochina, 4,454 interned in leper asylums or segregation villages, 283 under surveillance, 956 not interned and 301 awaiting internment. Ethel esters from *Hydnocarpus anthelmintica* prepared locally are being used, and are considered superior to imported preparations; the results are satisfactory. The patients willingly continue the injections in the institutions, but free lepers often failed to return for them, so the authorities consider compulsory isolation is still necessary; uninfected cases may be treated as outpatients. The sexes are segregated in the leprosaria, but not in the villages, where the separation of healthy infants born to the lepers is very difficult, since artificial feeding leads to almost certain death from gastro-enteritis.

L. R.

NOËL. **Prophylaxie de la lèpre dans les établissements français dans l'Inde.**—*Ann. de Méd. et de Pharm. Colon.* 1925. Jan.-Feb.-Mar.-Apr. Vol. 23. No. 1. pp. 104-115.

This paper deals with leprosy in Pondichery, where efforts have been made to adopt the more humanitarian methods advised by the Strasbourg Leprosy Conference of 1923. They include modern treatment, numbering and registering the lepers, hygienic education, the appointment of a special inspecting officer to look after them, and medical officers, with equipment to treat them at the colonial hospitals on the lines advised by E. MUIR, while in future the leper asylums are to be called prophylactic hospitals.

L. R.

GRAM (H. M.). **Quelques indications sur la lèpre en Norvège.**—*Bull. Office Internat. d' Hyg. Publique.* 1925. June. Vol. 17. No. 6. p. 632.

The well-known prophylactic measures in Norway are briefly mentioned, and the present numbers are reported to be 78 in the leprosaria and 35 in their homes, or not more than 1 to 20,000 population, against nearly 2 per mille in 1857.

L. R.

GUILLÉN (Mauro). **La lepra en España.**—*Siglo Medico.* 1925. May 30. Year 72. Vol. 75. No. 3729. pp. 553-554.

Leprosy is endemic in the Canary Islands, and there are three main foci in Galicia, Andalusia and Levante. In the last-named the disease is present in the Provinces of Valencia, Alicante, and on from Tarragona to Barcelona. There is a leprosarium in Fontilles which has been of great service since its inauguration in 1909. The author holds with compulsory segregation of all lepers without exception in establishments commensurate as far as possible with the social status of the patients. At all institutions for dealing with the disease, apart from clinical and operation rooms, a laboratory is essential to ensure early diagnosis of cases, as it is largely, if not solely, in early cases that actual cure can be brought about.

H. Harold Scott.

BAUJEAN. **Prophylaxie et traitement de la lèpre à la Martinique.**—*Ann. de Méd. et de Pharm. Colon.* 1925. Jan.-Feb.-Mar.-Apr. Vol. 23. No. 1. pp. 115-123. [1 ref.]

This small French island colony has long had a leper asylum on the tiny island Desirade, which is the terror of the patients. In accordance with recent advance, as elsewhere, this place is now being reserved for mutilated and infirm lepers, who are no longer amenable to treatment; the open infectious cases discharging lepra bacilli are treated in special isolation wards at the different hospitals until no longer contagious, while the uninfected cases, not discharging bacilli from nasal or skin lesions, will be dealt with as hospital out-patients or under their own doctors, which will enable the early cases to come forward without fear of being sent to Desirade. These humanitarian measures may confidently be expected materially to reduce the incidence of the disease after some years. Ethel ester chaulmoogrates and other recent treatments are being used with good results.

L. R.

PUBLIC HEALTH REPORTS. 1925. May 8. Vol. 40. No. 19. pp. 928-930.—**Leprosy in the Philippines.**

This is a brief account of the work at Culion, to which an average of 1,000 lepers have been sent annually during the last 19 years. At first glance this does not appear to support the value of the measure, but the objection is answered by the fact that whereas at first the great majority of the lepers were advanced maimed cases, in recent years an ever-increasing number of early cases are admitted: "Incontestable evidence that segregation is becoming effective and

that a few more years of vigorous enforcement will stem the tide." About 5,000 remain at Culion, while a few hundred have been discharged in recent years on parole, nearly all since the improved treatments were given. The total death rate of the colony compares favourably with the average Filipino town, and "the results of improved methods of treatment seem to warrant the opinion that many cases of leprosy are curable;" this has induced new hope in the lepers.

L. R.

MUIR (E.). **Report on a Visit to the Leper Island of Culion and on the Anti-Leprosy Work in the Philippine Islands.**—*Indian Med. Gaz.* 1925. June. Vol. 60. No. 6. pp. 261-264.

The author points out that in India, with 30 times the population, and probably three times the leper rate per mille, the problem is very different from that in the Philippines, where such important work has been done in the great Culion settlement, including much pathological research. He found very few cases of the first, pre-infective stage of leprosy, although a number of such cases are being treated in the recently opened Say Lazaro hospital at Manilla, where cases, not positive bacteriologically, are now admitted for treatment, the positive ones alone being sent to Culion, and he advocates the establishment of further leper clinics in the Philippine towns on the lines of those being opened in India. He indicates also the weak point of Culion, where so many infections of healthy children have taken place owing to their not being separated from their leper parents at birth, but this is likely to be remedied soon.

L. R.

GRAHAM (J. D.). **Le plan de campagne contre la lèpre aux Indes.**—*Bull. Office Internat. d'Hyg. Publique.* 1925. June. Vol. 17. No. 6. pp. 627-628.

This note quotes from the appeal issued by the Viceroy of India in January last on behalf of the British Empire Leprosy Relief Association, the objects being to encourage the study of the causation and treatment of the disease, to establish clinics for early treatment and isolation refuges for the advanced crippled cases. At the end of March 4½ lakhs (£30,000) had been received. [The total now amounts to 18 lakhs.]

L. R.

READ (B. E.). **The Nature of the Leucocytosis induced in the Rabbit by the Administration of Chaulmoogra Oil and its Derivatives.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 605-612. [9 refs.]

The action of chaulmoogra oil has for long been explained by some workers as depending on a marked "leucocytic action." Experimental work on rabbits showed that treatment with chaulmoogra oil or ethyl-hydnocarpate administered by various methods produces little effect on the red corpuscles in small doses, but in very large ones some haemolysis and reduction of the red corpuscles occurs. Of greater importance are the leucocyte changes; toxic doses produced diminution of the leucocytes, but therapeutic ones caused an increase of about 100 per cent. which remained to a considerable extent

at the end of a month; control experiments with the ethyl esters of the fatty acids of soy bean and other oils did not show any such effect. Differential counts show that the most striking change is an increase of the monocytes from about 1 per cent. up to as much as 6 per cent., while there was an apparent decrease in the basophiles. Further, blood withdrawn from the right side of the heart revealed showers of macrophages, retained in the pulmonary circulation, which after an intravenous injection of pure oil might form 80 to 90 per cent. of the total white count and persist for 18 hours, and microscopical examination after large toxic doses showed that the liver had been stripped of its endothelial cells. He concludes that "the leucocytosis induced by chaulmoogra oil is a means whereby the drug is brought into direct contact with the bacilli in the lymph circulation."

L. R.

KERR (Isabel). **The Chaulmoogra Treatment of Leprosy at the Hospital for Lepers, Dichpalli, Hyderabad State.**—*Lancet*. 1925. Aug. 22. pp. 373-375. With 3 text-figs.

This paper gives the results of 4½ years careful trial under favourable hospital conditions of recent preparations of chaulmoogra and hydno-carpus oils in association with E. MUIR, charts and records of the cases being kept. MUIR's E.C.C.O. mixture of ethyl esters of *Hydnocarpus wightiana* with creosote, camphor and olive oil were mainly used; control trials of creosote and olive oil produced little effect, and later the pure esters, with creosote or iodine as an antiseptic, were used, and pushed up to even 16 cc. weekly. In some, in addition, a vaccine of Kedrowsky bacillus vaccine was used to increase the frequency of the reactions, the aim being to keep the patients on the point of reacting; reactions of 48 hours were capable of bringing about a great deal of improvement, and the author always found that minimum doses of 0.25 cc. bring down the temperature. Complicating syphilis, malaria, etc., must be treated as well. MUIR's more recent method of infiltrating the esters combined with creosote 4 per cent. beneath the skin lesions, has given the quickest results, and causes no inconvenience beyond temporary burning sensation, so the patients prefer it to the intramuscular injections; a 1 in 4 solution of trichloroacetic acid also is painted over the lesions, both given weekly. Early cases show improvement in a few weeks, but older ones naturally require much longer. By infiltration as much as 20 cc., or even more, can be given weekly. Esters of linseed and olive oil gave less marked improvement. The results in 180 cases treated in 1923-24 were as follows: "17 per cent. became symptom free, 45 per cent. very much improved, most of them likely to become symptom free; 35 per cent. improved; 3 per cent. worse or dead. Of infective cases 63 per cent. have become non-infective."

L. R.

FOWLER (Henry). **A Review of and some Observations in the Modern Treatment of Leprosy in China.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 594-600.

The author gives a brief history of his use of chaulmoogra oil and its derivatives in China. He began over 25 years ago with trials of the crude oil orally, and again as the result of DYER's advocacy in

1906, but without success. Later he had another failure with HEISER's intramuscular injections of the oil, which only produced some improvement in the general health of the lepers after 22 months careful trial, although J. WILSON at Kwangju, in Korea, is now reporting good results with injections of large doses of the Chinese *Hydnocarpus anthelmintica* oil. Next, ROGERS' sodium hydnocarpate and morrhuate were used, and are still in use in parts of China in spite of more potent remedies being now available; "reports as to curative results are somewhat conflicting, but on the whole positive in character." Recently the esters of Chaulmoogra and Hydnocarpus oils have been used, with undoubtedly the most successful results so far, in some 43 China stations from which reports have been received, although no statistical tables of the cures obtained can yet be given; the earlier the case and the younger the patient the better is the prognosis. Chronic cases improve to some extent and lose the former characteristic disagreeable odour of leper homes, while their general health improves. Moogrol and the triply distilled Pekin Union Medical College esters, plus a 20 per cent. solution of creosote in camphor oil, or 20 to 25 per cent. pure camphorated oil, have proved best in doses increased to the point of tolerance of the patient, which varies widely. Prolonged oral administration of the esters produces fatty degeneration as shown by B. E. READ. Tartrate of antimony has not been successful in China, and the ethyl ester chaulmoograte treatment holds the field, although it often fails in sub-acute and chronic cases and in some early ones. Finally, he thinks a combination of segregation and treatment is necessary, but very difficult to carry out in present Chinese conditions.

L. R.

VURPILLAT (F. J.). **The Use of Extractives of Chaulmoogra and Cod-Liver Oils in Leprosy and Tuberculosis.**—*U.S. Nav. Med. Bull.* 1925. May. Vol. 22. No. 5. pp. 587-594. [20 refs.]

The author gives a good epitome of the published work from that of ROGERS in 1916 to date, and remarks that the available literature is remarkably small considering the importance of the therapy of acid-fast organisms. He believes further experimental and clinical trial of these substances is warranted in tuberculosis, with which he chiefly deals.

L. R.

AOKI (Taiyu), KAWAMURA (Kasayuki), KAMIKAWA (Yutaka) & FUKAMACHI (Roan). [**On the Intravenous Injection of Derivatives of Chaulmoogra Oil against Leprosy. III.**]—*Hifuka Hitsuzyokika Zasshi* (*Jl. Dermat. & Urol.*). 1924. Apr. Vol. 24. No. 4. [Summarized in *Japan Med. World*. 1925. Apr. 15. Vol. 5. No. 4. p. 108.]

This report deals with only 45 cases treated with four different preparations with improvement in 11. No details of the stage of the disease are given.

L. R.

MALCOMSON (J. E.). **Leprosy.**—*U.S. Nav. Med. Bull.* 1925. May. Vol. 22. No. 5. pp. 594-598.

Two years' treatment of 68 cases in the Virgin Islands is reviewed, 26 patients who refused treatment serving as controls. Careful

records showed that 20 treated anaesthetic men showed an average reduction of anaesthesia from 28 to 16 per cent., while 13 controls showed increases from 64 to 71 per cent., and similar results were obtained in the women. Further, of 15 treated nodular cases 13 have improved, while of 11 controls none improved and 7 are worse. Improvement in ulcers was not so marked, except in the important respect that the lepra bacilli disappeared from all the positive cases under the treatment, and in the younger and earlier cases the organisms also disappeared from the nasal secretion, but not in advanced chronic cases.

L. R.

O'BRIEN (Henry R.) & RUNCHAIYON (Boon Mahk). **Treatment of Leprosy in Bangkok with Ethyl Esters from *Hydnocarpus Anthelmintica*.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 600-605.

The authors report on the use of ethyl esters made from the seed of *Hydnocarpus anthelmintica* at Bangkok, Siam, where the trees are present in large numbers. The lepers in Siam are estimated at not less than 15,000, and two years' trial of the locally prepared drug is now recorded. The esters are made by heating the crude oil with alcohol and sulphuric acid about 15 hours, washing with water, caustic soda and water again successively until neutral, drying and distilling under 10 mm. reduced pressure, filtering and sterilizing. A leper hospital with 140 beds was opened, and here and in the out-patient clinic over 1,600 cases have now been treated, beginning with 0.5 cc., and increasing by 0.25 cc. per week to as much as the patient would tolerate, and a maximum of 4 cc. Some instead took from 1 to 5 cc. daily by the mouth owing to pain on injection. Slight febrile reactions were regarded favourably. On re-examining 357 cases in July and August, 1924, very similar results were found in cases both under and over three years' duration: namely, 0.7 and 0.5 per cent. much worse; 4.3 and 6.8 per cent. worse; 24.6 and 21.0 unchanged; 48.6 and 48.4 improved, and 21.7 and 23.3 much improved. No complete cures can yet be reported, although the combined figures show 71.1 per cent. improved, and in 22.7 per cent. improvement was quite marked. As might be expected, the hospital cases showed more progress than the out-patients. The Government laboratory hopes soon to be able to supply the esters to other countries.

L. R.

READ (B. E.) & FENG (C. T.). **Notes on the Preparation and Use of the Ethyl Esters from "the Chaulmoogra Oils."**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 612-618. [10 refs.]

The Pekin Union Medical College has been making these preparations for some years, and advise the following method:—

"2,500 grams of the crude fatty acids prepared by Dean's method are mixed with 2,500 cc. of 95 per cent. alcohol in a 6 litre flask, 50 cc. of strong sulphuric acid are added, and the mixture heated on a hot plate under a reflux condenser for from 8 to 10 hours. When esterification is considered complete the contents of the flask are poured into warm water, separated and washed with dilute caustic soda to remove excess of mineral acid and any uncombined fatty acids.

"The crude esters are distilled *in vacuo* at 2 mm. pressure. The first runnings are placed aside and added to a mixture of material in a waste jar which is later worked over again. The water white distilled esters are poured into two or three litres of 0.05 N sodium hydrate solution. After gentle rotation the mixture is allowed to stand for several hours when it separates into two clear fractions. This is repeated until an excess of alkali has been used, as shown by indicators. The washed esters are separated and dried and stocked in litre bottles which are placed in a refrigerator for 48 hours. At the end of this time they are carefully examined to see if any solid material has separated out. The presence of free fatty acids on cooling will show a decided sediment which can be filtered off and the specimens treated and re-distilled and re-washed. The resulting product is guaranteed to be free from irritating acids whether they be inorganic or organic."

Fractionation to obtain the hydnocarpic acid fraction has also been carried out, the fraction boiling around 215° being practically pure ethyl hydnocarpate and representing about 12 per cent. of the original mixed ethyl esters; the major part of the hydnocarpus fraction was obtained at a temperature of 184° to 190° at a reduced pressure of 2 mm. The method of preparation described above enables the pain-producing free fatty acids to be removed. Camphor, which is regarded by FOWLER as useful in lessening the pain, is soluble in esters up to 33.7 per cent., while 4 per cent. creosote is preferred by MUIR.

L. R.

i. READ (Bernard E.). **The Oral Administration of Chaulmoogra Oil in the Treatment of Leprosy.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 619-623. [1 ref.]

ii. —. **Bibliography of Chaulmoogra Oil.**—*Ibid.* pp. 623-631.

i. The methods of O. E. A. TRAVERS and others of giving chaulmoogra oil orally are reviewed, and stress is laid on the necessity of obtaining fresh oils free from any rancidity, that of *Taraktogenus kurzii* being especially liable to undergo this change and to upset the stomach. It is also advised not to attempt to give very large doses orally, but about 6 drops once daily or even less frequently if progress is obtained, while magnesium salts, as a laxative, and calcium salts appear to be indicated as adjuvants to chaulmoogra oil or its esters.

ii. A valuable bibliography of 157 papers with an index to the authors' names.

L. R.

MUIR (E.). **Some Points of Importance in dealing with the Leprosy Problem.**—*China Med. Jl.* 1925. July. Vol. 39. No. 7. pp. 575-584. With 1 chart & 2 figs. on 1 plate.

In addition to narrating previously published work this paper brings forward a modification of the new treatments, which may prove of great practical importance. He had previously shown that the undistilled esters of fresh *Hydnocarpus wightiana* oil are less painful and more readily absorbed than distilled ones. Further investigation has shown that when the oil is cold-drawn from the fresh seeds of this common South Indian tree it is still clear and transparent, and even less painful than the esters. It is borne in larger doses, even up to 24 cc., is more readily absorbed, especially when given by MUIR's

infiltration method into the subcutaneous tissues beneath the skin lesions, and, as far as the present trials go, it seems to be not inferior, and it may prove considerably superior. The dose has been worked up to 20 cc. and over in some cases. [Its cost is less than one-tenth of that of the corresponding esters, and it can be obtained in any quantity from Smith, Stanistreet & Co., of Calcutta.]

L. R.

PALMER (F. J.). **The Treatment of Leprosy by Metallic Salts.**—*Proc. Assam Branch British Med. Assoc. Ann. Meeting. Jorhat. 2nd Mar., 1925.* pp. 10-21.

The author tried copper salts in leprosy without knowing that they had been used in Japan and Italy for a number of years. $1\frac{1}{2}$ grains of copper citrate and 2 grains of tartrate of bismuth, injected intravenously, was often followed by severe and sometimes prolonged febrile reactions (such as the most experienced workers now regard as harmful in leprosy), the patients becoming worse for a time, but improvement followed, as often occurs for a time after reactions, although no case had cleared up at the time of writing. Notes are given of three cases treated by both drugs, and illustrating the reactions, which included the breaking out of fresh ulcers, yet he is "with increasing confidence looking forward, not to arrested diseases, but to complete elimination of the leprosy bacillus."

L. R.

MUIR (E.). **Leprosy—Diagnosis, Treatment and Prevention.**—*Trans. S. Indian Branch Brit. Med. Assoc. 1925. Vol. 17. No. 3.* pp. 105-124.

— **The Present Position of the Treatment of Leprosy.**—*Jl. Roy. San. Inst. 1925. Sept. Vol. 46. No. 4.* pp. 131-134.

These papers summarize the author's well-known work, which has already been dealt with in connexion with earlier papers.

L. R.

HEISER (Victor G.). **The Present Status of Treatment for Leprosy.**—*China Med. Jl. 1925. July. Vol. 39. No. 7.* pp. 591-594.

This eminent leprologist considers the reports on the use of chaulmoogra esters to be very favourable, especially in the extensive trials in many hundreds of cases in Hawaii and the Philippines, which eliminates the factor of chance in small series; 23.5 per cent. of 327 admissions to the Honolulu Hospital have been paroled as negative in three years, and of the remaining cases 60 per cent. were improved, and in 31 per cent. the disease was arrested, leaving only 8 per cent. uninfluenced by the treatment. He mentions that at the United States Carville leper hospital DENNEY and HOPKINS are now obtaining still more remarkable results, not yet published, by weekly intravenous injections of $2\frac{1}{2}$ milligrams per kilo body-weight of mercurochrome in a 1 per cent. watery solution. Antimony has not met the expectations aroused by the first South African reports. Much research work is now being done in five or six countries, and "when it is considered that only a few years ago a recovered case of leprosy was almost

unknown, while now such cases can be counted by the hundreds, there is much reason for optimism. A great improvement in the whole leprosy situation could undoubtedly be brought about if the many thousands of lepers now at large were treated to the point of becoming closed cases."

L. R.

RODRIGUEZ ARJONA (Vicente). **Zur Antileprolbehandlung der Lepra.** [The Antileprol Treatment of Leprosy.]—*Arch. f. Schiffs- u. Trop.-Hyg.* 1925. July 1. Vol. 29. No. 7. pp. 334-339.

The author describes in detail a course of treatment with Antileprol lasting ten months, administered to eleven patients in a very advanced stage of leprosy. All were without doubt improved; not a single case of exacerbation or death occurred. The oral, intramuscular and intravenous methods were tried, the last-named upon only two patients, as the other nine refused to submit to it. The author, however, prefers the intravenous method of application, and recommends a dose (for his climate, *i.e.*, Yucatan) of 1.5 cc. twice a week.

L. R.

ABERASTURY (Maximiliano). **Proyecto de Ley Nacional sobre tratamiento de la lepra.** [Proposed National Law for Dealing with Leprosy.]—*An. del Depart. Nac. Hig.* Buenos Aires. 1923. Mar.-Dec. Vol. 29. No. 2. pp. 68-88.

The numbers of lepers in the Argentine has been increasing for many years. In the Muñiz Hospital in Buenos Aires in 1906 there were 29 cases; now there are 125, of whom 76 are Argentinos and 49 foreigners. The question of dealing with them is a complicated one, and a comprehensive series of proposals has been drawn up; these are cited in detail. The first section is concerned with compulsory notification of cases; doctors, the parents of an infected child, heads of firms, officials of the Army and Navy, proprietors of hotels, and so forth, are all to be bound to notify any case coming under their observation. Next are rules for the strict examination of all suspects and the reference of all doubtful cases to a Board. Thirdly, measures are proposed for treating all lepers in asylums, sanatoria, or colonies, and also those isolated at home, and all those who, though infected, are not regarded as dangerous. To avoid any misunderstanding these classes are defined: thus, the non-dangerous are those who have "no lesions capable of transmitting the disease by contact, who harbour no bacilli in the nasal, buccal or pharyngeal secretions," and have been declared after strict examination to be innocuous. Those treated at home must carry out proper disinfection and prophylactic measures and are prohibited from the exercise of any profession or performance of any work which directly or indirectly may cause spread of the disease by contagion. Next follow regulations, on the usual lines, for the management of leper colonies and for dealing with married persons one of whom is infected, and also with the children of such. The last section gives the disciplinary measures for infringement of these laws.

H. Harold Scott.

GALLI-VALERIO (G.). **Untersuchungen ueber Lepra.** [Investigations on Leprosy.]—*Virchow's Arch. f. Path. Anat. u. Physiol.* 1925. Feb. 24. Vol. 254. No. 3. pp. 765-770. With 3 text figs. [12 refs.]

Having the opportunity of studying the disease among the lepers of the Canton of Wallis in Switzerland, the author carried out a number of experiments. For streak preparations he used Ziehl's hot fuchsin stain, decolorizing with a $\frac{1}{3}$ aqueous solution of Ac. nitricum, and counter-staining with thymol blue (piana blue). For sections he preferred Fränkel-Gabbet's method. Lepra bacilli were found in all lesions, in the nose, often in the skin, and in one case in the faeces.

Two white rats were inoculated in the brain. One died after 2 days, the other after 4 months. Lepra bacilli were recovered in both cases from the brain, but from no other organs. [These were probably dead bacilli.]

On examining the contents of lepromata after treatment with ROGERS's gynocardates and McDONALD & DEAN's ethyl esters, the following changes in the lepra bacilli were found:—

Although some bacilli were still in a good state of preservation, the majority were in more or less far-advanced state of lysis. Some still kept their normal form, but were stained only in part and showed chains of granules, and some conglomerations were entirely transformed into a mass of fine granules. The same changes were found in the nasal secretion.

The author then examined several times over a period of months some ethyl-ester of chaulmoogra oil containing lepra bacilli. Although lysis of some bacteria occurred, the great majority remained quite normal. He concludes that, although these substances have an inhibitory effect upon the development of the bacilli, this effect is only manifested where the ethyl ester comes into immediate contact with the bacilli. This, however, cannot explain the great lysis of lepra bacilli which occurs in the lepromata with relatively small doses of ethyl esters. He, therefore, concludes that the decomposition products of chaulmoogra-oil act upon the organism itself, promoting the production of lipases, which attack the outer shell of the Hansen bacterium, and cause its lysis. [This was previously suggested by ROGERS.] It is also very probable that the products of the lysis, when they are absorbed, in their turn act upon the organism and promote the formation of antibodies, which contribute to the cure.

L. R.

ROSENTUL (M.) & KRUGLAK (E.). **Zur Frage der bakterioskopischen Diagnose der Lepra.** [The Bacteriological Diagnosis of Leprosy.]—*Deut. Med. Woch.* 1925. May 22. Vol. 51. No. 21. pp. 866-867. [6 refs.]

The authors strongly recommend the method of GRENBAUM and SCHAMBERG for the diagnosis of leprosy, and describe two cases in which it was successful in the early recognition of the disease.

They also tested Prof. W. W. IWANOW's view of the value of puncturing the inguinal gland. Their technique is described in detail, and their results are summarized as follows:—

64 cases were examined, 26 of lepra tuberosa, 16 of lepra mixta, 22 of lepra maculo-anaesthetica.

Positive results in nodular and mixed cases, 100 per cent.

Positive results in maculo-anaesthetic cases, 95 per cent.

One negative result only in a patient previously treated by Hamzan's thymol method.

Previous treatment with nastin, chaulmoogra oil, thymol, and turpentine oil, in 28 cases had no influence on the result of the bacteriological examination.

The finding of globi in the gland puncture fluid supports, in the authors' opinion, the theory of IWANOW and others against that of UNNA, *viz.*, that the globi represent a conglomeration of bacilli which possibly originate by agglutination.

L. R.

KONDO (Seigo). **Der Verwendungsstoffwechsel der sogenannten Leprabacillen.** [The Katabolic Activity of the So-called Lepra Bacilli.] —*Ztschr. f. Hyg. u. Infektionskr.* 1925. June 6. Vol. 104. No. 4. pp. 714-728. [32 refs.]

Metabolism experiments were tried with 13 strains of acid-fast bacteria that had been cultivated from leprous material, from which there emerges the fact that very considerable differences exist between the behaviour of the individual strains. While on the one hand the acid-fast bacillus of ROST and WILLIAMS (L3) cultivated from leprosy possesses about the same metabolic activity as, *e.g.*, the acid-fast saprophytic bacteria, the Nabarro-Bayon strain (L11) on the other hand is in this respect related to the tubercle bacilli of warm-blooded animals which are characterized by a small katabolic activity (especially in their behaviour with sodium citrate, glycerin, mannite, acetate, grape-sugar and sodium asparaginate). The remaining strains cultivated from leprous material group themselves between these two extremes and in their conditions of growth partly resemble the tubercle bacilli of cold-blooded animals. This latter fact, that no sharp limits, but only gradual transitions, exist between the two extremes, strengthens the possibility that we have here, in spite of the differences of their metabolic activity, only varieties of a single bacterial species, especially when we take into account the fact that all the strains come from leprous material and therefore from an identical medium. In face of this it is impossible, on the basis of metabolic experiments, to separate the acid-fast strains cultivated from cases of leprosy from other acid-fast bacteria.

L. R.

KONDO (Seigo) & NODAKE (Rishichi). **Ueber die Bedeutung der Wasserstoffionenkonzentration für die Entwicklung der sogenannten Leprabacillen auf künstlichen Nährböden.** [The Significance of the Hydrogen Ion Concentration for the Development of So-called Lepra Bacilli upon Artificial Culture Media.] —*Ztschr. f. Hyg. u. Infektionskr.* 1925. Aug. 19. Vol. 105. No. 1. pp. 67-73. [5 refs.]

1. By cultivation upon nutrient solutions of various reactions, the limits of growth were found for a number of acid-fast bacteria,

which had been obtained from leprous material. It was found that all strains, in contrast to the genuine tubercle bacilli of warm-blooded animals, show a very considerable extent of growth that approaches fairly closely that of saprophytic acid-fast bacilli. On the acid side the limit of growth of all lepra strains lies at pH 5.7, while on the alkaline side considerable differences were demonstrated between the individual strains. It is noteworthy that the extent of growth of the strains on synthetic culture media is slighter than on glycerin broth.

2. The changes of reaction occurring in an originally neutral (pH 7.1) fluid under the influence of the development of these micro-organisms allow in general 3 types to be distinguished, but the cultures of one and the same strain often do not show a uniform behaviour. The results of the comparative experiments made with glycerin broth and two synthetic solutions point to the dependence of this change of reaction upon the composition of the nutrient medium.

L. R.

CHUMA (M.). & GUJO (K.). **Eine histologische Untersuchung ueber das Leprom mittels Vitalfärbung.** [A Histological Investigation of Leproma by means of Vital Staining.]—*Virchows Arch. f. Path. Anat. u. Physiol.* 1923. Vol. 240. No. 3. pp. 469-482. With 3 text figs. [20 refs.]

The authors found that they were unable (on one occasion) to stain leprosy nodules by the direct injection of toluidin blue, and had difficulty in vital staining by soda carmine. Indian ink, however, diffused well into the nodules. They find lepromata of the skin to be largely composed of cells capable of storing up dyes or carbon particles in granular form; in parts of the nodules where dye is not present poor permeation may be supposed. The granulation cells in which the dye collects are chiefly epithelioid cells and Virchow's leprosy cells. It is these cells which contain the lepra bacilli, which may be found side by side with dye granules. The connective tissue cells also store up these substances and are phagocytic. The authors therefore assume that the leprous epithelioid cells are histioid. The leprous infiltration, according to most investigators, has its origin preferably in the neighbourhood of vessels, sweat glands and sebaceous glands, where histioid cells are present in large quantity and in a resting condition. They believe that the histioid cells play an essential part in the formation of the leprous infiltration.

L. R.

SIMON (Louis). **Lèpre et réaction de Wassermann.**—*Bull. Soc. Path. Exot.* 1925. May 13. Vol. 18. No. 5. pp. 378-379.

The author has continued the work of MATHIS and BONJEAN, who found 40 out of 41 leprosy cases had negative Wassermann reactions, and he reports on 24 cases. He obtained positive results in 23 (15 strongly so), and the remaining one doubtful by the method of Calmette, Massol and Hecht. He thinks, therefore, that the Wassermann reaction is positive in leprosy.

L. R.

FRAZIER (Chester N.) & WU (Hsien). **Blood Serum Globulin in Leprosy.**—*Amer. Jl. Trop. Med.* 1925. July. Vol. 5. No. 4. pp. 297-306. [9 refs.]

Of 32 cases of leprosy 17 showed excess of serum globulin by the precipitation test of degrees varying from 1 to 3 plus. The percentage of globulin was estimated; the nodular cases averaged 4.68 per cent., the mixed cases 4.52 per cent., the active maculo-anaesthetic cases 4.23, and the latent ones 3.11 per cent. Apparently the serum globulin in long-standing cases with clinically latent infection decreases to within the normal range, so the reaction will be worth studying in relation to the effects of treatment.

L. R.

MACCORMAC (Henry). **Case of Leprosy.**—*Proc. Roy. Soc. Med.* (Section of Dermat.). 1925. Sept. Vol. 18. No. 11. p. 61.

PUPO (Joao de Aguiar). **Estado actual da terapeutica da lepra.**—*Ann. Paulist. Med. e Cirurg.* 1925. Jan.-June. Year 13. Vol. 16. No. 1-6. pp. 1-16. [49 refs.]

RICHMOND (P.). **Leprosy at the United States Naval Hospital, Great Lakes, Illinois—Report of a Case.**—*U.S. Nav. Med. Bull.* 1925. July. Vol. 23. No. 1. pp. 25-28.



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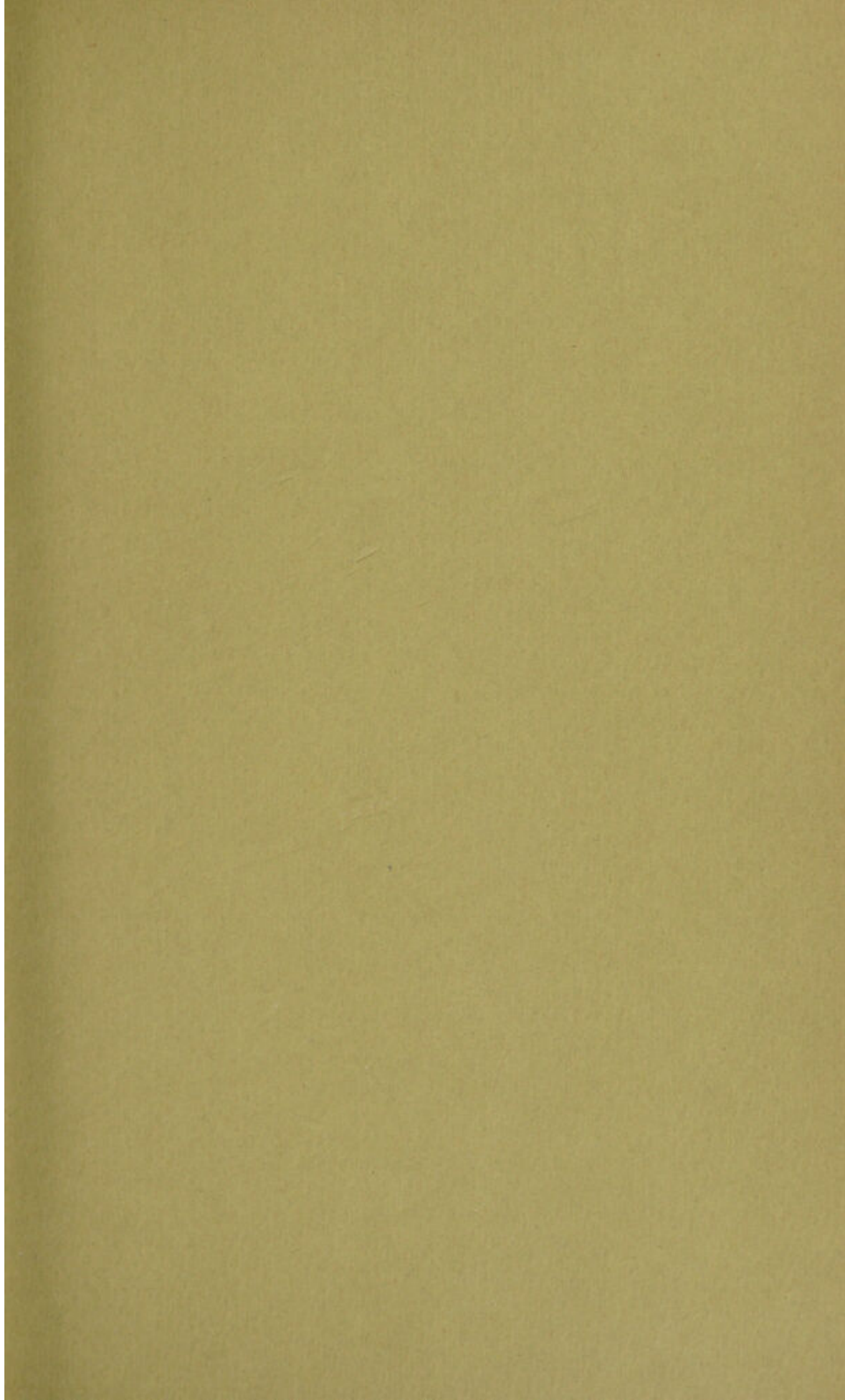
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177