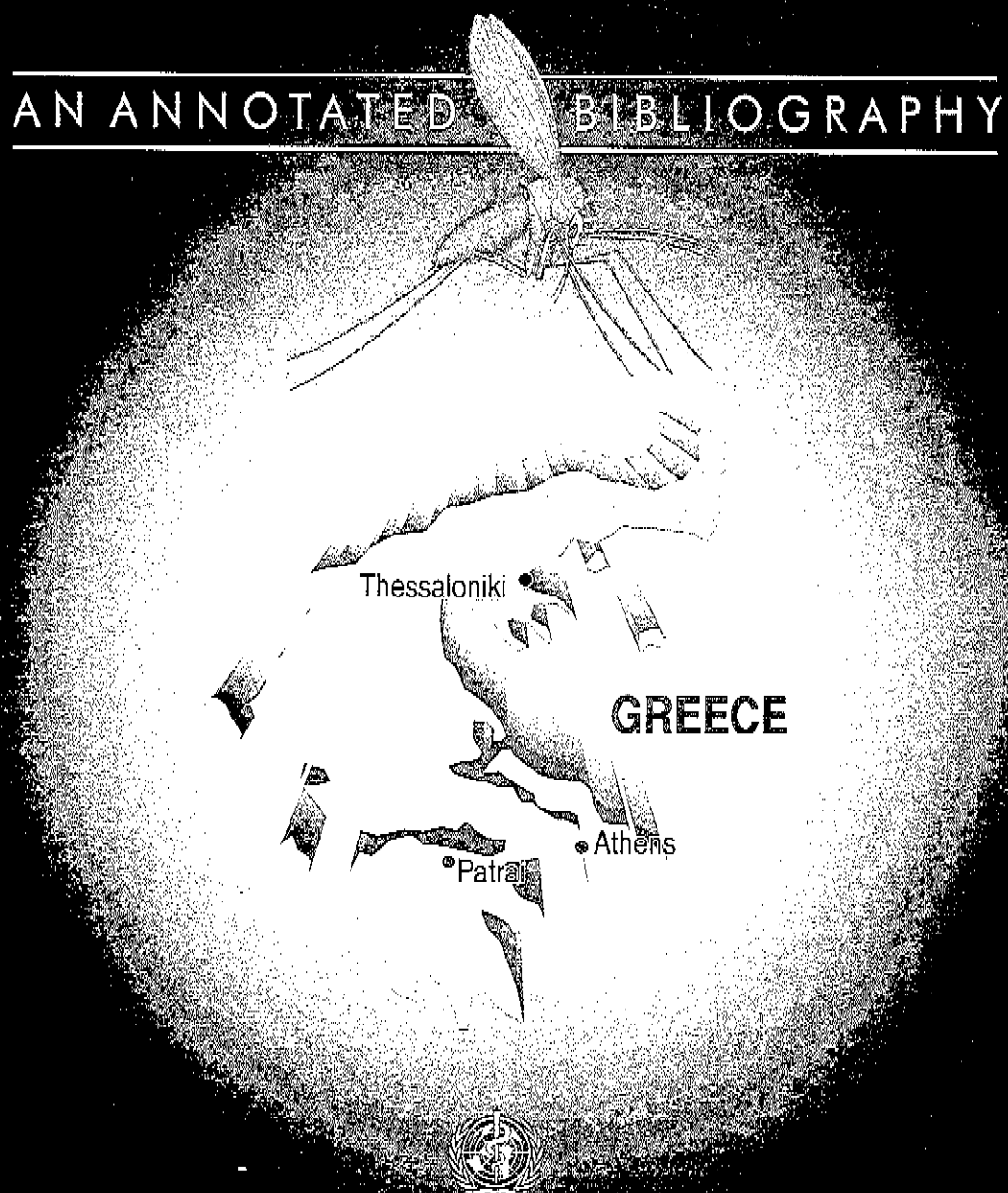


LEISHMANIASIS, SANDFLY FEVER AND PHLEBOTOMINE SANFLIES IN GREECE:

AN ANNOTATED BIBLIOGRAPHY



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LEISHMANIASIS, SANDFLY FEVER AND PHLEBOTOMINE SANDFLIES IN GREECE :

AN ANNOTATED BIBLIOGRAPHY

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This document has been edited
by the Division of Control of
Tropical Diseases and printed
by WHO in Geneva

INTRODUCTION

The best way to describe leishmaniasis, sandfly fever and phlebotomine sandflies is to call them an esoteric subject which has attracted the attention of investigators with an eye for difficult, unusual and challenging tasks. Although the parasites causing leishmaniasis were first discovered in 1885 and named *Leishmania* in 1903 (31,142), the disease had been described in Greece under different names much earlier. The first reports of kala-azar (called Ponos) were from the island of Spetses in 1835 (1,2) and are regarded as the earliest records of the disease in the Mediterranean region. In 1882 and 1883 kala-azar was again described on the island of Hydra under the name "Tsanaki" with unknown etiology (3).

Interest in leishmaniasis in Greece began in the early part of this century with publications by Cardamatis, Aravantinos, and a few other physicians. It continued later with Caminopetros, Blanc, Langeron, Adamopoulos, Papantonakis, Papadakis, Adler and Theodor, and Parrot. These were the pioneers who provided the impetus and established the foundation on which others built later.

The use of DDT and other modern insecticides to combat malaria after World War II, diminished the importance and thus the interest in sandfly-transmitted diseases. When reports of Kala-azar in children and dogs appeared frequently in the 1970s and 1980s, a new awakening on the subject occurred. Briefly, review of the subject leads to the following conclusions.

- There exist 2 forms of leishmaniasis in Greece: Visceral (VL) and Cutaneous or Dermal (CL). The viral disease known as sandfly, 3-day, or *papatasi* fever is also present.
- VL or kala-azar seems to be present in practically all geographical areas of Greece, both continental and insular. It is caused by *Leishmania infantum* and primarily affects infants and young children. This form of leishmaniasis is a zoonosis with the domestic dog as its reservoir host. *Phlebotomus neglectus* is assumed to be a vector based on isolations of *L. infantum* from female sandflies on the islands of Zakynthos (214) and Corfu (205).
- CL is the other form of the disease which appears to be endemic in the Ionian islands, Crete, southern Peloponnese and Central Greece. (63, 133, 159, 188). It is caused by *L. tropica* and, unlike VL, it is considered anthroponotic since no animal reservoir host (s) has been implicated in the cycle of transmission. The vector of CL is listed as *P. sergenti* (123, 216) but few attempts to find the parasite in sandflies in Greece have failed to confirm this.
- Sandfly fever (SF) is the third disease transmitted by sandflies in Greece. It has attracted little attention from investigators due to lack of awareness and means to properly diagnose it. The present status of SF is speculative. A serological survey of 637 sera from residents of Athens 30 years of age or older in 1977 showed a prevalence of 36% and 13% positive for Naples and Sicilian serotypes, respectively (157). SF has no known animal reservoir hosts, it is transmitted by

P. papatasi (8,41) and is maintained in nature by transovarial transmission of the vector (89).

■ Phlebotomine sandflies (*Diptera: Psychodidae*) are small biting flies with wide distribution in Greece. There are 12 known species in the country, 9 in the medically important genus *Phlebotomus* and 3 in the genus *Sergentomyia* (197, 198, 199).

The papers in the bibliography are reviewed as Abstracts or Summaries. Abstracts are provided by the author(s) of the original articles or reviewers such as those in Tropical Diseases Bulletin and the Review of Applied Entomology. Summaries are prepared by the authors of this publication.

The bibliography includes numerous articles published in Greek journals which titles have been generally translated into english:

| English Title | Greek Title |
|--|---|
| Acta Medica Hellenica | Elliniki Iatriki |
| Acta Microbiologica Hellenica | Deltion Ellinikis Microviologikis Eterias |
| Acta Societatis Paediatricae | Arkhia Ellinikis Hellenicae Pediatrikis Eterias |
| Aesculapius | Asclipios |
| Annales Clinicae Paediatricae | Deltion Pediatrikis |
| Universitatis Atheniensis | Clinikis Panepistimiou Athenon |
| Annales Medicales | Iatrika Khronika |
| Applied Clinical Microbiology and Laboratory Diagnosis | Efirmosmeni Cliniki Microviologia ke Ergastiriaki Diagnostiki |
| Archives of Hellenic Medicine | Arkhia Ellinikis Iatrikis |
| Archives of Medicine | Arkhia Iatrikis |
| Archives of the Pediatric Clinic of the University of Athens | Arkhia Pediatrikis Klinikis Panepistimiou Athinon |
| Bulletin of the Hellenic Pediatric Society | Deltion Ellinikis Pediatrikis Eterias |
| Bulletin of the Hellenic Veterinary Medical Society | Deltion Ellinikis Ktiniatrikis Eterias |
| Bulletin of Social Welfare and Health Statistics | Deltion Statistikis Kinonikis Pronias ke Iyinis |
| Galenus | Galinos |
| Medical Progress | Iatriki Proodos |
| Medical Science-Practice | Iatriki Epistimi-Praxis |
| Pediatrics | Pediatriki |
| Proceedings of the Medical Society of Athens | En Athines Iatriki Eteria Practika |
| Review of Recent Medical Literature | Iatriki Vivliografiki Enimerosi |

Older publications refer to species of phlebotomine sandflies with names which are not anymore valid. It is therefore necessary to show the synonymies of the old and the new names.

| Old name | New name |
|--|--|
| <i>P. papatasi</i> | <i>P. papatasi</i> |
| <i>P. sergenti</i> var. <i>alexandri</i> | <i>P. alexandri</i> |
| <i>P. major</i> | <i>P. neglectus</i> |
| <i>P. perniciosus</i> | <i>P. tobbi</i> |
| <i>P. perniciosus</i> var. <i>tobbi</i> | <i>P. tobbi</i> |
| <i>P. macedonicus</i> | <i>P. perfiliewi</i> |
| <i>P. larrouseii</i> | <i>P. mascittii</i> |
| <i>P. chinensis</i> var. <i>simici</i> | <i>P. simici</i> |
| <i>P. chinensis</i> var. <i>balcanicus</i> | <i>P. balcanicus</i> |
| <i>P. chinensis</i> | <i>P. simici</i> or <i>P. balcanicus</i> |
| <i>P. bruchoni</i> | <i>S. dentata</i> |
| <i>P. parroti</i> var. <i>italicus</i> | <i>S. minuta</i> |
| <i>P. parroti</i> | <i>S. minuta</i> |
| <i>P. minutus</i> | <i>S. theodori</i> |
| <i>P. vesuvianus</i> | <i>P. mascittii</i> |

BIBLIOGRAPHY

(In Chronological Order)

1. Karamitsas, G., 1879. Ponos of Spetses. *Galenus*, Year 1 (No.5):65-71 (*in Greek*)).

Summary: The author presents the history of "Ponos" and "Tsanaki" in Spetses and Hydra, respectively. Ponos in Spetses was a disease attributed to the rain water collected and kept in tanks (cisterns). On a visit to the island and with the help of the local physician C. Yiannopoulos the author had the opportunity to examine 2 sick children and concluded that they were cases of pseudo-leukemia or splenic cachexia. It was said that in Spetses old men died from tuberculosis and children died of Ponos. The disease was encountered in some families and not in others. It affected children of both sexes, both poor and well-to-do. Although, rain water in tanks was suspected as being the cause, the fact that the disease did not occur on other islands, where rain water was similarly used, contradicted the theory. Symptoms of the disease are described, with splenomegaly being the main characteristic in all cases. The duration of Ponos was estimated to be 8 to 18 months and its prognosis bad. No treatment was available and thus parents considering the illness not treatable did not seek medical attention in most cases. Physicians, however, prescribed quinine and preparations of iron, especially those containing iodine.

2. Yiannacopoulos, K., 1879. On some endemic diseases on the island of Spetses. A. On Ponos. *Galenus*, Year 1, (No.31):65-68; (No.32):85-88; (No.34):113-116; (No.35):132-135; (No.36):149-153 (*in Greek*)).

Summary: An extensive account of the disease known as Ponos (pain) on Spetses is presented by the local physician. Old men on the island tell how Ponos killed large number of children when they were young. It was impossible, they said, to have a family without losing one or more children. In nine out of ten cases the illness occurred in children after the first year of life and rarely in adults. The local people attributed Ponos to the weak nature of parents and especially to the lactating mother. Others believed that teething caused the illness. In some families all children were affected and to prevent further spread they burned all the clothes of the ill children. Still others thought that the illness was syphilitic since syphilis was a common disease in the adults of the island. The author called Ponos a peculiar malarious dyscrasia and goes on to explain his reasoning. He also describes symptoms, duration, course, anatomical changes, frequency, diagnosis, prognosis and treatment of the illness. Histories of 5 cases are described and various treatments which include quinine, iron, bismuth, tonics, oil of eucalyptus, etc. are included.

3. Parissis, N.P., Tetsis, J.A., 1881. La maladie endémique des enfants à Hydra appelée Tsanaki, In: *De l'île d'Hydra (Grèce), au point de vue médical et particulièrement du Tsanaki*. Imprimerie Moquet, Paris.

Summary: In pages 33-60 of the treatise on the medical problems in the island of Hydra, the authors discuss thoroughly the illness known by the local people as Tsanaki. The word Tsanaki means a small earthenware jar or pot in which food items are kept and in this case denotes the swollen spleen which characterizes the disease. The illness has a course and symptoms which can be divided into 2 periods. The symptoms of the first period are anemia, fever and a swollen spleen and those of the second period include hemolysis, nervous disorders, gastric troubles, noma, abscess, etc. The frequency of Tsanaki in Hydra is 1/1000 infants. The etiology is ascribed to causes such as contaminated potable water, malaria, splenic anemia, pseudo-leukemia, scurvy, etc. The authors, however, think that Tsanaki is an illness of tuberculoid nature which agrees with the opinion of the junior author for the disease Ponos in Spetses. Both authors firmly believe that Tsanaki of Hydra is the same disease with Ponos of Spetses which was first reported to the Medical Society of Athens by Roeser on October 15, 1835.

4. Tetsis, I.A., 1881. Tsanaki or putrefied illness of children in Hydra. *Galenus*, 3 (No.21):369-375; (No.25):385-391; (No.26):411-415; (No.27):1-7 and 22-25 (in Greek)).

Summary: In a series of articles the author details all aspects of the illness of children known as Tsanaki on the island of Hydra. The account includes history, anatomical changes, symptoms (divided into 2 periods), complications, forms, etiology, duration, course, evolution and prognosis of illness. In the last 2 parts (No.27) the author describes 12 cases of Tsanaki, each one with a different combination of symptoms, such as mild form with splenomegaly, mild form without splenomegaly, splenomegaly complicated by peritonitis, malignant form with mouth gangrene, etc. The author proposes to name the illness hemolysis or putrefied disease and he describes it as chronic characterized by anemia, fever, splenomegaly and hemolysis.

5. Alivizatos, P.G., 1901. Splenic anemia in children. *Medical Progress* 6:180.

Summary: The author reports cases of kala-azar in Cephalonia and thus disputes the prevailing theory that the disease occurs only on the islands of Spetses and Hydra. In Cephalonia, kala-azar is found mainly in villages with high humidity and lack of sunshine. It is common in young children between the first and second teething, and the main symptom is progressive anemia. Genetic predisposition, bad nutrition, mumps, measles, whooping cough, malaria and poor living conditions are factors contributing to the development of the disease. Kala-azar may last up to 20 months and ends with death of the patient.

6. Cardamatis, J.P., 1909. Leishmaniose en Grèce (Bouton d'Orient). *Bulletin de la Société de Pathologie Exotique* 2:257-261.

Summary: First report of Oriental sore in Crete, which is believed to have been introduced to the island by Turkish soldiers in 1836. The author describes 2 cases in young boys with ulcers in the chin, cheek and nose. Microscopic examination of pure pus from the ulcers shows presence of numerous parasites in epithelial cells. Most parasites are extracellular. Preparations of pure serum contain only rare fusiform parasites whereas preparations of serum and blood contain still smaller number of parasites.

7. Cardamatis, J.P., 1909. Observations microscopiques sur un Bouton d'Orient non-ulcéré. *Bulletin de la Société de Pathologie Exotique* 2:391-392.

Summary: Microscopic observations of a non-ulcerating case of Oriental sore are presented. Blood preparations showed large numbers of young parasites. Most are spindle-shaped in form and rarely round. Almost all parasites are extra-cellular and isolated, rarely in groups of 3 to 5. The intracellular parasites are rare, the cells containing usually one, rarely two parasites. The proliferation of parasites begins with division of the nucleus. Hematologic examination shows 84% mononuclear WBCs, 16% polynuclear neutrophils and 0% eosinophils.

8. Birt C., 1910. *Phlebotomus* fever in Malta and Crete. *Journal of the Royal Army Medical Corps* 14:236-258.

Summary: The author assumed the task of unravelling *phlebotomus* fever in Crete known as "simple continued fever" or "pink-eye". The disease is characterized by high fever lasting an average of 4 days, headache, pronounced lassitude, congestion of conjunctivae, sudden cessation of symptoms and subsequent debility. In 1897 there were 785 cases of this fever among 1152 troops of occupation in Crete. The illness affected troops every year, occurring during the summer months and chiefly among young soldiers arriving from England. *Phlebotomus papatasi* was implicated as the vector of the illness. The distribution of this sandfly is correlated with the presence or absence of the fever. Characteristics and bionomics of *P. papatasi* are discussed in sufficient detail in the article, including methods of capture and laboratory rearing. Transmission experiments are conducted by using acutely ill military personnel, *P. papatasi* and healthy volunteers. In 2 such experiments the flies are able to transmit the fever to healthy volunteers 7 to 10 days after they had fed on ill individuals.

9. Aravantinos, A., Mihailidis N., 1911. Infantile kala-azar in Greece. First report: Infantile kala-azar in Hydra. In: *Astyliniki of the National University*, pp. 1-13 (in Greek)).

Summary: In 1835 the physicians Roeser, Klados and Fountana reported to the Medical Association of Athens of a disease of unknown etiology known as Ponos (pain) or Splina (spleen). The authors consider that disease to be kala-azar based on their own experience with a 14-year old girl and a 10-month old infant from the island of Spetses. On the island of Hydra a disease similar to Ponos was known as Tsanaki. The authors were able to confirm that Tsanaki was kala-azar by finding LD bodies in the spleen of a 2/1/2-years old boy. The mode of transmission of the disease was unknown. Potable rain water, bedbugs, fleas, lice, mosquitoes and ticks were discounted as source or vectors of the disease. Phlebotomine sandflies were not mentioned at all.

10. Cardamatis, J.P., 1911. Leishmaniose canine. *Bulletin de la Société de Pathologie Exotique* 4:178-179.

Summary: From December 1910 to March 1911 the author screened 248 impounded stray dogs for *Leishmania* infection. He found 19 positive. Among the dogs 184 were from Athens, 40 from Piraeus and 60 from the Provinces. The number positive for *Leishmania* was 15, 3 and 1, respectively. The liver, spleen and bone marrow were examined for the dogs from Athens and Piraeus. For the dogs from the Provinces only the blood was examined which may explain the low rate of *Leishmania*-positive.

11. Cardamatis, J.P., Melissidis, A., 1911. Deux cas de bouton d'Orient dont le premier très rare; antagonisme probable entre le bouton d'Orient et le kala-azar. *Bulletin de la Société de Pathologie Exotique* 4:454-458.

Summary: The article describes a 16-years old boy from the town of Pera near Heraklion, Crete with 35 ulcers of Oriental sore on the face and arms. A Table presents the number, position, nature and dimensions of the ulcers. Hematologic and microscopic observations are cited. The conclusions of this case are that: the ulcers are not limited to the skin but may also occur in the mucous membranes (in this case in the upper lip); ulcers may be crusty or scaly; the disease is contagious and may be transmitted from person to person by fleas. Finally, the author thinks that his own observations are corroborated by others and tend to show an antagonism (mutual exclusion) between Oriental sore and kala-azar. In Crete, for example, kala-azar is absent where Oriental sore occurs and vice versa. Several examples of this situation are cited to support the theory.

12. Cardamatis, J.P., Melissidis, A., 1911. Du rôle probable de la mouche domestique dans la transmission des "*Leishmania*". *Bulletin de la Société de Pathologie Exotique* 4:459-461.

Summary: The role of the domestic housefly in the transmission of CL is examined. Eight houseflies are fed on *Leishmania*-containing serum and pus twice and 3 to 5 days later are dissected. Two of the 8 flies are found to contain large numbers of *Leishmania* in their abdominal section which appear oval and large in contrast to those in the serum and pus which are pear-shaped and small. The authors conclude that houseflies may serve as vehicles of infection from person to person by means of their infective feces when they are deposited on lesions or breaks of the epidermis.

13. Lignos, A., 1911. Quinze cas de kala-azar infantile observés à Hydra. *Bulletin de la Société de Pathologie Exotique* 4:664-666.

Summary: Fifteen cases of infantile kala-azar are diagnosed by finding L-D bodies in spleen biopsies. Symptoms of the disease are described. Pulmonary complications and diarrhea resulted in death in all cases. Autopsy results and the names, sex and age of children as well as the date when illness started, date of biopsy and date of death are provided in a Table.

14. Christomanos, A. A., 1911. Cases of kala-azar in Greece. *Medical Progress* 16:1-5 (in Greek)).

Summary: Two patients admitted to Evangelismos hospital in Athens with symptoms similar to those described by Karamitsas for "Ponos" of Spetses provide the opportunity to the author to make some observations. The patients, 18- and 30-years from Kalavrita and Trikala, are examined and parasites typical of *Leishmania* are

found in their spleen and lymphocytes. The author believes that a lot of cases with fever and enlarged spleens that do not respond to quinine treatment can be attributed to leishmaniasis. He recommends injection of atoxyl in large doses for treatment of such cases.

15. Cardamatis, J.P., 1911. On piroplasmoses (Leishmaniasis) and especially on Oriental sore. *Medical Progress* 16:5-15 (in Greek)).

Summary: Definition, history, geographic distribution, etiology, pathology, parasite morphology and clinical evolution of Oriental sore, based on observations in 3 patients, are detailed in this paper. It is concluded that the sores in Crete are the same as the Aleppo ulcer in Syria, the Delhi boil in India and the bouton d'Orient in Mediterranean countries. The author considers that the piroplasm of J.H. Wright (found in the mononuclear and polynuclear leucocytes) is the etiologic agent of the disease. A close relationship between the piroplasm of J.H. Wright and the parasites of Donovan is evident to the author but he believes that more research is needed to clarify this.

16. Cardamatis, J.P., 1911. The illness kala-azar. *Medical Progress* 16:51-52 (in Greek)).

Summary: The author argues that splenomegalies can be caused by diseases other than malaria, leukemia or splenic anemia. One such disease is kala-azar which is well-established in Greece. In addition to the splenomegalies found in young children in Spetses and Hydra, the discovery by Christomanos of *L. donovani* in adults in Continental Greece, the diagnosis of 4 cases of infantile kala-azar in Kopaida, and an additional one in an adult in Thessaly point out to the fact that kala-azar has a wide distribution in Greece.

17. Cardamatis, J.P., 1911. Piroplasmosis and Leishmaniasis in Greece. *Medical Progress* 16:141-154 (in Greek)).

Summary: The paper reports the results of a study on 284 dogs. Of 184 dogs from Athens, 40 dogs from Piraeus and 60 dogs from Provinces the infection rates were 8.15%, 7.5% and 1.6%, respectively. The author believes that *Leishmania* in dogs and children is very similar which implies a close relationship between them. He gives the name *Leishmania canis* for the parasites in dogs and goes on to describe how they infect erythrocytes and leukocytes, the changes the parasites undergo in these cells, and their multiplication by schizogony or cell division.

18. Petratos, P., 1911. Infantile kala-azar. *Medical Progress* 16:239-240 (in Greek)).

Summary: A case of kala-azar in a child 3-years old from a small village of Pelion is described. The child had symptoms of anemia and leucopenia and liver biopsy showed presence of *Leishmania* parasites. Treatment improved the condition of the child but there is no mention of the specific drug used. The final results were still awaiting confirmation.

19. Cardamatis, J.P., Melissidis, A., 1911. Traitement du bouton d'Orient. *Bulletin de la Société de Pathologie Exotique* 4:667-668.

Summary: Numerous methods have been proposed to treat Oriental sore but none is capable to arrest the development of the disease. Among the various substances utilized as treatments is aqueous solution of Methylene blue which, however, has not given satisfactory results. The authors claim to have used with great success Methylene blue as ointment (pomade) to treat 3 cases of Oriental sore. The ointment is applied in a thick layer over the ulcer twice a day, in the morning and evening, and for a period of 15 to 20 days and in rare instances for up to 30 days.

20. Cardamatis, J.P., 1912. Leishmaniose du chien en Grèce. *Bulletin de la Société de Pathologie Exotique* 5:88-89.

Summary: The author examined 530 dogs in one year and found 81 of them infected with *Leishmania*. Infected dogs were found in all months of the year but most were in June and July. The geographic distribution of dogs is not given.

21. Lignos, A., 1912. Absence des *Leishmania* à l'autopsie d'un enfant mort de kala-azar. Bulletin de la Société de Pathologie Exotique 5:349-351.

Abstract (taken from Tropical Diseases Bulletin, 1912, v.1:4) : A case of kala-azar in a female child of 23 months came under observation in the island of Hydra in Oct. 1911. The author performed spleen puncture on March 6, 1912, and discovered numerous *leishmania* in the smears. On April 12 the child was treated by some aged women in such a manner that it died suddenly from dyspnoea. An autopsy was performed 18 hrs after death and though the body was in good condition no *leishmania* could be discovered in the smears. The author offers no explanation of the complete disappearance of the parasites in a period of one month intervening between the date of spleen puncture and the child's death.

22. Cardamatis, J.P., 1912. Le kala-azar est en Grèce. Une maladie à cas sporadiques. Mégalosplenies de cause inconnue. Bulletin de la Société de Pathologie Exotique 5:489-491.

Summary: A survey of splenomegalies is carried out to see whether any of them is due to *Leishmania*. From 20 splenomegalies, suspected as kala-azar, only 2 are positive for *Leishmania*. The conclusion is that, with the exception of Spetses, Hydra, the Patras area, Cephalonia, Ithaca and Paxos, the incidence of kala-azar in Greece is very sporadic. Other conclusions of the study are that: *Leishmania* parasites are absent in the peripheral blood; there is a perceptible diminution of polynuclear; large increase of mononuclear cells; a significant decrease of eosinophils; and a slight poikilocytoses in 4 of 5 cases.

23. Cardamatis, J.P., Melissidis, A., 1912. Treatment of Oriental sore. Medical Progress 17:85-86 (in Greek).

Summary: Most treatments for Oriental sore are not only ineffective but some can cause disfigurement and bad healing. The authors use Methylene blue, with addition of lanoline and vaseline, as ointment. Applied in 3 cases, the results were excellent. The ointment is applied twice/day for up to a maximum of 30 days. A minor irritation, caused initially by the ointment, is the only problem of the treatment. Careful washing of ulcers with soap and water when the treatment is ended and observation of the patient for an additional 15 to 20 days completes the procedure.

24. Cardamatis, J.P., 1912. Canine leishmaniasis. Medical Progress 17:87 (in Greek).

Summary: From December 1, 1910 to December 1, 1911, a total of 530 dogs were examined and 81 were found infected with *Leishmania*. Most dogs were infected from April to August and fleas, which abound during those months, are thought to be vectors of the disease.

25. Cardamatis, J.P., 1912. Kala-azar is a sporadic disease in Greece. Medical Progress 17:145-147 (in Greek).

Summary: A survey for the occurrence and frequency of kala-azar in Greece concludes that the illness is sporadic and not as common as initially thought to be.

26. Bellile, P., 1913. Etude sur la fièvre des phlébotomes. Archives de Médecine et Pharmacie Navales, Paris, pp. 5- 39.

Abstract (taken from The Review of Applied Entomology, Series B, 1913, v. 1:189) : After reviewing the observations made in various parts of the world with regard to *papatasi* fever and *P. papatasi* from Pyne's discovery in 1804 onwards, the author goes on to describe his own experiences in Suda Bay in 1910-1912, during the dry summer season extending from the middle of May to the end of September, which confirm the results obtained by Kilroy. The fever was not confined to the island at the entrance of the Bay for there were several cases among the natives in Suda village, where the mess cook of the French warship "Amiral Charnier" and his wife were also attacked, while 2 French sailors at the arsenal and a Cretan doctor were among those who took the fever elsewhere. The Italian bluejackets who landed on the island and who were provided with nets invariably remained immune. The author suggests portable nets to cover the exposed parts of the body after nightfall, and netting on all openings in buildings; but in either case the network must be much finer for

Phlebotomus than for mosquitoes. The fact that the illness is only found during the dry season, and that the larvae hide in the crevices of walls exposed to the sun, points to the watering of such crevices as a means of destroying the insects. The Italian sailors landed from one vessel are said to have smeared their bodies with petroleum ointment that the smell might drive the insects away. Fumigation is a palliative of small efficacy.

27. Dibaris, S., 1914. Kala-azar in Cephalonia. Medical Progress 19:132-133 (in Greek).

Summary: The author observed 6 cases of kala-azar while he was on vacation on the island of Cephalonia. In the article he describes in detail the condition of one of these cases as typical of all the others. The case is a 2-years old boy who had been sick for 4 months before medical attention was given. The disease, known as Aplopinakon on the island, is endemic, affects mainly young children, causes fever, cachexia and eventually death. Dogs and fleas are thought to be involved in the transmission of the disease.

28. Katsas, G., 1914. A case of kala-azar. Finding the parasite in the peripheral blood. Medical Progress 19:360-362 (in Greek).

Summary: A case of kala-azar in a 6-years old girl living in Athens is described. The finding of L-D bodies in large mononuclear cells of the peripheral blood, the extremely enlarged spleen, the long duration of the illness and the failure to cure with all the available drugs leads to the diagnosis of kala-azar. Reference is made to a dog, living in the house of the patient, which became sick and eventually died. The patient also died after a febrile period that lasted 25 days.

29. Ioannidis, G.S., 1914. Kala-azar in Greece. Observations on five cases. Medical Progress 19:362-363 (in Greek).

Summary: Five cases of kala-azar in children ages 1-to 5-years old from northern Peloponnese are discussed. The author believes that the disease is more common than is thought and urges physicians to screen blood microscopically and to perform spleen biopsies in order to detect more cases from which valuable information can be derived for better treatment and prevention of the disease.

30. Aravantinos, A., 1915. Visceral leishmaniasis (kala-azar). Printed by P.D. Sakellariou, Athens, pp. 132 (in Greek).

Summary: The author has written an important monograph of a disease which had been unknown 4 years earlier. He describes VL in general terms and makes reference to the situation in Greece. There are 10 chapters in the monograph dealing with history, geographic distribution, etiology, pathogenesis, clinical picture, prognosis, diagnosis, treatment and prevention of the illness. Due credit is given to the Greek medical men who first described kala-azar and recognized it as a distinct entity with a variety of names (Ponos, Tsanaki, Aplopinakon). Information is also provided on the morphology of the parasite and its culture in nutritional media, opinions on vectors and much more information useful to physicians. The work ends with an extensive literature which allows those interested in more specific detail to seek it.

31. Aravantinos, A., 1916. Contribution à l'histoire de la leishmaniose interne. Bulletin de la Société de Pathologie Exotique 9:10-13.

Summary: The author divides the history of VL into 4 periods. Description of the symptoms of illness in Greece comprises the first period. Description of the symptoms by British physicians and the discovery of the parasite by Leishman and Donovan makes up the second period. The third period is the time when kala-azar is discovered in the Mediterranean Basin and infantile kala-azar is described. The fourth period is marked by the realization that both the Indian and infantile kala-azar are the same disease. The author goes on to describe the history of VL in Greece reported for the first time as "Ponos" in Spetses in 1835, and as "Tzanaki" in Hydra in 1881 and 1882. The first case of VL in Athens was reported by the physician N. Makkas in 1882. In 1905, Cardamatis suggested that most cases of splenomegaly in Greece are caused by *L. donovani*. In 1909 Mesnil and Williamson identify Ponos in Spetses as kala-azar, and in 1911 Christomanos, Mihailidis and Aravantinos confirm that Tsanaki in Hydra is also kala-azar. It is believed that kala-azar was known to ancient Greeks since a description of a disease in the writings of Hippocrates is very similar to Ponos.

32. Balfour, A., 1916. The medical entomology of Salonica. Published by the Wellcome Bureau of Science Research, London, 25 pp.

Abstract (taken from The Review of Applied Entomology, series B, 1916, v.4:179) : In an address delivered to the Salonica Medical Society, the author deals briefly with the life-history, habits, and methods of control of several insects and Arachnids occurring in this region, among them *P. papatasi*.

33. Fotinos, G., Petropoulos, N.G., Iatridis, A., 1917. Oriental sore. Medical Progress 22:48-49 (in Greek).

Summary: A case of CL is demonstrated as a rare disease and one which is treated with Neosalvarsan powder for the first time. The patient is a 7-years old girl born in Crete but residing in Athens. *Leishmania* parasites are found in microscopical examination of pus and blood taken from the sores. The Wasserman test turned out positive on 2 occasions 6 days apart. Treatment with Neosalvarsan powder applied 3 times in 9 days resulted in complete cure.

34. Kouzis, A.P., 1917. The treatment of kala-azar. Archives of Medicine 12 (9-10):160-162 (in Greek).

Summary: Tartar emetic which was used to treat cases of pneumonia and typhus, is now proposed as the best treatment for kala-azar. The author cites the work of other investigators which support his proposal and hopes that tartar emetic will become the treatment of choice for VL in the future.

35. Fotinos, G., Evangelou, C., 1917. A case of Oriental sore with trichophytosis. Archives of Medicine 12 (15-16):247-248 (in Greek).

Summary: The author presents the case of a 14-years old boy from Crete with 12 lesions of Oriental sore and trichophytosis in the neck area. Eleven of the lesions were on the face. The case was diagnosed initially as leprosy and was treated with tincture of iodine without success. Next, the patient is treated with Methylene blue ointment for the lesions for 4 months and with dilute solution of iodine for trichophytosis. Cure is achieved in both instances.

36. Lambert, J., 1918. Phlebotomus Fever in Lemnos. Journal R. N. Medical Service 4 (2):144-157.

Abstract (taken from The Review of Applied Entomology, series B, 1918, v.6:114-115) : This paper describes an epidemic of sandfly fever in the island of Lemnos. The disease is prevalent there from May to September, the majority of cases occurring during June, July and August, when the weather is hottest. During the epidemic the commonest sandfly present in Lemnos was *P. papatasi*. This was very numerous on warm, close nights and could be caught in large numbers under any artificial light. It bites persistently if undisturbed, and easily passes through an ordinary mosquito curtain. In the vicinity of Mudros there are ideal breeding places for these midges, the native houses being of roughly cemented stone, while loose stones lie about every where. The camps chiefly affected lie along the foreshore between the harbour and East Mudros village, and stray gullies and an insanitary drain running down to the foreshore afford admirable shelter for the larval stages. Individuals of *P. papatasi*, have been occasionally caught on ships lying about half a mile off Mudros, having been blown off the land. No investigation was made regarding the prevalence or otherwise of the disease in the inland villages. It was found that the cases of sandfly fever were most numerous 8 to 12 days after a period of close, sultry evenings, and this is easily explained by the fact that the incubation period of the disease is from 2 to 4 days and the period of development of the virus from 6 to 8 days. Tables are given recording the number of cases occurring under various climatic conditions, the daily temperature during the period of the epidemic, etc.

37. Fotinos, G., 1920. Un nouveau traitement du bouton d'Orient (de Crète) par des infections locales de chlorhydrate d'émétine. Bulletin de la Société de Pathologie Exotique 12:290-297.

Summary: A new method using chlorhydrate of emetine to treat Oriental sore is described. This compound, as liquid, is injected with a sterile syringe under the healthy skin which surrounds the ulcer with the syringe directed nearly parallel to the surface of the ulcer. Thirteen cases of Oriental sore having from 1 to 5 ulcers are presented in a Table that contains sex and age of the subjects, number, dimensions and age of the ulcers, amount and frequency of injected chemical, and healing time.

38. Morris, L.M., 1923. *Phlebotomus* fever in the eastern Mediterranean during the war, with special reference to its prevention. *Journal R. N. Medical Service* 9 (4):286-289.

Abstract (taken from The Review of Applied Entomology, series B, 1924, v.12:45) : A study of *Phlebotomus* and of sandfly fever occurring at various camps placed near a flat foreshore, where the soil is friable and the subsoil drainage poor. In a camp of such soil the ground becomes fouled and disturbed and forms a suitable breeding place for *Phlebotomus*, which prefers damp, dark crevices in soil, sullage-pits, drains, etc. or in the old woodwork of piers and huts, especially near sea level. If camps cannot be removed from such a site, all huts should be well raised from the ground to allow for ventilation and drying, and the soil exposed to sun and wind as far as possible. The ground underneath should be levelled and sprayed with a mixture of crude oil and low grade paraffin at least once a week. All rubble, old store dumps, disused canvas and woodwork should be cleared away from the vicinity. Camp sanitation and inspection, disinfection of drains, soaked pits, etc. with C. fluid or strong cresol, and daily burning and destruction of all refuse is essential. Huts, especially when used for the sick, may be sprayed with 1% formalin solution, and dug-outs disinfected with sulphur. Mosquito nets are useless, and sandfly nets are too closely meshed to admit circulation of air.

39. Blanc, G., Caminopetros, J., 1923. Enquête sur le Bouton d'Orient en Crète. Réflexions qu'elle suggère sur l'étiologie et le mode de dispersion de cette maladie. *Archives de l'Institut Pasteur Hellénique*, 1:87-103.

Summary: Oriental sore is widespread in Crete, its principal foci being the towns of north coast, Hania, Rethymno and Heraklion. It occurs in the region that extends from Heraklion to Messara, and is also present in Ierapetra. It is present in the east but is rare in Sitia. In Hania, Oriental sore is particularly common in the narrow quarters of the old town. In Crete, man appears to be the sole reservoir for the virus (sic). The gecko and the dromedary do not seem to play a role. The epidemiological evidence tends to show that the disease is transmitted by direct contact without involvement of biting insects. Contaminated house flies cannot transmit Oriental sore mechanically 5 hours post-feeding on an infected host.

40. Lambert, J., 1923, 1924. *Phlebotomus* Fever. *Journal R.N. Medical Service* 9 (4):289-297 and 10 (1):24-31.

Abstract (taken from The Review of Applied Entomology, series B, 1924, v.12:45) : This paper deals especially with the clinical aspect and treatment of sandfly fever at Lemnos, where it has existed for the past 3 years. The conditions under which the inhabitants live offer ideal breeding places for *P. papatasi* which is the commonest species. The lesions produced by *Phlebotomus* are described; the effect of the bite varies under different circumstances, the parts attacked being generally those that are least protected during sleep.

41. Higgins, J.T.D.S., 1924. Note on cases of *Phlebotomus* Fever at an island in the eastern Mediterranean. *Journal R.N. Medical Service* 10 (1):31-34.

Abstract (taken from The Review of Applied Entomology, series B, 1924, v.10:46) : Eight cases of sandfly fever are discussed, all of which were due to infection by *P. papatasi*. Six of the cases occurred in one house, and the men sleeping on the ground-floor were moved to a floor above, while the likely breeding places outside the building were cleared and covered with lime. After these measures were taken no further cases were reported, but this fact was probably partly due to a change of weather conditions.

42. Langeron, M., 1925. Phlébotomes capturés en Crète. *Annales de Parasitologie Humaine et Comparée* 1:108.

Summary: From August to September 1922 the author captured 568 phlebotomine sandflies (289 f, 279 m.). Only the male flies are identified as follows: 248 *P. papatasi*, 28 *P. sergenti*, 2 *P. minutus*, and 1 *P. perniciosus*. The last one is a new record for Crete.

43. Ioannidis, G.S., 1926. Quelques notes épidémiologiques sur le département de Messénie. La Grèce Médicale 28 (9-10):33-36.

Abstract (taken from The Review of Applied Entomology, 1928, 16:7) : Sandflies *P. papatasi* abound even in large towns; *P. sergenti* is rare. Kala-azar occurs in children in various places generally between March and July. A search for the parasite of kala-azar in many insects and other arthropods gave negative results.

44. Makkas, G., Kokkinakis, Z., 1926. Treatment of kala-azar with tartar emetic. Proceedings of the Medical Society of Athens, pp. 507-521 (in Greek).

Summary: The successful use of tartar emetic (Stibyl) to treat dermal leishmaniasis in South America encouraged the authors to use the same compound for cases of kala-azar in Greece. In one instance, Stibyl resulted in cure in 2 out of 3 cases, and in another trial there were 7 treatments and 7 successes. The amount of tartar emetic given ranged from 1.03 to 1.95 (mean 1.33) g and the duration of therapy extended from 87 to 194 days (mean 121). The prolonged therapy was necessary to destroy completely the *leishmaniae* and to prevent future relapses.

45. Cardamatis, J.P., 1926. Kala-azar and *Phlebotomus*. Medical Progress 31:1-2 (in Greek).

Summary: The author refers to the work of Christophers, Craig and Shortt in India who performed laboratory experiments and concluded that *P. argentipes* was the vector of kala-azar. The parasites of kala-azar were found in the intestinal tract of the sandflies and not in the salivary glands and thus the author of the present article raises the question whether *P. argentipes* is the true vector of the disease or just one of several insects, such as bedbugs, that are known to harbor flagellates in their intestinal tract.

46. Ioannidis, G.S., 1926. Quelques notes épidémiologiques sur le département de Messénie. La Grèce Médicale 28 (9-10):33-36.

Summary: Messinia, which forms one of 3 peninsulas in south Peloponnese, is one of the most malarious areas in Greece. The author undertakes a survey and is able to collect snails, mosquitoes and phlebotomine sandflies along 2 rivers. Among sandflies, *P. papatasi* is numerous and *P. sergenti* rare. Kala-azar is found in Aghia Anna, a suburb of Kalamata. Eight cases have been diagnosed since the disease was first recorded there in 1922. Kala-azar is found also along the train route from Pyrgos to Kalamata and elsewhere in the department. Data on 39 cases is provided. Most are poor children between ages 1 to 8. Domestic animals and phlebotomine sandflies are present in the houses where cases occurred. The incubation of the disease is estimated to be 8 months or less. Two cases of Oriental sore is also diagnosed in Kalamata but their origin was traced in neighboring Laconia district.

47. Papanicolaou, G. A., 1927. Leishmaniasis (kala-azar) in Patras from the viewpoint of transmission, diagnosis, prognosis and therapy. Medical Progress 32:343-346 (in Greek).

Summary: Since 1921, 80 cases of kala-azar had been diagnosed in the Pediatric hospital in Patras. These cases were from a wide area around Patras, including neighboring islands. Most were children 2-to 3-years old mainly from poor families but some from well-to-do ones. Kala-azar is confused with malaria, pseudo-leukemia and sometimes with Malta fever. Only by finding the L-D bodies in spleen biopsy can the disease be diagnosed with certainty. The onset of kala-azar is always sudden, latent and atypical. It begins with intense and continuous fever and, if not treated, it ends in cachexia and eventually death. The method of transmission is still uncertain. Dogs are probably involved but other factors or conditions are likely to play a role. Thus, the method and means of transmission remain unanswered for the time being. For various reasons only 37 out of 80 sick children were treated with IV injections of tartar emetic; three children died, one from complications of pneumonia, one from poisoning of the injected drug, and one from exhaustion.

48. Matarangas, G., 1927. Le kala-azar en Grèce. Bulletin de l'Office International d'Hygiène Publique 19 (10):1453-1454.

(taken from Tropical Diseases Bulletin, 1928, v.25:426) : A short note on the distribution of kala-azar in Greece. No new information is given.

49. Blanc, G., Caminopetros J., 1927. Nouvelle enquête sur la répartition de Bouton d'Orient en Grèce. Un foyer continental en Laconie (Péloponèse). *Annales de l'Institut Pasteur* 61:1002.

Summary: The author reports an important focus of Oriental sore in the Province of Laconia which is autochthonous, probably old and certainly existing before the arrival of refugees from Asia Minor.

50. Papantonakis, E., 1927. On kala-azar and its treatment. *Acta Medica Hellenica* 1:503-507 (in Greek).

Summary: A brief general account of kala-azar that contains historical background, etiology, symptoms, method of transmission, diagnosis and therapy. Lice and/or bedbugs are thought as possible vectors of the disease. Dogs are associated with the disease in children. A case history of a 7-years old girl with kala-azar is presented. She was treated with Stibonyl-Stibosan and complete cure occurred.

51. Blanc, G., Caminopetros, J., 1928. Nouvelle enquête sur la répartition du bouton d'Orient en Grèce. Un foyer continental en Laconie-Péloponnèse. *Archives de l'Institut Pasteur Hellénique* 2:14-35

Summary: The paper begins with an historical background of Oriental sore in Greece. Cardamatis is cited as the first to describe Oriental sore in Heraklion, Crete in 1909. The authors raise the question whether Oriental sore exists in Continental Greece, and if so, whether it is autochthonous or simply contracted from people who moved there from Crete, Asia Minor or elsewhere. To get an answer to this question the authors checked the records of 60 cases of Oriental sore in the "A. Sygros" hospital in Athens from 1915 to 1926. Forty-three of the cases were from Crete and 17 were from islands other than Crete and continental Greece. The results of the study showed the existence of an important focus of CL in Laconia, Peloponnese which was autochthonous and probably present before the arrival of refugees in Greece from Asia Minor.

52. Blanc, G., Caminopetros, J., 1928. Sur quelques cas de bouton d'Orient observés à Athènes. *La Grèce Médicale* 30(3-4):9-12.

Abstract (taken from *Tropical Diseases Bulletin*, 1929, v.26:327) : In the Archives of Syngros hospital there are records of the attendance of 93 cases of Oriental sore from 1916 onwards. Of these, 60 came from Crete and the remainder from other islands or from the mainland. As 17 cases were from Athens itself, it appeared probable that the disease occurred endemically in the city. A careful survey of certain quarter (Pangrati) of the city brought to light 4 cases, 2 of which were undoubtedly autochthonous. Certain cases of the disease appear to be abortive in that there is little development of the lesions. Such are readily overlooked. As an illustration of this type of disease, an inoculation experiment is mentioned. A volunteer 40 years of age was inoculated in the deltoid region with serum from a large sore on June 26, 1925. On November 15 of the same year there were present 3 tiny papules in which numerous *leishmaniae* were demonstrated. A year later the papules were still present, but showed hardly any increase in size. Parasites were still present and a rich culture was obtained.

53. Spyropoulos, N., 1928. Observations and conclusions on 96 cases of infantile kala-azar. *Kliniki*, 4(14):437-440 (in Greek).

Summary: Observations on 96 cases of infantile kala-azar are presented. Children between the ages of 18-months old and 3-years old made up most of the patients. Only 4 cases were in infants 6-to 9-months old. Most cases originated in Athens, especially the area of Patissia. Children of lower social class and poor hygienic conditions were most affected. Treatment with IV infections of tartar emetic (Stibyal) resulted in 41 cures, 4 improvements and 16 deaths. Leucopenia, decrease in the number of RBCs and splenomegaly were the most common symptoms. During treatment the number of WBCs showed a steady increase and the condition of liver and spleen changed.

54. Igoumenakis, G., 1928. A new treatment of Oriental sore. *Medical Progress* 33:34 (in Greek).

Summary: Brief presentation of a case of Oriental sore in a young person with 7 ulcers on the face and hands. The treatment, which was successful, was accomplished with high frequency radiation of electrical current.

55. Christomanos, A.A., 1928. Differential clinical diagnosis of splenomegaly. *Acta Medica Hellenica* 2:867-877 (in Greek).

Summary: The author reviews splenomegaly as a symptom of several diseases and points out that in the case of infantile kala-azar the spleen becomes exceedingly large along with enlargement of liver. Other symptoms of kala-azar include purple skin, anemia and drop in the count of WBCs to 100/cm³.

56. Ioannidis G.S., 1928. Quelques notes épidémiologiques sur le Département de Messénie. *Archives de l'Institut Pasteur Hellénique* 2:3-13.

Summary: Among other subjects, such as malacology, malaria, leprosy and typhoid fever, the report deals with kala-azar, its foci of infection, age and social condition of patients, season of infection, incubation period, domestic animals and biting insects. Two cases of Oriental sore from villages east of Kalamata are also discussed.

57. Doucas, C., 1929. Cent deux boutons d'Orient sur un même malade. *Bulletin de la Société Française de Dermatologie et Syphilis*, No.5:469-475.

(taken from *Tropical Diseases Bulletin*, 1929, v.26:751-752): A youth 18 years of age, an inhabitant of Crete, presented himself at Athens for multiple skin lesions which had been diagnosed as of Syphilitic origin and had failed to respond to antisyphilitic treatment. The disease commenced as a small papule appeared on various parts of the head and finally on the back of the hands and forearms. In 6 months there were present in all 102 lesions varying in size from that of a lentil to a two franc piece. A diagnosis of oriental sore was made by discovery of the parasite in many of the lesions and a complete cure was effected in 4 1/2 months by the injection into the base of all the lesions of solution of emetine hydrochloride.

58. Alexandrides, K., 1929. Ueber das Vorkommen von Kala-azar in Macedonien. *Archiv für Schiffs- und Tropisch-hygiene* 33:542-544.

Abstract (taken from *Tropical Diseases Bulletin*, 1930, v.27:90-91): The occurrence of infantile kala-azar in Macedonia was first noted by the author in 1925 when he diagnosed the disease in a case from Serres. Next year he saw a case from Drama and another from Salonica. He recorded these cases in March 1927 in the *Salonikier medizinische Wochenschrift*. Since then other cases have been noted in the districts of Serres, Drama, Kavala and Salonika. The details of 4 of these cases are given.

59. Pangalos, G.C., 1929. Un cas de leishmaniose infantile avec gangrène de la mâchoire inférieure. *La Grèce Médicale* 31(5-6):17.

(taken from *Tropical Diseases Bulletin*, 1930, v.27:99): A case of kala-azar in a child 6 years of age. The disease appears to have been contracted in Salamis, from which cases have no hitherto been recorded.

60. Kallergis, L., 1929. Observations on the treatment of a case of kala-azar. *Medical Progress* 34:298-299 (in Greek).

Summary: A case of kala-azar in a 2-years old child is described. Immediately after treatment with IV injection of tartar emetic the patient developed intense coughing, pallor on the face, cold sweating, reduction in pulse rate from 140 to 70 and lowering of body temperature by 1 °C. The author describes the possible reasons for these changes. To counteract the untoward effects of tartar emetic atropine was administered with beneficial results.

61. Cardamatis, J.P., 1929. La dengue en Grèce. *Bulletin de la Société de Pathologie Exotique* 22:272-292.

Summary: In 1927 and 1928 epidemics of dengue occurred mainly in Athens and the island of Aegina, 17 miles southwest of Piraeus. The author provides an account of these epidemics with observations on mosquitoes and sandflies. With regard to sandflies, *P. papatasi* is stated to be the commonest species in Greece; it is found up

to an altitude of at least 3,280 feet; feeds on man and warm-blooded animals; prefers resting places such as shaded rooms, stables, damp places in gardens, ditches, sewers, etc; appears in April, becomes numerous in May and June and again in the moist period of autumn. On the other hand, *P. minutus* is less common than *P. papatasi*; it is found in old buildings, and feeds on cold-blooded animals, such as lizards.

62. Cardamatis, J.P., 1929. Dengue fever in Greece. *Acta Medica Hellenica* 3:1-19 (in Greek).

Summary: As part of the etiology of dengue fever the author cites his observations over a 25-year period on the biology of phlebotomine sandflies and mosquitoes and incriminates both groups in the transmission of the disease along with other unknown factors or conditions. He also thinks that dengue and 3-day fever are the same disease or diseases closely related. The difference in the clinical expression of dengue and 3-day fever is dependent on the development of the virus in the insect gut, so that the mild, short illness is attributed to *P. papatasi*, and the longer and more intense one to the mosquito *fasciata* (= *Aedes aegypti*).

63. Igoumenakis, G., 1930. Le Bouton d'Orient et son traitement moderne. Masson et Cie, Libraires de l'Académie de Médecine, Paris (Ed.), 149 pp.

Summary: Major treatise on CL and its treatment. Includes history of the disease, morphology and biology of the pathogenic agent, characteristics of endemicity, modes of propagation, atypical clinical forms, blood changes, pathology, prognosis, prophylaxis and treatment. Forty-two pages are devoted to author's experiences with 33 cases of CL, each one illustrated with a clear photograph. Most of the cases originated in Crete but cases were also from Laconia, Mani, Patras, Acrata, Athens, Eleusis, Karystos, Zakynthos and Corfu. A few were traced to Asia Minor refugees. The ages of the patients ranged from 6- to 50-years old.

64. Blanc, G., Caminopetros, J., 1930. Sensibilité du spermophile de Macédoine (*Citellus citellus*) au kala-azar méditerranéen. *Comptes Rendus de l'Académie des Sciences* 191(1):800-802.

Summary: The ground squirrel *Citellus citellus* is very sensitive to the parasite of Mediterranean kala-azar. The sensitivity is the same whether the parasite is of canine or human origin, which favors the theory that the parasites of man and dogs are one and the same. The ground squirrel does not show a generalized infection when infected with the parasite of Oriental sore, indicating that the two parasites are different. The blood of the infected ground squirrel is rich in parasites and can infect biting arthropods. All these make *Citellus citellus* an experimental animal of choice in the study of kala-azar and its mode of transmission.

65. Igoumenakis, G., 1930. Demonstration of a case with Oriental sore on the right cheek. *Medical Progress* 35:394 (in Greek).

Summary: The sore, confirmed by finding *Leishmania* parasites, was on the cheek for 8 months. The author assures that Oriental sore is only a topical illness and in no way affects the general condition of a person, a claim expressed by some physicians.

66. Tsagridis, G., 1930. A case of kala-azar in an adult person. *Proceedings of the Medical Society of Athens*, p.124 (in Greek).

Summary: The patient is 40-years old from the island of Limnos. Symptoms of his illness began in June 1929 while working as laborer in Greek Macedonia. Initially, he was treated for malaria with quinine for 3 months without improving. Kala-azar was finally diagnosed by spleen biopsy by the Pasteur Institute in Athens. Antimonial therapy began immediately but the patient died from complications of pneumonia despite a temporary improvement. The importance of this report lies in the fact that kala-azar had never before been diagnosed in an adult person of his age.

67. Spyropoulos, N., 1930. A case of kala-azar in a 5-months old infant. *Proceedings of the Medical Society of Athens*, pp. 125-134 (in Greek).

Summary: Presentation of this case to the Medical Society for the questions it raised; first, how the disease was transmitted to such a young child, and second, the ability to determine the incubation period. The questions were

amply discussed by Caminopetros, Igoumenakis, Mihailidis, Lorandos and other distinguished panelists. There was a consensus that dogs, fleas, bedbugs and ticks are somehow involved in the transmission of the disease. Phlebotomine sandflies were also mentioned but were not singled out.

68. Igoumenakis, G., 1930. Demonstration of patient with Oriental sore on the right cheek. Proceedings of the Medical Society of Athens, pp. 244-245 (in Greek).

Summary: A young girl from Athens (Pangrati) with Oriental sore for 8 months is presented to the Medical Society of Athens. Microscopic examination of material from the ulcer, showed an abundance of *Leishmania*, whereas her blood was free of them. The author argues that Oriental sore is a topical illness with no ill effects on the rest of the body.

69. Blanc, G., Caminopetros, J., 1930. La transmission du kala-azar méditerranéen par une tique: *Rhipicephalus sanguineus*. Comptes Rendus de l'Académie des Sciences 191:1162-1164.

Summary: The larvae and nymphs of *R. sanguineus* become infected with kala-azar. The larvae and nymphs remain infected when they transform into the adult stage. This adaptation of *Leishmania* to *R. sanguineus* demonstrates that the tick is the intermediate host of the flagellate and therefore must be considered the vector of Mediterranean kala-azar. It remains to be tested whether the parasite is transmitted to vertebrates by bite or by infection of epidermal wounds with feces.

70. Adler, S., Theodor, O., 1931. Investigations on Mediterranean kala-azar. III. The sandflies of Mediterranean Basin. Distribution and bionomics of sandflies in Catania and District. Proceedings of the Royal Society of London (B) 108:464-480.

Summary: *P. perniciosus* is recorded from Greece but this species was absent in material from Greece in the London School of Tropical Medicine and the British Museum of Natural History. *P. perniciosus* was collected in Crète.

71. Cardamatis, J.P., 1931. Etude préliminaire sur les phlébotomes en Grèce. Bulletin de la Société de Pathologie Exotique 24:287-292.

Summary: In the summer and fall of 1930 a pandemic of 3-day fever and malaria in Nea Ionia, Nea Philadelphia and Nea Halkidona (villages north of Athens) provides the author an opportunity to study mosquitoes, sandflies and chironomids. He lists 9 species of phlebotomine sandflies known in Europe and the Mediterranean Basin of which 5 are present in Greece. *P. papatasi*, a species common in most parts of Greece, is suspected of being a vector of both 3-day fever and malaria from the fact that on several occasions an epidemic of 3-day fever was followed by an epidemic of malaria.

72. Nitzulescu, V., 1931. Contribution à l'étude des phlébotomes du groupe *minutus*. *P. parroti* et *P. minutus* str. sensu. Annales de Parasitologie Humaine et Comparée 9:111-121.

Summary: An examination of sandflies from Greece, including Crete, shows that the specimens key out to *P. parroti*, Adler and Theodor. A single male from Thessaloniki turns out to be *P. minutus* var. *rondani*, and constitutes the first time this species is reported in Europe. The paper provides details of taxonomic characters which distinguish these 2 species.

73. Lignos, A., 1932. Note sur le traitement du kala-azar infantile. Bulletin de la Société de Pathologie Exotique 25:1043-1044.

Abstract (taken from Tropical Diseases Bulletin, 1933, v.30:321): The author points out that during the 3 winters (November to April) of 1929 to 1932 there were diagnosed in the Isle of Hydra 35 cases of infantile kala-azar. All but one of these children were treated by intramuscular or subcutaneous injections of stibenyl and were cured except two, one insufficiently treated while the other died of pneumonia. The dose of each injection as a rule varied from 6 centigrams to 12 centigrams as the age varied from 6 months to 2 years. Each child received 30 injections, one every third day. Though occasionally the above dosage was exceeded no unpleasant results were noted. At the present time all the children are alive and well.

74. Papadakis, A., 1932. Review of immunity in some tropical diseases. *Acta Medica Hellenica* 6:956-971 (in Greek).

Summary: Immunity in malaria, leishmaniasis and trypanosomiasis is briefly reviewed. In the case of leishmaniasis, naturally acquired and passive immunity is discussed with references to experimental studies conducted on humans and animals.

75. Phinos, V., 1932. Die Behandlung von Kala-azar mit Neostibosan unter besonderer Berücksichtigung der Diagnosestellung mittels der Serumreaktion. *Archiv für Schiffs- und Tropisch-hygiene* 36:515-521.

Abstract (taken from *Tropical Diseases Bulletin*, 1933, v.30:320) : An account is given of the treatment of 10 cases of kala-azar in children 1 to 12 years of age by intramuscular injection of Neostibosan. As a rule an injection was given each day, a total of 8 to 10 in each case. The total quantity given varied with the weight from 0.38 to 3.0 gm. Of the 10 patients 5 recovered while 4 died and one was taken away without having shown any improvement after having had 0.65 gm. in eight injections. One died of noma, one of pneumonia and one of tuberculosis. It is concluded that the treatment is to be recommended because of the ease of administration, the cures it brings about and the shortness of the course, which makes it inexpensive.

76. Adler, S., Theodor, O., 1932. Vectors of Mediterranean kala-azar. *Nature* 130 (no.3283):507.

Summary: The authors have shown experimentally that *P. perniciosus* fulfills the criteria of a good vector of *L. infantum*. In Greece, however, *P. perniciosus* is absent in Argos and Athens, both areas main foci of infantile kala-azar. *P. major* is a common species in these areas and appears to be even a better vector of infantile kala-azar than *P. perniciosus*. This conclusion was reached when both species were fed on an infected dog. Of 31 *P. major* 25 became infected whereas of 119 *P. perniciosus* only 33 did.

77. Phinos, V., 1932. Beitrag zur Diagnose der allgemeinen Leishmaniose ("Ponos", "Kala-azar"). *Archiv für Schiffs- und Tropisch-hygiene* 36:594-598.

Abstract (taken from *Tropical Diseases Bulletin*, 1933, v.30:319) : As early diagnosis is of the utmost importance in the treatment of kala-azar, the author has reviewed the various methods of diagnosis. Apart from the actual finding of parasites by one of the recognized methods, of which spleen puncture, not always free from danger, is the most certain, he appears to place the greatest reliance on the antimony test. For this he employs a 4% solution of neostibosan. Of 78 known cases of kala-azar 71 gave a positive reaction while 67 cured cases only one was positive. Of 309 controls only 13 were positive. It was positive also in the case of 6 children showing signs of suggestive kala-azar who were brought to the clinic but did not return for spleen puncture.

78. Spyropoulos, N., Varagoulis, S.P., 1932. Fifty-two new cases of infantile kala-azar. *Aesculapius* 3(7):658-663 (in Greek).

Summary: The authors present 52 cases of kala-azar admitted in Evangelismos Hospital in Athens from 1929 to 1932. Diagnosis was based on spleen biopsy and presence of *Leishmania* parasites. The children were from all parts of Greece but 25 of them were from Athens. The ages of children ranged from 5-months old to 16-years old. Most were in the first 4 years of life. Their symptoms are described in detail. Treatment was done with 24 to 45 IV injections of tartar emetic (Stibyal). Of 40 children treated, 33 had complete cure and 7 died. The reasons for the death rate, which are other than the treatment itself, are explained.

79. Phinos, V., 1933. Sedimentation of erythrocytes in "Ponos" (kala-azar). *Bulletin of the Hellenic Pediatric Society* 2:136-145 (in Greek).

Summary: The rate of sedimentation of RBCs is tested in 66 children (40 male, 26 female) with kala-azar. The following results are obtained: sedimentation is faster in sick children compared to healthy children; rate of sedimentation depends on length of disease, degree of anemia, age of patient, presence or absence of complications; time of sedimentation gradually decreases during treatment; if during treatment sedimentation becomes faster it denotes some complication in the patients health; sedimentation time rarely reaches normal

level at the end of treatment; normal level in sedimentation time is reached several weeks after the end of treatment and only when complete health is restored.

80. Caminopetros, J., 1934. Une sero-floculation spécifique de la leishmaniose interne. Son utilité pour le diagnostic de l'infection et pour le contrôle du traitement. *Comptes Rendus de la Société de Biologie* 115:910-912.

Abstract (taken from Tropical Diseases Bulletin, 1934, v.31:657-658) : If 2 cc of a 1%-4% aqueous solution of sulfarsenol is added drop by drop to the serum of a case of kala-azar it will be found that after the addition of the first drop a milky colour is produced. This increases in intensity and becomes a definite flocculation when 7 to 20 drops have been added. The addition of more drops after the maximum flocculation has been reached causes it to diminish and finally disappear. With sera from healthy individuals or from those with diseases other than kala-azar the slight flocculation which may be produced at the first drop has completely disappeared by the third or fifth. If to the solution of sulfarsenol to be used are added 3 or 4 drops of a serum which is known not to give the flocculation this will prevent the reaction with kala-azar sera. The reaction appears very early in kala-azar infections and does not disappear till a definite cure has resulted. The author claims that the test is more reliable than the antimony test.

81. Adler, S., 1934. Present status of leishmaniasis. *Medical Athens* 45: 696-697 (in Greek).

Summary: Lecture by Prof. Adler based on a 6-month work on VL in Crete. In essence he says that dogs can have parasitemia without showing signs of the disease. In man, parasites are absent in the skin and scarce in the blood. In Crete, the probable vectors of VL is *P. major* and rarely *P. perniciosus*. In the case of CL, the probable vector is *P. sergenti*; *P. papatasi* cannot transmit the disease. The development of the parasite in the vector is also discussed.

82. Caminopetros, J., 1934. Sur la faune des phlébotomes de la Grèce. Leur distribution dans les foyers de kala-azar. *Bulletin de la Société de Pathologie Exotique* 27: 450- 455.

Summary: The report is based on a 4-year (1931-1934) study of sandfly biology in known foci of kala-azar in Athens, Calamata, Mani, Kyparissia, and the islands of Spetses and Syros. The emphasis is on the attraction of sandflies to dogs and human habitations. Of the 5 species collected, *P. major*, *P. perniciosus tobbi* and *P. parroti* var. *italicus* were found associated with kennels. However, the case of *P. parroti*, which feeds exclusively on cold-blooded animals, shows how difficult it is to draw conclusions on the relationship between sandflies and hosts.

83. Caminopetros, J., 1934. New epidemiological and experimental data on leishmaniasis in Greece. *Medical Athens* 43: 653-659 (in Greek).

Summary: The author discusses the relationship between human and canine kala-azar. The report is based on a study carried out in Athens, Peloponnese and the islands of Spetses and Syros and is already reported earlier.

84. Caminopetros, J., 1934. On a specific and sensitive serological test for the diagnosis of visceral leishmaniasis. *Medical Athens* 10: 140-141 (in Greek).

Summary: Because of the difficulty and risk associated with spleen biopsy as a diagnostic method for VL, the author introduces a new approach. It consists of diluting a patient's serum with distilled water, adding drops of Ureastibamine and looking for flocculation as a positive test. The method also worked by adding a trivalent arsenic compound (sulfarsenole) instead of Ureastibamine. With minor exceptions, the reaction is considered specific for kala-azar.

85. Caminopetros, J., 1934. Nouvelles données épidémiologiques et expérimentales sur les leishmanioses en Grèce. *Bulletin de la Société de Pathologie Exotique* 27:443-450.

Summary: Epidemiological studies in Athens, Calamata, western Mani, Poros, Spetses and Syros demonstrated presence of kala-azar in humans and dogs. The disease in Athens is more common in children between ages 1 to 3 (34/46 cases).

86. Ferrabouc, L., 1934. Epidemiology of 3-day fever. *Medical Athens* 15: 214-215 (*in Greek*).

Summary: Symptoms of 3-day fever are detailed. Tiredness and prolonged recovery are main characteristics of the disease. History of disease is discussed and stated that in Greece it was first reported from the Ionian Islands during the British occupation. Initially, it was thought to be dengue to which it resembles. It was also confused with influenza. The causative agent is a virus which is only found in the blood and not in secretions of patients. Phlebotomine sandflies are incriminated as vectors based on epidemiological evidence and transmission studies. The article includes also description of sandflies, provides information on their flight range (limited to within 50 m from their breeding sites), states that they live in lower elevations (below 450 m), describes their life cycle, and gives methods of protection. No literature is cited in the article.

87. Caminopetros, J., 1934. Les lésions cutanées du chien revêtent les caractères du Bouton d'Orient. *Bulletin de la Société de Pathologie Exotique* 27: 527-534.

Summary: The cutaneous lesions of dogs which appear like Oriental sore are secondary localization of a general infection due to *L. donovani*.

88. Papantonakis, E., 1935. Leishmaniasis in Hania District, Crete. *Medical Athens* 69:274-278 (*in Greek*).

Summary: The English medical officer Storney was the first to describe a case of kala-azar in Crete in 1907. The author discusses 50 cases of kala-azar in young children that occurred between 1923 and 1929. Another 172 cases from 1930 to 1934 were confirmed and treated; of these, 112 were from Hania. The cases are classified according to age and are related to VL of dogs. Cases of CL are also described by the author who calls this disease common in the district of Hania where it was known for a long period of time.

89. Lorandos, N., 1935. Symptomatology of 3-day fever and its differential diagnosis from dengue fever. *Medical Athens* 79: 445-447 (*in Greek*).

Summary: Sandfly, *papatasi* or 3-day fever was first recognized as distinct entity in 1907. The fever was described by Pym in 1806 and Pick in 1886. Symptoms of disease are discussed and transovarial transmission by the sandfly is mentioned.

90. Adler, S., Theodor, O., 1935. Investigations on Mediterranean kala-azar. VIII. Further observations on Mediterranean sandflies. *Proceedings of the Royal Society of London (B)* 116:505-515.

Summary: The authors report a 3-week collection of sandflies in Athens, Kavala and Argos. In Athens the species *P. papatasi*, *P. sergenti*, *P. major*, *P. parroti* and *P. minutus* were collected. In Kavala *P. papatasi*, *P. sergenti*, *P. macedonicus*, *P. permiciosus* var. *tobbi*, *P. major*. In Argos, *P. papatasi*, *P. sergenti*, *P. major*, *P. chinensis*.

91. Papantonakis, E., 1935. Observation on leishmaniasis in the district of Canea (Crete). *Annals of Tropical Medicine and Parasitology* 29:191-197.

Summary: Hania in Crete was one of the most important foci of VL and CL in Greece in the 1930's. Some 50 cases/year were diagnosed and treated. Diagnosis was based on smears from spleen punctures and Napier's formol-gel reaction. Cases of VL occur all year and it is more common in infants. *P. major* is the probable vector of the disease which is related to the presence of dogs since their destruction appreciably changed its incidence. CL has a different distribution from VL in the district of Hania. All ages are susceptible to the disease. Various treatments are used for CL but the application of a 10% pulverized vegetable charcoal suspended in concentrated sulfuric acid gives the best results.

92. Lorandos, N., 1935. The epidemic of Drapetsona and Kokkinia. Medical Athens 80: 457-459 (in Greek).

Summary: A widespread epidemic of an illness in Drapetsona and Kokkinia (District of Piraeus) is discussed. The epidemic which lasted from August to November of 1935 was initially attributed to sandfly fever. The author, however, reviews sandfly fever and its vector, *P. papatasi*, citing the work of Ferrabouc and others, and concludes that the illness is dengue and not sandfly fever. In support of this, clinical and epidemiological data are presented, including analysis of 2 cases.

93. Lorandos, N., 1935. Discussion on dengue and sandfly fever. Medical Athens 81: 478-479 (in Greek).

Summary: The author in discussing the great epidemic in Drapetsona and Kokkinia argues against the claims of Dr. Alevizatos that it was sandfly fever. The death rate (24 deaths/45,000 cases), the length of illness (5 days and a few hours) and the fact that *Stegomyia* mosquitoes, sent to Pasteur Institute in Paris from Kokkinia, transmitted the disease to volunteers lead to the inescapable conclusion that the epidemic was dengue fever and not sandfly fever.

94. Caminopetros, J., 1935. Addition à la liste des phlébotomes signalés pour la première fois en Grèce. Bulletin de la Société de Pathologie Exotique. 28: 44-46.

Summary: Records of sandfly collections from Athens (6 spp), Piraeus (3 spp.) and the island of Poros (8 spp.) are provided. The author lists 3 species collected for the first time in Greece; they are *P. sergenti* var. *alexandri*, *P. chinensis* var. *simici* and *P. minutus*, var. *rondani*.

95. Parrot, L., 1935. Notes sur les phlébotomes. XIV. Phlébotomes de Grèce. Archives de l'Institut Pasteur d'Algérie 13: 249-256.

Summary: The author describes 8 sandfly species from 7,622 specimens provided by J. Caminopetros who collected them in various geographic areas of Greece, both continental and insular, between 1932 and 1934. A new species, *P. bruchoni*, is described based on 6 females and 26 males.

96. Makkas, G., Spiliopoulos, G., Apollonidou, K., 1935. Granulomatous reticulocytes in kala-azar, chronic malaria, and in peculiar severe erythroblastosis. Bulletin of the Hellenic Pediatric Society 4:119-127 (in Greek).

Summary: In cases of kala-azar the granulomatous reticulocytes show an increase of 1-2%. There is a gradual decrease in their number during treatment and become totally absent when health is restored. In any kind of anemia, increased or decreased presence or complete absence of granulomatous reticulocytes is an indication of the state of health of the patient. The total absence of granulomatous reticulocytes in several types of anemia can be used diagnostically to confirm aplastic anemia or to exclude it if they are present.

97. Lorandos, N., Caminopetros, J., Papadakis, A. et al., 1935. Discussion on the epidemic in the District of Piraeus. Proceedings of the Medical Society of Athens, pp. 639-691 and 705-728 (in Greek).

Summary: Two-part panel discussion of the epidemic in Drapetsona and Kokkinia (District of Piraeus) with participation of many physicians. The chief of infectious diseases G. Alevizatos attributed the epidemic to sandfly fever. The majority of the panelists, however, argued in favor of dengue fever. N. Lorandos reviews sandfly fever and its vector *P. papatasi*. This species is active from May to September, maintains the virus transstadially and passes the winter as 4th-instar larva. The disease affects non-immune individuals, especially those coming to Greece from countries where sandfly fever is not endemic. The disease appears suddenly and its course is short. The sandflies can acquire the virus only during the first day of illness and are able to transmit it only 8 days afterwards. The epidemic in Piraeus started in August and continued until November. This fact plus clinical and epidemiological criteria convinced most panelists that the epidemic was dengue fever. If both sandfly and dengue fever occurred during the epidemic, those cases later than September were entirely dengue fever.

98. Makkas, G., Angelopoulos, Th., 1935-1936. Serodiagnosis of "Ponos" (Kala-azar) by the Compliment Fixation test. Archives of the Pediatric Clinic of the University of Athens 2:1-32 (in Greek).

Summary: The compliment fixation (CF) test is found to be a good diagnostic method of infantile kala-azar which can be used to avoid spleen biopsy. The cross reaction of this test in syphilis patients can be taken care by the use of Wassermann test which is always negative in "Ponos". The CF test becomes increasing weaker during treatment and negative eventually and thus it can be used to evaluate the progress of the disease and determine the patient's complete cure. The test is also potentially useful in distinguishing the various forms of leishmaniasis since the CF test using antigen from the spermophile ground squirrels infected with *L. donovani* is negative in patients with *L. infantum*.

99. Vezyroulis, A., 1935-1936. The hypocholesterolemic syndrome in "Ponos" (Kala-azar) and its etiology. Archives of the Pediatric Clinic of the University of Athens 2: 277-366 (in Greek).

Summary: Between February 1932 and June 1934, 92 children with kala-azar are admitted to the Pediatric Clinic of the University of Athens. An investigation is conducted to determine the choloerythrin in the blood serum; the resistance of RBCs to hypotonic solutions of sodium chloride; the cholesterol in the blood serum and in the RBCs. In unattended cases of kala-azar the choloerythrin in the serum is elevated which means that anemia in "Ponos" is both aplastic and hemolytic. When the number of RBCs is low, choloerythrin is increased. Of 92 cases 76 have RBCs with lower resistance. Generally, resistance of RBCs and anemia in "Ponos" results in hypocholesterolemia regardless of the degree of anemia. The cholesterol of the blood serum is in direct relationship to the anemia of the patients as the number of RBCs decreases so does the cholesterol level. On the other hand, the cholesterol of RBCs in all stages of the disease remains within physiological levels. The cholesterol of the liver, bladder and lungs is slightly below physiological levels, whereas the cholesterol of spleen and especially of the adrenal glands is significantly lower. It is concluded that the lower production of cholesterol by the main cholesterol-producing organs, due to the toxic effects of the etiologic agent of "Ponos" is the reason for the observed lower level of cholesterol in the blood serum.

100. Koutsodimos, J.A., 1935-1936. Thrombopenia in "Ponos" (Kala-azar). Archives of the Pediatric Clinic of the University of Athens 2:202-208 (in Greek).

Summary: The report is based on 45 cases of kala-azar in children ranging in age from 15 months to 12 years. The study shows a significant decrease in the number of platelets in the initial examination of patients upon entering the hospital and later before initiation of treatment. During treatment the number of platelets increases in 26 cases and continues to remain low in 9. In some cases the number of platelets remains low despite the complete recovery of the patient. Among the 45 cases, there are 6 with nose hemorrhage and one with skin hemorrhage. The number of platelets does not change despite complications and transfusions.

101. Makkas, G., 1935-1936. Manifestation of thrombopenia in "Ponos" (kala-azar). Archives of the Pediatric Clinic of the University of Athens 2:208-212 (in Greek).

Summary: A boy 5-years old from the island of Skopelos is admitted to the hospital with kala-azar. The importance of this case lies in the fact that the case was under observation from the very beginning when symptoms of the illness appeared. On the eighth day of illness an hemorrhagic rash in the body and limbs develops and on the fourteenth day the number of platelets is 27000/cc. A complete clinical and laboratory examination is made and the results are provided in detail. It is believed that the large decrease in the number of platelets can be used as a diagnostic technique in suspected cases of "Ponos".

102. Makkas, G., Filippakis, E.A., 1935-1936. Rare hemorrhagic manifestation in "Ponos" (kala-azar). Archives of the Pediatric Clinic of the University of Athens 2:212-214 (in Greek).

Summary: Another case of kala-azar in a 7-years old boy from Kimi (Euboea) who is sick for 2 months. Clinical and laboratory data are presented as well as the evolution of the illness day by day. On the sixth day and while the boy is afebrile light symptoms of meningitis and complete retention of urine develop. It is the first case of meningitis reported in a case of kala-azar in a child.

103. Mayer, M., Malamos, B., 1936. Experimentelle Beiträge zur Leishmanioseforschung. Archiv für Dermatologie und Syphilis 174:225.

Abstract (taken from Tropical Diseases Bulletin, 1937, v.34:40-41) : This paper gives an account of studies of Oriental sore and kala-azar in Canea in Crete, where the diseases have already been reported upon by Papantonakis. As was noted by this observer, oriental sore occurs in the old Turkish quarter of the town where the houses are crowded into narrow streets, while kala-azar in human beings and dogs is found only on the newer periphery of the town where the houses are separated from one another by open spaces. The general features of these diseases are the same as have been described from other endemic foci. Of special interest is the study of kala-azar in dogs and the confirmation of the statements that have been made regarding the tendency to cutaneous ulceration and the general distribution of *leishmania* throughout the skin of the body, sections of perfectly healthy skin, as judged by its appearance, showing nests or collections of parasites in large numbers. The intensity of infection and the degree of serological change in dogs appear to have little relationship. The formol-gel test was carried out on the serum of over 600 dogs with a positive result in 42, of which only 33%, were proved to be infected. Conversely, known infected dogs do not all give a positive reaction. A number of cases of kala-azar and Oriental sore, mostly recovered cases, were tested for a skin reaction by intracutaneous injection of antigens of killed flagellates from surface cultures. Of 23 Oriental sore cases tested with *Leishmania tropica* antigen 18 gave a positive reaction. Of 12 of these cases tested with *L. donovani* antigen 6 were positive. Of 3 early cases of kala-azar tested with both antigens not one was positive, whereas of 31 recovered cases 17 were positive with *L. donovani* antigen while 12 of these tested with *L. tropica* antigen 7 were positive. As regards transmission of the disease it was noted that of sandflies in the oriental sore area only *P. sergenti* and *P. papatasi* occurred, while the recognized vectors of kala-azar, *P. major* and *P. perniciosus*, were absent. The last 2, however, were present in the peripheral areas of the town where kala-azar occurs. For the prevention of the disease it does not seem possible to carry out measures against the sandflies. Reliance have to be placed on early diagnosis of cases and the destruction of sick dogs, which at present continue to live in close association with their owners.

104. Parrot, L., 1936. Notes sur les phlébotomes. XIX. Phlébotomes de Crète. Archives de l'Institut Pasteur d'Algérie 14: 50-52.

Summary: Brief taxonomic discussion on specimens (6 spp.) sent to the author by J. Caminopetros who collected them in Kato-Horio (Ierapetra) in Sept. 1935. The emphasis is on one female of *P. vesuvianus* which the author considers to be *P. larroussei*. The other species were keyed out to *P. papatasi*, *P. major*, *P. chinensis*, *P. sergenti* and *P. parroti* var. *italicus*.

105. Papadakis, A., 1936. On leishmaniasis. Medical Athens 84: 14-18 (in Greek).

Summary: In this introductory article the author reviews the history of leishmaniasis since 1835 with the report of 2 cases of splenomegaly by Roeser, physician to king Othon of Greece. In the same article he describes the various forms of leishmaniasis, their geographical distribution, taxonomy and biology of *Leishmania* parasites, morphology, culture, reservoir hosts, animals susceptible to parasites and mode of transmission.

106. Papadakis, A., 1936. On leishmaniasis. Medical Athens 85: 26-29 (in Greek).

Summary: Theories of *Leishmania* transmission and transmission by phlebotomine sandflies are presented.

107. Papadakis, A., 1936. On leishmaniasis. Medical Athens 86: 45-49 (in Greek).

Summary: Description of *Leishmania* development in sandflies, and general conclusions on their role in the transmission of the disease.

108. Papantonakis, E., 1936. Die Leishmaniosen in der Provinz Messinia (Peloponnes, Griechenland). Archiv für Schiffs- und Tropisch-hygiene 40:141-146.

Abstract (taken from Tropical Diseases Bulletin, 1936, v.33:500) : In the mountainous north-west part of the Grecian Province of Messinia kala-azar in young children and dogs has been endemic for many years. In the

flatter south-eastern parts the disease does not occur. Sandflies of the *Phlebotomus major* group were taken in the districts where the human and canine disease occurred.

109. Lepine, P., Bilfinger, F., 1936. Recherche de la leishmaniose viscérale chez les chiens de fourrière d'Athènes. Bulletin de la Société de Pathologie Exotique 29:131-135.

Abstract (taken from Tropical Diseases Bulletin, 1936, v. 33:508) : The authors have examined for evidence of *leishmania* infection 498 stray dogs destroyed at the pound in Athens. Smears of the liver, spleen and bone marrow were searched for parasites in all cases, while in 222, cultures were attempted from the blood or spleen. The result was that 55 cases of canine kala-azar were discovered. Parasites were found 50 times in the bone marrow taken from the sternal end of the rib, 42 times in the spleen and 21 times in the liver. Of the cultures, 21 were positive and of these 2 were from cases which had not shown parasites in the smears. Various serological tests were carried out with the blood of the dogs. In the known cases of kala-azar the reactions were positive, while positive results were obtained also in a number of cases in which *leishmania* had not been found. If these are to be regarded as cases of latent infection the percentage of infections would be raised from 11.2 to 15.8. It is doubtful, however, if such a conclusion is justifiable.

110. Filippakis, E.A., 1936. Serum calcium and phosphorus in "Ponos", peculiar erythroblastosis, malaria, dysenteriform enterokolitis and various other illnesses. Aesculapius, 7(3):145-160 (in Greek).

Summary: A general diminution of calcium and phosphorus in 8 cases of kala-azar is described. However, the level of these 2 elements increased progressively and attained quickly normal values with specific treatment of the disease.

111. Boudouris, K., 1936. Changes of the gastric juice during the course of leishmaniasis and treatment. Medical Progress 41:29 (in Greek).

Summary: The report briefly describes the changes of gastric juice in infantile kala-azar. The acidity of the juice is lower during the course of the disease and before treatment is initiated. During treatment the acidity improves gradually in a little more than one-half of the cases. However, in some patients the acidity remains low during and after treatment; these are cases with serious disease. In cases ending in death the acidity is significantly low. The author recognizes that in some patients the acidity is independent of disease and treatment and is subject to changes regardless of them.

112. Papantonakis, E., 1936. Observations sur les leishmanioses dans la Préfecture de la Canée (Ile de Crète). Bulletin de l'Office International d'Hygiène Publique 28:852-860.

Abstract (taken from Tropical Diseases Bulletin, 1937, v.34:41) : A short account of kala-azar and Oriental sore in Canea, Crete, similar to that previously published.

113. Papadakis, A., 1936. On leishmaniasis. Medical Athens 87: 56-62 (in Greek).

Summary: Description of sandfly species, their geographical distribution, biological observations, and morphological identification based on spermatheca (females) and genitalia (males).

114. Papantonakis, E., 1936. Leishmaniasis in the province of Messinias. Medical Athens 90: 101-103 (in Greek).

Summary: An epidemiological study of leishmaniasis in Messinia (Peloponnese) shows the close connection between human VL and CL to the leishmaniasis of dogs. The author cites general observations and concludes that sick dogs are linked to the cases of infantile kala-azar.

115. Malamos, B., 1937. Diagnostische Intrakutanreaktionen bei den Leishmaniosen. Archiv für Schiffs- und Tropisch-hygiene 41:240-243.

Abstract (taken from Tropical Diseases Bulletin, 1937, v.34:537-574) : In an earlier paper on leishmaniasis in Canea certain experiments on skin reaction following intracutaneous injection of *leishmania* antigen in cases of kala-azar and oriental sore were described. In the present paper a more detailed description of these is given and the results are discussed from the point of view of the possibility of a skin test as a diagnostic procedure. As previously noted, the reaction is a group one, but *L. donovani* antigen will give a positive reaction in cases of kala-azar more frequently than in cases of oriental sore and vice versa, provided the infections in both cases have been of sufficient standing. Early cases fail to give a reaction.

116. Fotinos, G., Fotinos, P., 1937. Oriental sore on the left elbow and the middle finger of the right hand. Archives of "A. Sygros" Hospital, pp. 225-231 (in Greek).

Summary: Demonstration and panel discussion of a case of Oriental sore in male 35-years old from Crete. Microscopic examination of material from the sores revealed the presence of *Leishmania* parasites. The authors explain the reasons why they used tartar emetic and not diathermy to treat the patient.

117. Spyropoulos, N., Kouris, P., 1937. The Auricchio method and other methods for diagnosis of kala-azar. Bulletin of the Hellenic Pediatric Society, pp. 226-230 (in Greek).

Summary: The Auricchio test is singled out among the various methods used to diagnose kala-azar. It consists of a macroscopic flocculation in test tube and a microscopic flocculation on a slide. The method was tested by the authors on 34 confirmed cases of kala-azar. It was positive in 18 cases before initiation of treatment. In 16 other cases with treatment in some stage, 3 had negative reaction after 20 injections of neostibosan, and one had slightly positive macroscopical and negative microscopical reaction. After 25 injections of the drug there was negative macroscopical and positive microscopical reaction. The authors concluded that the Auricchio test is positive only in cases of kala-azar and consider it as more sensitive and superior to other used methods, such as the Chopra and the Gate-Papacosta tests.

118. Igoumenakis, G., 1938. Beitrag zur Studie der Beziehungen zwischen Haut-und Eingenweide-Leishmaniose (Orientbeule und kala-azar). Archiv für Dermatologie und Syphilis 178:133-151 tin, 1939, v.36:453).

Abstract (taken from Tropical Diseases Bulletin, 1939, v.36:453) : The author gives a detailed account of several atypical cases of oriental sore in Greece which he regards as new types of the disease. The lesions in these cases were multiple and were of long duration. In one case there was a history of 15 years. In a case of kala-azar in a child there appeared a number of skin lesions resembling oriental sore. Though *leishmania* were not found in these it is concluded that they were cutaneous manifestations of the generalized infection. This case leads the author to discuss the general question of the relationship of oriental sore to kala-azar. He favors the view that the parasite of oriental sore in endemic foci of the disease is actually that of kala-azar which through many skin passages has decreased in virulence and has thus ceased to produce generalized infections. The parasites from sporadic cases of the disease have, however, retained much of their virulence, as evidenced by their power of producing visceral infections in experimental animals. This long and somewhat discursive paper is illustrated by a series of excellent photographs showing the types of lesions described.

119. Kirimlidis, D., 1938. Beobachtungen ueber infantile kala-azar in der Provinz Argolis (Peloponnes, Griechenland). Muenchener Medizinische Wochenschrift 85:1143-1146.

Abstract (taken from Tropical Diseases Bulletin, 1938, v.35:859) : During a 3-year residence in the Province of Argolis in the Peloponnesus, Greece, the author encountered over 200 cases of infantile kala-azar, of which he was responsible for the treatment of 80. The disease is widespread in the eastern half of the province, where it is well known to the people, who recognize it on account of its main symptoms of fever, anemia, enlargement of the spleen and petechiae, the local name of which suggest flea bites, which they resemble. Though malaria is endemic in the same area cases of double infection are rare. In one case a diagnosis of a mixed infection was made by the discovery in material from spleen puncture of both *leishmania* and the parasite

of benign tertian malaria. The disease in its clinical features, complications and response to treatment with neostibosan resembles infantile kala-azar as it occurs in other endemic areas. It is noted that in one particular group of villages there were so many cases that the disease could be regarded as having assumed an epidemic form, hardly a single household having escaped the infection.

120. Saratsis, N., 1938. Some observations on the treatment of kala-azar. *Aesculapius*, 9(7):459-468 (in Greek).

Summary: The author, a Pediatrician, reports on the presence of kala-azar in the area of Volos (Central Greece) and estimates that during a 15-year period there were some 500 cases of this disease, mostly in children. His own patients ranged in age from 10-months old to 8- years old. Fifty-two cases were treated with stibyl and 19 with Neostibosan in small doses and a relatively prolonged period of time. Despite the treatment, an 8-month old girl and a 2-year old boy died unexpectedly after showing initially significant improvement. The author presents in detail clinical data and the circumstances under which death occurred. Their death is attributed to the cumulative action of antimonial compounds and their tendencies to remain over prolonged period of time in the internal organs, especially the liver.

121. Spyropoulos, N., Bartsokas, S., 1938. Sternal puncture in kala-azar. *Medical Progress* 43:259-260 (in Greek).

Summary: Sternal puncture proves an excellent method in search of *Leishmania* parasites in 26 cases of kala-azar. In a panel discussion following the report other physicians add 23 more cases of kala-azar in which diagnosis was made by sternal puncture. The consensus is that sternal puncture is superior to spleen and lymph node biopsy and thus a method of choice for the diagnosis of kala-azar.

122. Langeron, M., 1938. Evolution de microfilaires nocturnes chez les phlébotomes. *Annales de Parasitologie Humaine et Comparée* 16:477-478.

Summary: The author reports the finding of *microfilariae* in the stomach contents of sandflies captured inside a house in Heraklion, Crete in 1922. Three persons living in the house were screened for *microfilariae* and one was found positive. This person had resided for a long time in Alexandria, Egypt where *W. bancrofti* is endemic. The sandflies were not maintained long enough to determine whether the *microfilariae* were capable of developing in them. They were 426 *P. papatasi*, 25 *P. sergenti*, 2 *P. minutus* and 1 *P. perniciosus*.

123. Adler, S., Theodor, O., Wittenberg, G., 1938. Investigations of Mediterranean kala-azar. XI. A study of leishmaniasis in Canea (Crete). *Proceedings of the Royal Society of London (B)* 125: 491-516.

Summary: The epidemiology of leishmaniasis in Hania, Crete is discussed. Human VL, canine VL and the sandfly *P. major* have an identical distribution in Hania. The clinical condition of naturally infected dogs is improved and the infection rate of *P. major* fed on these animals is reduced by placing the dogs on a diet of fresh meat without any further treatment. Infected dogs have difficulty in barking due to the infiltration of their vocal chords by macrophages and plasma cells. *P. papatasi* and *P. sergenti* fed on cutaneous lesions of human beings had different rates of infection; *P. papatasi* had much lower rates than *P. sergenti*. It is concluded that in Hania the principal vector of *L. tropica* is *P. sergenti*.

124. Ristorcelli, A., 1939. Sur les phlébotomes de l'île de Crète. *Annales de Parasitologie Humaine et Comparée*, 17:355-358.

Summary: The publication discusses the taxonomy of 138 phlebotomine sandflies sent to Prof. Brumpt by Papantonakis who collected them in Hania, Crete. They are keyed out to *P. chinensis*, var. *simici* (20 specimens), *P. major* (24 specimens), *P. papatasi* (81 specimens), and *P. sergenti* (13 specimens). These and 4 additional species known in Crete are discussed taxonomically with emphasis on *P. parroti* var. *italicus* which showed differences in the buccal armature in male specimen from Heraklion and Italy.

125. Lorandos, N., 1939. Visceral leishmaniasis in the adult. *Medical Athens* 134: 485-490 (in Greek).

Summary: Presentation of 6 cases of VL admitted to "Evangelismos" hospital in Athens. Diagnosis, clinical forms of the disease, and therapy are described.

126. Stephanidis, T., 1939. Corfu *Phlebotomus* found in human habitations. *Bulletin of Entomological Research* 30: 303- 304.

Summary: A total of 1066 sandflies are collected in 6 different localities in Corfu during 1936 and 1937. They are identified as *P. papatasi*, *P. major*, *P. sergenti*, *P. minutus*, *P. perniciosus* var. *tobbi*, and *P. parroti*. *P. papatasi* is by far the most abundant in human habitations. This species is active day and night. *P. major* and *P. sergenti* are plentiful in the countryside and extremely rare in towns. *P. minutus*, *P. perniciosus* var. *tobbi* and *P. parroti* are found during the day. The remaining 2 species are captured most frequently at night.

127. Lorandos, N., 1939. Visceral leishmaniasis in the adult. *Medical Athens* 134:485-490 (in Greek).

Summary: Although VL is a disease of infants and young children in Greece, cases in adults have occurred. Thirteen such cases are described. The ages ranged from 15-to 60-years old. Diagnosis, clinical data and treatment are also included in the article.

128. Livieratos, S.G., Simonetos, A.G., 1939. Mixed malaria and kala-azar infections. *Medical Progress* 44:101-107 (in Greek).

Summary: The authors introduce the subject by reviewing the international literature on mixed infections with protozoan parasites and conclude that it is a rare but possible event. Their own clinical study in Greece on 1756 cases of malaria and 25 cases of kala-azar showed the existence of concurrent malaria and kala-azar infections in 5 cases. They believe that there is no antagonism between the 2 parasites, as some investigators claim, and provide arguments in support of this in 4 of the 5 cases studied.

129. Papantonakis, E., 1939. Bekämpfungsmassnahmen der kala-azar in Canea/Kreta. *Archiv für Schiffs- und Tropisch-hygiene* 43:273-275

Abstract (taken from *Tropical Diseases Bulletin*, 1939, v.36:1028) : The close association of human and canine kala-azar in Canea in Crete has strengthened the belief that the dog is acting there as the reservoir of infection which is transmitted to human beings by sandflies. The destruction of the majority of the dogs in the district of Canea in 1933 was followed by a markedly lower incidence of human kala-azar in the following year. Accordingly regulations were drawn up by the Health Department insisting on an inspection of all dogs of Canea in April of each year. Each dog was examined clinically as well as serologically by the formol-gel test. All sick dogs and those giving a positive test were killed. Furthermore, if in any village of the district a case of human kala-azar occurs, all the dogs of the village are to be at once destroyed. Anyone who objects to his dog being killed may take it for test to the Hygiene Centre in the town as in the case of the town dogs. The residents of such a purged village can only acquire new dogs in the months of January or February, while the animals must be under 2 months of age and must have come from villages where no cases of the human disease have been reported. The general inspection of dogs in Canea was first carried out in April 1938. Of 1,115 dogs 229 gave a positive formol-gel test. Of these 70% showed no signs of disease, 25% merely some wasting and loss of hair and only 5% the characteristic signs of canine kala-azar.

130. Mylonas, N.G., 1939. Contribution of the Takata-Ara reaction in the serodiagnosis of leishmaniasis. *Aesculapius*, 10(8):455-470 (in Greek).

Summary: The author introduces the subject of leishmaniasis by reviewing the history of the disease and then goes into its diagnosis by spleen biopsy, sternal puncture and other difficult and risky methods which compelled investigators to look into serodiagnostic techniques. The Brahmachari, Ray, Gate- Papacosta, Chopra-Gupta-David, Nat. Larrier-Grim. Richard, Formo-Sribosan, Auricchio-Chieffi and Caminopetros flocculation techniques are described. The author finally, introduces the Takata-Ara flocculation technique as an useful tool for diagnosis of leishmaniasis. The technique is based on the addition of 0.5% Mercury dichloride into the serum of patients suspected of having leishmaniasis.

131. Botzaris, A., 1939. Beitrag zur Hamatocytologie der "Leishmaniosis infantum" in Griechenland. *Folia Haematologica* 62:215-224.

Abstract (taken from Tropical Diseases Bulletin, 1940, v.37:347) : The author has studied in Greece a series of 30 cases of infantile kala-azar from the point of view of the changes which are to be observed in the blood. He has noted the usual anemia and leucopenia with lymphocytosis and has set out in tabular form the various cells observed and their percentages. Certain observations were also made on the character of the fever and other symptoms. Those interested in the blood changes in this disease will find in the paper much detailed information.

132. Hallmann, 1943. Beitrag zum Pappataciefieber 1941 auf der Balkanhalbinsel. *Deutsche Tropische Zeitschrift* 47: 64-68.

Abstract (taken from Tropical Diseases Bulletin, 1943, v. 40:694-695) : An outbreak of a mild type of sandfly fever occurred among the troops stationed in the islands and mainland of the Athens region. It lasted from June to September, but most of the cases were seen in July and August; in these two months 20% of the troops in the area were attacked. Other cases must have occurred in men stationed in outlying posts. The report deals with 86 cases treated in hospital. In 93% of the cases the fever lasted 2 or 3 days, in the rest it lasted 4 or 5 days. The axillary temperature seldom exceeded 38 to 39 °C; in 3 cases it was more than 40 °C. There was conjunctival infection in 35% of the patients; the face was flushed. Gastro-intestinal disturbances occurred in 10% during the febrile period. In 82% there was headache, localized in the orbital, frontal and temporal regions. There was no pronounced bradycardia. There were no complications, but neuralgic pains sometimes persisted for a few days after the fall of the temperature. Malaria, dysentery, and influenza were the conditions calling for differential diagnosis; stress is laid on the need for examining thick blood smears to exclude malaria. Aspirin, in daily doses of 1.5 to 3 g, was given to most of the patients; this had no effect on the duration of the fever but gave relief to the pains. The period of incapacitation for duty was only 4 or 5 days.

133. Malamos, B., 1947. Leishmaniasis in Greece. *Tropical Diseases Bulletin* 44: 1-7.

Summary: The status of human VL, canine leishmaniasis and Oriental sore in Greece is presented. All 3 forms are endemic and coexist at the same place in some districts of the country. The author lists foci of VL in diverse parts of Greece but he calls Messinia (Peloponnese) as the widest one. Oriental sore is more common in Crete and Laconia (Peloponnese) while sporadic cases are found in various other districts and even in Athens. Canine leishmaniasis is found in all regions of Greece in which human VL is known to occur. In dogs the parasite is in the internal organs but the skin contains the greatest numbers in histiocytes. *P. major* is considered as the vector of VL and *P. sergenti* as the main vector of Oriental sore.

134. Malamos, B., 1947. Leishmaniasis in Greece. *Proceedings of the Royal Society of Medicine* 39: 799-801.

Summary: Human VL and CL as well as canine leishmaniasis is briefly reviewed. The geographic distribution of each one of these diseases is presented and the point is made that in some districts, such as Hania in Crete, there is a curious co-existence of all 3 diseases. The publication includes photographs of 5 persons with facial ulcers, a photograph of an emaciated dog with kala-azar, and a diagram of the Aravantinos spleen puncture syringe.

135. Zervos, N.G., 1947. New directions in the treatment of kala-azar. *Medical Science-Practice* 1:11-12 (in Greek).

Summary: Treatment of kala-azar by pentavalent antimonial compounds require large doses and frequent administration of the drugs. In the case of Neostibosan the duration of treatment varies from 46 to 64 days and the total amount of drug is 1.80 to 3.50 g. All antimonial drugs stimulate the immunity of the mesenchymal tissues of the organism and prolonged treatment becomes necessary. The author tried a new approach to treatment by administering larger doses of Neostibosan in a shorter period of time. The initial dose was small but gradually he increased it. The number of injections were 10.4 (mean) and the duration of treatment 14-38 days. The results were good as expected.

136. Barnasia, J., 1948. A case kala-azar with secondary erythroblastosis, *Acta Societatis Paediatrica Hellenicae* 2: 108-109 (in Greek).

Summary: A kala-azar case in a 14-months old infant confirmed by sternal puncture and the finding of numerous *Leishmania* amastigotes in the bone marrow is presented. Six erythroblasts are counted in 100 WBC's with the explanation that they are the result of severe anemia which the infant exhibited.

137. Hourmouziadis, A., 1948. Visceral leishmaniasis in the District of Kavala. *Acta Medica Hellenica* 17: 739-753 (in Greek).

Summary: The report is based on 164 VL cases in the District of Kavala from 1930 to 1948 minus the years 1941-1944 when Greece was occupied by foreign forces. It is primarily an epidemiological and laboratory study and only secondarily clinical. The cases are presented based on geographical distribution, seasonal occurrence, age and sex, living conditions, and factors of infection. Two of the 164 cases have a mixed infection of *Leishmania* and *Plasmodium vivax*, one in the spleen and the other in the bone marrow of the sternum. Patients are treated with IV administration of Neostibosan. Of 112 patients who were monitored after treatment, 89 were classified as cured and 23 died.

138. Igoumenakis, G., 1949. Demonstration of a case of Oriental sore diagnosed as Lupus. *Proceedings of the Medical Society of Athens*, pp. 373-375 (in Greek).

Summary: A woman 27-years old from Crete with a lesion on the chin was diagnosed to have Lupus on the basis of 2 negative tests in search of *Leishmania* parasites. The author re-examined the case and was able to find L-D bodies in sufficient numbers. He made the point that negative laboratory tests are not sufficient reason to make definitive diagnosis. Only positive results should be considered. Another conclusion drawn from this case is that infection with Oriental sore confers only temporary immunity. The patient had several scars from Oriental sore which she had acquired at the age of 5 and 20.

139. Hertig, M., 1949. *Phlebotomus* and residual DDT in Greece and Italy. *American Journal of Tropical Medicine* 29:773-809.

Summary: In 1948, a study of the effect of DDT residual sprays on *Phlebotomus* population in Athens, parts of Attica and Crete concluded that sandflies are extremely susceptible to the insecticide. The author finds that sandflies are absent from all sprayed buildings in contrast with unsprayed ones which have normal abundance.

140. Siamopoulos, D., 1950. Observations on kala-azar. *Kliniki* 1:257-258 (in Greek).

Summary: The report concerns kala-azar in a child 5- years old from the area of Ioannina in Epirus. The finding of L-D bodies in the bone marrow of the sternum confirmed the diagnosis. The case was treated with 18 IV injections of Neostibosan rather than Ureastibamine and the author explains his preference for the former. In Epirus kala-azar ceased to be a problem after the initiation of antimalaria campaign with DDT in 1945. In contrast, cases of kala-azar continued to occur in those areas where, for various reasons, DDT was not applied.

141. Hourmouziadis, A., 1950. On kala-azar. *Kliniki* 1:332-333 (in Greek).

Summary: In the area of Kavala 166 cases of kala-azar were recorded between 1930 and 1950. Since 1947 when systematic spraying with DDT began, cases of kala-azar steadily declined and there was none from September 1948 to August 1950. Likewise, while sandflies used to be abundant in Kavala and environs before the war (1940), two years after DDT spraying had begun, search for sandflies turned out to be entirely negative. The author concludes that by simply killing the vector by DDT application it is possible to eliminate kala-azar altogether.

142. Papadakis, A., 1956. *Parasitology*, Printed by Rodi Bros, Athens, 924 pp. (in Greek).

Summary: Comprehensive treatment of leishmaniasis and phlebotomine sandflies covered in 58 pages of this excellent monograph. The author, who has done original work on the subject, provides detailed description of

leishmaniasis that includes history, geographical distribution, forms of disease, treatment, methods of control, as well as technical information on diagnosis and parasite culture. A brief summary of leishmaniasis in Greece is in pp. 304-305. Phlebotomine sandflies are discussed in 13 pages listing species found in Greece, their identification and their biology.

143. Choremis, C., Padiatellis, C., Baroutsou, E., 1956. The treatment of kala-azar in children with cortizone and Neostibosan. *Annales Clinicae Paediatricae Universitatis Atheniensis* 3 (6): 410-414 (in Greek).

Summary: Three cases of kala-azar in children are treated with Cortizone and Neostibosan. Results are good including such features as : (a) Rapid improvement of the patients general condition and anemia, (b) a marked diminution of the size of the spleen, (c) return of the sedimentation rate to normal, (d) no complications or untoward effects are noted, and (e) treatment lasted 21- 26 days.

144. Nikopoulos, I.B., 1957. A case of infantile kala-azar cured by using Meticorten and Neostibosan. *Acta Societatis Paediatricae Hellenicae, Period B* (7-8): 94- 97. (in Greek).

Summary: A case of kala-azar in a 2 1/2-years old child is described. She is treated with 12 injections of Neostibosan for 24 days receiving 2 g of the drug altogether. In addition, the child is given orally Meticorten (Cortizone) in 5 mg tablets at a dose of 1 1/2 tablet/day during the first 8 days, 1 tablet/day in the next 8 days, and 1/2 tablet/day in the final 8 days. After 10 days of such treatment the child appears healthy having normal temperature, good appetite and a gain of 800 g in weight.

145. Hadjinicolaou, J., 1958. Present status of *Phlebotomus* in certain areas of Greece. *Bulletin of the World Health Organization* 19: 967-979.

Summary: A survey of Phlebotomine sandflies in the Greater Athens area, Saronic Gulf Islands, Euboea, southern Peloponnese and Crete in 1957 demonstrated absence of sandflies in areas where systematic spraying with residual insecticides took place since 1946 when the antimalaria campaign began. In areas where malaria control was absent, sandflies were abundant. *P. papatasi* is the predominant species in Athens and elsewhere. Tests to determine the susceptibility of *P. papatasi* to DDT and Dieldrin were conducted and are reported.

146. Stavrou, A., 1959. A case of leishmaniasis. *Annales Clinicae Paediatricae Universitatis Atheniensis* 6: 248 (in Greek).

Summary: Brief description of a VL case in a 13-years old boy with symptoms of splenomegaly, fever and pallor. *Leishmania* parasites are found in the bone marrow. Treatment with Neostibosan resulted in complete cure in a matter of days.

147. Hertig, M., Sabin, A.B., 1964. Sandfly fever (Pappataci, Phlebotomus, Three-day fever). Part I. History of Incidence, Prevention and Control. In: J.B. Coates (Ed.), *Preventive Medicine in WWII*, vol. 7. Communicable Diseases, U.S. Government Printing Office, Washington. D.C., pp. 109-174.

Summary: Detailed description of sandfly fever is presented. With regard to Greece, Hertig defines the presence of sandfly fever in Greece, including Crete, and its transmission by *P. papatasi*. About 20% of the German troops stationed in Athens had sandfly fever in July and August of 1941. Similarly, 25% of the U.N. Relief and Rehabilitation Administration personnel living in Athens had sandfly fever in 1945. Application of residual DDT on the inner walls and ceilings of houses to control malaria vectors resulted also in the control of phlebotomine sandflies and in the interruption of sandfly fever and leishmaniasis transmission.

148. Cassimos, C., Lazanakis, S., 1964. Antibody production after TAB vaccination in kala-azar. *Annales Clinicae Paediatricae Universitatis Atheniensis* 11: 413-420 (in Greek).

Summary: The antibody production is studied in 12 patients with kala-azar and 12 controls. The titers of anti-O and anti-H agglutinins are determined after 3 injections of TAB vaccine. A poor antibody production is found in most kala-azar patients as compared to that of the controls. The etiology of this deficiency is discussed.

149. Cassimos, C., Lazanakis, S., Thomaidis, Th., 1966. Antibody response after immunization with Typhoid- Paratyphoid A and B vaccine in kala-azar. *Acta Paediatrica Scandinavica* 55:301-304.

Abstract: The ability to produce antibodies during the course of kala-azar was studied by immunizing 12 kala-azar patients with T.A.B. vaccine and 12 controls. Controls yielded good antibody response after immunization while patients with kala-azar yielded poor antibody response. The etiology of this deficiency is discussed.

150. Matsaniotis, N., Messaritakis, I., Maounis, F., Fouskaris, G., 1966. Clinical, laboratory and therapeutic observations in 57 cases of kala-azar in children. *Annales Clinicae Paediatricae Universitatis Atheniensis* 13: 255-265 (*in Greek*).

Summary: Fifty-seven cases of kala-azar in children were admitted in the Pediatric Clinic between 1961 and 1965. Of these, 33 are children 1-to 3-years in age. The most common clinical symptoms are prolonged fever, splenomegaly, hepatomegaly and anemia. In 49 cases *Leishmania* parasites are found by bone marrow aspirations and in 8 by splenic puncture. Forty-eight cases are treated successfully with Glucantime and 8 cases with other pentavalent antimony compounds. One case was fatal; this was a chronic form of VL complicated with bronchopneumonia; no treatment was given due to lack of pentavalent antimony at the time.

151. Siamopoulos, D., 1967. Kala-azar in Epirus. *Acta Societatis Paediatricae Hellenicae* 30: 178-180 (*in Greek*).

Summary: Kala-azar is endemic in some areas and villages of Epirus, including the city of Ioannina. Despite the antimalaria campaign with DDT in 1946, cases of kala-azar were detected regularly thereafter. The author observes that in families with several children only one becomes ill, and concludes that kala-azar is not contagious. *Leishmania* parasites are found in dogs and phlebotomine sandflies but their relationship to human disease is questioned. Neostibosan gives the best results in the treatment of kala-azar. No literature is cited in the article.

152. Maroufoff, A., 1967. Study by immunoelectrophoresis of globulins in leishmaniasis. *Acta Microbiologica Hellenica* 12:66-75 (*in Greek*).

Summary: This preliminary study is conducted on 10 cases of leishmaniasis (Kala-azar) in children 14-months to 10-years old. The investigation concerns changes of gamma-globulins in paper electrophoresis, immunoelectrophoresis with polyvalent immune serum, and immunodiffusion with monovalent immune serum. Increase of gamma-globulins is demonstrated. By immunodiffusion increase in gamma-G globulins and minor oscillations of gamma-A and gamma-G globulins is found. The author makes the point that prolonged higher values of gamma-M globulins may result in macroglobulinemia and therefore it is recommended that patients with kala-azar should be observed for extended period of time.

153. Panayiotopoulos, S., Papadopoulos, C., 1969. An atypical case of visceral leishmaniasis. *Bulletin of Medical Society of Thessaloniki, Proceedings of the year 1969, Issue A: 127-132 (in Greek)*.

Summary: The patient is a 28-years old physician who enters the clinic with high fever and gravely ill. Screening for *Plasmodia* and the formal-gel test are negative. Chopra and Sia test is positive. Since the patient had been in Cyprus leishmaniasis is suspected. He is given Lomidine for 3 days (total 360 mg) and then Glucantime for 5 days (23.5 g total). His high fever subsides and the patient leaves the hospital 18 days later. The authors consider this case as leishmaniasis based on the improvement with antimonial drugs and failure with other conventional therapy. They emphasize the diagnostic difficulties that leishmaniasis presents which in this case were exacerbated with complications.

154. Thomaidis, Th., Constantopoulos, A., Matsaniotis, N., 1970. Study of immunoglobulins in children infected with kala-azar. *Acta Societatis Paediatricae Hellenicae* 33: 411-416 (*in Greek*).

Summary: The level of immunoglobulins are determined in 10 confirmed cases of kala-azar in children aged 18 months to 11-years old. In all instances, the IgG level is significantly higher as compared to physiological

levels in corresponding ages. After 15 days of therapy with Glucantime the level of IgG drops sufficiently but not enough to reach the physiological levels. IgA and IgM show small and insignificant elevation.

155. Igoumenakis, K., 1971. Cutaneous leishmaniasis. *Acta Medica Hellenica* 40: 569-573 (in Greek).

Summary: The writer describes 4 cases of CL, 3 of which originated in Crete and one in Kalamata. Two of the cases have lesions on the lower lip which resemble syphilitic ulcers, whereas the other two have atypical lesions on the cheeks. All cases are treated successfully by layer diathermy.

156. Tesh, R.B., Saidi, S., Gajdamovic, S.J., Rodhain F., Vesenjak-Hirzan, J., 1976. Serological studies on the epidemiology of sandfly fever in the Old World. *Bulletin of the World Health Organization* 54: 663-674.

Summary: Neutralizing antibodies to Naples and Sicilian viruses are found in human sera from Greece (38 sera from Crete, 632 sera from Athens and 96 sera from Arachova). These antibodies are found in countries and areas where *P. papatasi* occurs.

157. Tesh, R.B., Papaevangelou, G., 1977. Effect of insecticide spraying for malaria control on the incidence of sandfly fever in Athens, Greece. *The American Journal of Tropical Medicine and Hygiene* 26:163-166.

Abstract: Sera from 637 Athens residents of various age groups were examined by plaque reduction neutralization test for antibodies against Naples and Sicilian *Phlebotomus* fever viruses. A marked change in the prevalence of antibodies to both agents was observed in persons born after 1946, when residual insecticide spraying for malaria control was initiated in Greece. The prevalence of Naples and Sicilian neutralizing antibodies among residents > 30 years of age was 36% and 13%, respectively. In contrast, only 4% of persons < 29 years of age had Naples antibodies and all were negative to Sicilian. These serologic data confirm previous clinical observations that sandfly fever became uncommon in Athens after initiation of the insecticide spraying program. The spraying program was apparently effective in reducing the *Phlebotomus* population to levels where virus transmission was minimal. New information on the specificity and duration of *Phlebotomus* fever neutralizing antibodies is also presented.

158. Vamvasakis, E., Stathopoulos, E.N., Vlachos, J., 1978. Lymphadenitis in leishmaniasis. *Hippocrates* 6(6):469-480 (in Greek).

Abstract: The optical microscopy findings in 2 cases of lymphadenitis in leishmaniasis are presented. These findings can be evaluated as "tuberculoid" or "sarcoid-like" lesions and resemble a great deal to those seen in toxoplasmic lymphadenitis. The most common findings encountered in these 2 conditions are stimulation of secondary follicles, presence of epithelioid cells (less evident and without giant cells in toxoplasmic lymphadenitis) as well as immature histiocytes in peripheral sinus histiocytosis. The differential diagnosis can be easily made by the recognition of leishmaniae. The pathologist is not able to recognize with optical microscopy the subvarieties of *leishmaniae* and different lymphadenitis in leishmaniasis.

159. Nicolis, G.D., Tosca, A.D., Stratigos, J.D., Capetanakis, J., 1978. A clinical and histological study of cutaneous leishmaniasis. *Acta Dermatovenere (Stockholm)* 58: 521-525.

Summary: A clinical and histological study of 65 cases of CL admitted to "Andreas Sygros" hospital is made. The patients are from all parts of Greece but most are from the Ionian Islands. The ages range from 3-to 92-years old. There is only one lesion in all, but 2, patients. The lesions are more common on the face and other exposed parts of the body. Fourteen cases are of the chronic type and 5 cases of the *recidivans* type. The disease is classified into 3 phases: the granulomatous, the microtuberculoid, and the *recidivans* or late.

160. Papadopoulos, O., 1979. Leishmaniasis. *Pediatrics* 42: 173-174. (in Greek).

Summary: Brief presentation of leishmaniasis in animals. Without excluding other animals, the dog is considered as the important reservoir host of VL, especially in the suburbs of cities. Studies conducted from 1912 to 1939

demonstrated that 5% to 20% of dogs were infected in Athens, Hydra, Laconia, Hania and Kavala. However, of 6,000 dogs screened by the Veterinary Clinic of the University of Thessaloniki during a 5-year period, only 13 turned out VL positive.

161. Tsakalidis, D., 1979. Human leishmaniasis. *Pediatrics* 42: 175-183 (*in Greek*).

Summary: The author reviews the existing knowledge of VL and CL. In addition, he makes reference to 9 VL cases admitted to the Pediatric Clinic of the University of Thessaloniki between 1968 and 1975. All cases are from the northern Provinces of Greece. All have fever and splenomegaly, 8 have pallor of which 6 necessitated blood transfusion, 6 have liver enlargement and weight loss, and 2 have swollen lymph glands. In all cases, *Leishmania* parasites are found in the bone marrow. Treatment with Glucantime results in complete cure without complications or relapses.

162. Meletis, I., 1979. Visceral leishmaniasis. *Iatriki* 36: 217-231 (*in Greek*).

Summary: In this review the author makes general remarks on VL, including forms of the disease, its history, geographic distribution, methods of transmission, symptoms, hematological and biochemical abnormalities, differential diagnosis, and treatment. The article ends with an extensive international literature containing 104 references.

163. Orphanidis, Z., 1979. Epidemiological, clinical and immunological study of visceral leishmaniasis in Greece. Ph. D. Thesis, National University of Athens, School of Medicine, pp. 79 (*in Greek*).

Summary: Doctoral dissertation based on 60 cases of suspected and confirmed cases of VL. The area of highest incidence is in western continental Greece and in particular in Thesprotia Province. The district of Attica (greater Athens) has a suitable biotope for VL in the surrounding mountains. Most affected are children, and the incubation period ranges from 10 days to 2 years. From the methods tested, the most sensitive for the diagnosis of VL is the Fluorescent Antibody Test (FAT) but the author concludes that the most accurate diagnosis is by the combination of FAT and of Immuno-Electro-Diffusion.

164. Léger, N., Saratsiotis, A., Pesson, B., Léger, P., 1979. La leishmaniose en Grèce. Résultats d'une enquête entomologique effectuée en Juin 1977. *Annales de Parasitologie Humaine et Comparée* 54:11-29.

Summary: An outbreak of leishmaniasis in Greece compels the authors to undertake an entomological investigation to define the foci of transmission. A survey during June 1977 in continental Greece results in the collection of 6,633 sandflies; of these, 21% are identified as *P. major* and 20% as *P. perfiliewi*. Sandfly captures are analyzed for each species with taxonomic and epidemiological comments made.

165. Tselentis, Y., Orphanidis, Z., Melissinos, K., Trichopoulos, D., 1979. Répartition biogéographique de la leishmaniose viscérale en Grèce. *Congrès de la Société de Parasitologie Française*, Abstract on p. 4.

Summary: A retrospective epidemiological study to determine the incidence and geographic distribution of leishmaniasis in Greece was undertaken by the authors. The cases of VL from 1951 to 1978 are presented in Figures and Tables showing geographic distribution, age and sex. In terms of geographic distribution the 3 major foci of VL infection were the Athens region (33.4%), Epirus (20.6%) and Peloponnese (14.8%). Special attention was given to the distribution of VL cases in the Athens region. In it, 2 zones of distribution were identified; one was a high zone occupying the foothills of the mountains surrounding or transversing the Athens basin, and the other was a low urban zone consisting of the plains. Seventy-five percent of the VL cases occurred in the high zone. The presence of quarries and stray dogs was given as an explanation for the high incidence of leishmaniasis in this biotope.

166. Bambionitakis, A., Orphanidis, Z., Cordossis, Th., Tselentis, Y., Melissinos, K., 1980. Serum immunoglobulins in visceral leishmaniasis. *Ippocratis* 8: 176-182 (*in Greek*).

Summary: The immunoglobulins IgG, IgM and IgA were quantitatively determined in the serum of 22 patients with visceral leishmaniasis. Increased levels of IgG and IgM were found in 18 and 13 patients, respectively whereas IgA remained within physiological levels. The role played by immunoglobulins and of humoral immunity in the disease is discussed.

167. Tselentis, Y., Cordossis, Th., Stefanou, Th., Melissinos, K., 1980. Biogeographic distribution of visceral leishmaniasis in Greece. 10th International Congress of Tropical Medicine and Malariology, Manila.

Summary: Despite a diminution in the incidence of leishmaniasis in Epirus since the 1960's, an investigation was conducted in this province in 1981. Sera collected from 3500 humans and 352 dogs were tested using IF and ES tests. All human sera were negative when tested by IF (titers less than 1:200) and ES. These results confirmed the diminution in the prevalence of leishmaniasis. The authors attributed this to a social phenomenon which started in the 1960's when people began to abandon their villages on the foothills of mountains for villages in the plains. Of the dog sera, 4 were found IF (titers 1:400-1:600) and ES positive.

168. Marselou-Kinti, U., 1980. Epidemiology of Leishmaniasis. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 51-56 (*in Greek*).

Summary: VL occurs in all parts of Greece, both continental and insular. CL is more common on islands.

169. Vasalos, M., 1980. Classification, Biology and Life Cycle. Leishmaniasis in animals. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 57-71 (*in Greek*).

Summary: The morphology, life cycle and epidemiology of *Leishmania* is described. Leishmaniasis in dogs is classified into 3 forms: Acute, affecting dogs of young age; subacute, affecting dogs of all ages; and, atypical, affecting dogs of all ages. The author cites 260 cases of sick dogs during the period 1975-1979 coming from 9 Greek Provinces. Veterinarians treat sick dogs with Glucantime, Pentostam, Lomidine, etc. but despite a temporary improvement of their health, the disease eventually relapses.

170. Valassi-Adam, E., 1980. Visceral leishmaniasis. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 72-73 (*in Greek*).

Summary: The author states that the Pediatric clinic of the University of Athens treats 7-15 cases of kala-azar in children every year. She lists the frequency of symptoms in 15 sick children for the years 1978-1979. Splenomegaly and anemia is present in all 15 children, fever in 13 and hepatomegaly in 10. Glucantime is the choice of treatment since it is the most effective and least toxic. Treatment of 120 sick children with Glucantime was successful with only one exception of a child who was brought to the clinic seriously ill and died.

171. Stratigos, J.D., 1980. Cutaneous leishmaniasis. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 74-90 (*in Greek*).

Summary: Epidemiological data and observation on CL are discussed. Furthermore, a new classification is proposed based on clinical, histological and microbiological criteria. Immunology, treatment and control of the disease are also included in the discussion.

172. Papavasiliou, P., 1980. Laboratory diagnosis of leishmaniases. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 91-103 (*in Greek*).

Summary: The author describes 7 tests of serologic or immunologic diagnosis as well as preparation of Giemsa-stained smears from blood, bone marrow and spleen. Use of culture media is also discussed as an additional diagnostic technique.

173. Marselou-Kinti, U., Stefanou, Th., Violaki, M., Avramidis, D., 1980. Leishmaniasis in Greece during the decade 1970-1979. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 176-182 (in Greek).

Summary: During the decade 1970-1979, 602 cases of VL and 61 of CL were identified in several parts of Greece. The ratio of men/women was 58.1%/41.9% in the case of VL, and 42.6%/57.4% in the case of CL. The highest incidence of VL was in Attica where children 2-to 5-years old were most affected.

174. Petroheilos, V., Fragos, A., Foustoukou M., Kalmantis, E., Glambedakis, M., 1980. Visceral leishmaniasis today: Analysis of twenty cases. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 183-190 (in Greek).

Summary: Twenty children with kala-azar are admitted to childrens Hospital "Aglaia Kyriakou" in Athens during an 18-month period (June 1978 to January 1980). In all cases *Leishmania* parasites are found by bone marrow aspiration. Most cases are from Attica. Children 1-to 3-years old make up the predominant group (11/20). Most common symptoms as well as hematological and biochemical abnormalities are presented. Some atypical cases caused problems in diagnosis.

175. Tzamouranis, N., Sérié, C., Garifallou, A., Pateraki, E., 1980. Leishmaniasis. Research Program of the Hellenic Pasteur Institute. First Results. Proceedings of the 9th National Conference of Microbiology, Athens, pp. 191-192 (in Greek).

Summary: The objectives of the laboratory are: study of the *Leishmania* parasite, its ecology, and methodology of diagnosis. The reported first results concern 6 human cases of VL and 44 suspected dog cases. From these, 10 strains of *Leishmania* are isolated in culture media, and 3 are typed by using the excreted factor and isoenzyme electrophoresis. All three belong to the type which characterizes the VL in Europe, India, Africa, and South America.

176. Stratigos, J.D., 1980. New aspects of cutaneous leishmaniasis. *Dermatosen in Beruf und Umwelt* 28: 139-148.

Summary: In the first part of this article the general aspects of CL are considered, such as the organism, reservoir hosts, insect vectors and mode of transmission. Epidemiological data are presented derived from the author's personal experiences with 76 cases diagnosed by the Dermatological center of the "A. Sygros" hospital in Athens between 1975 and 1979. The traditional clinical classification is mentioned and a new one is proposed based on the author's histological investigation. Thus, CL is classified as granulomatous, microtuberculoid, and as *Lupus vulgaris*-like.

177. Stratigos, J.D., Tosca A., Nicolis, G., Papavasiliou, S., Capetanakis, J., 1980. Epidemiology of cutaneous leishmaniasis in Greece. *International Journal of Dermatology* 19: 86-88.

Summary: The epidemiology of CL in Greece is studied based on 76 cases admitted to "A. Sygros" hospital from 1975 to 1979. The diagnosis is made on clinical, histological and smear criteria. The conclusion are that: the Ionian islands and Crete are principal foci of the disease; individuals 10-to 20-years old comprise the age group with highest incidence; the face is the most involved part of the body; and, most cases appear in mid-winter.

178. Tselentis, Y., Orphanidis, Z., Cordossis, Th., Melissinos, K., 1981. Contribution of IFA and counterimmunoelectrophoresis (CIE) in the diagnosis of visceral leishmaniasis. *Iatriki* 39: 38-42 (in Greek).

Summary: IFA and CIE were used in 30 cases of visceral leishmaniasis. Titers of IFA > 1:400 in combination with the presence of the specific VL arrow in CIE can be used with certainty for the diagnosis of VL, even in cases where the bone marrow is negative for *Leishmania* amastigotes. Testing of 22 individuals with VL in the past 10 years who had been successfully treated and healed demonstrated negative CIE and IFA titers as high as 1:200. Finally, IFA and CIE testing of 20 sera from healthy individuals and 45 patients with a variety of

diseases resulted in negative CIE and 3 IFA positive with titer 1:400, two of whom had active TB and one had spleen damage.

179. Orphanidis, Z., Tselentis, Y., Cordosis, Th., Bambionitakis, A., Melissinos, K., 1982. Visceral leishmaniasis: clinical and laboratory study. Yearbook of the Medical School of the National University, pp. 247-255 (*in Greek*).

Summary: Thirty patients with confirmed visceral leishmaniasis were studied clinically and by laboratory tests, including IFA and counterimmunoelectrophoresis (CIE). Fever, splenomegaly, anemia, and serum globulins were the common signs in all cases. It was concluded that the combination of IFA > 1:400 and positive CIE were enough to make the diagnosis of visceral leishmaniasis.

180. Léger, N., Pesson, B., Madulo-Leblond, G., Collomb, J., 1982. Trois cas d'anomalies morphologiques dont un gynandromorphisme chez *Sergentomyia minuta* et *S. dentata* en Grèce. Annales de Parasitologie Humaine et Comparée 57: 105-107.

Abstract: The authors describe 3 cases of abnormality in sandflies collected on Corfu island and argue about the proper use of the word "gynandromorphism".

181. Lamparidis, G., Pavlatou, M., 1982. Parasitic diseases in children. Iatriki 42: 489-504 (*in Greek*).

Summary: Brief outline of leishmaniasis and its diagnostic methods is presented. The first author provides a table with 240 cases of VL from various parts of Greece for the years 1970-1973. Of these, 100 are from Athens and 22 from Piraeus. Also, 260 cases of VL in dogs are given for the period 1975-1979; most of these (172) originated in the province of Attica.

182. Artavanis, S., Tsoutsanis, K., Vrakas, A., Tsilios, C., 1982. Epizootiological investigation of leishmaniasis (*L. donovani*) in dogs in Cephalonia. Bulletin of the Hellenic Veterinary Society 33: 31-38 (*in Greek*).

Summary: An epizootiological study is conducted on the island of Cephalonia, particularly in localities where human cases of VL occur. The investigation includes screening of blood from dog by the use of the formaldehyde test, examination of sternum, bone marrow and lymph nodes, and capture of sandflies and rats. The formaldehyde test gives 70 positive out of 1800 samples. Among these 70 dogs, 58 manifest clinical symptoms of the disease.

183. Papaharisis, G., Donos, A., Manis, E., Sarri-Papatheodorou, H., 1982. Coexistence of myeloma and leishmaniasis in a dog. Bulletin of the Hellenic Veterinary Society 33: 271-278 (*in Greek*).

Summary: A dog with kala-azar infection from Epirus is diagnosed to suffer also from myeloma. Both diseases have common characteristics but show differences as well. The co-existence of these 2 diseases in a dog appears to be a coincidence since it is the only known case.

184. Kontopodis, I., Nicolaidis, P., Panagiotou, J., Carpathios, Th., Messaritakis, J., 1983. Infantile kala-azar. Acta Societatis Paediatricae Hellenicae 30: 140-142 (*in Greek*).

Summary: A case of kala-azar is described in a girl 5 1/2-months old. The infant exhibits severe wheezing, bronchitis and glomerulonephritis. Treatment with Glucantime (2 cycles, 2 months apart) results in complete recovery. The attending physician rules out placental transmission or blood transfusion as the cause.

185. Madulo-Leblond, G., 1983. Les phlébotomes (Diptera, Phlebotomidae) des Iles Ioniennes. Thèse Doctoral de Pharmacie, Reims, 218 pp.

Summary: An entomological study of sandflies is conducted in the Ionian islands of Corfu, Cephalonia and Zakynthos where foci of leishmaniasis are known to occur. Eight species of sandflies are collected of which 16%

belongs to the genus *Phlebotomus* and 84% to the genus *Sergentomyia*. *P. papatasi* is rare, *P. sergenti* and *P. simici* sporadic, and *P. major* predominant. Criteria for the identification of female *Larroussius* specimens are given. Two types of promastigotes and a new virus are isolated from females of *P. major*, and the author suggests a potential role of this species in the transmission of VL in Greece.

186. Léger, N., Pesson, B., Madulo-Leblond, G., Abonnenc, E., 1983. Sur la différenciation des femelles du sous-genre *Larroussius* Nitzulescu, 1931 de la région méditerranéenne. *Annales de Parasitologie Humaine et Comparée* 58: 611-623.

Summary: Taxonomic study of species in the medically-important subgenus *Larroussius*. The shape and other characters of spermatheca and buccal cavity are used to differentiate the females of the species. Some of the studied species were collected in Greece, such as *P. major* in Andros, *P. perfiliewi* and *P. tobbi* in Corfu.

187. Tzamouranis, N., Schnur, L.F., Garifallou, A., Pateraki, E., Sérié, C., 1984. Leishmaniasis in Greece. I. Isolation and identification of the parasite causing human and canine visceral leishmaniasis. *Annals of Tropical Medicine and Parasitology* 78: 363-368.

Abstract: Three human and 19 canine leishmania stocks were typed according to their excreted factor serotype and electrophoretic mobility of their MDH, GPI, G6PDH and 6PGDH and shown to be identical with regard to these characters and, thus with *Leishmania donovani infantum*. This verifies the opinion of earlier researchers who suggested that the parasites which cause human and canine visceral leishmaniasis in Greece are the same organism and that dogs are the reservoir for the human infection. The complexities raised by the co-existence of human cutaneous leishmaniasis in Greece caused by *L. tropica* (formerly *L.t. minor*) are stressed. A comparison is made of the clinical symptomatology, serological diagnosis by IFA and ELISA tests and parasitological diagnosis of the human cases and canine infections.

188. Garifallou, A., Schnur, L.F., Stratigos, J.D., Hadjiandoniou, M., Savigos, M., Stavrianeas, N., Sérié, C., 1984. Leishmaniasis in Greece.II. Isolation and identification of the parasite causing cutaneous leishmaniasis in man. *Annals of Tropical Medicine and Parasitology* 78: 369-375.

Abstract: The serological and biochemical identity of four Greek leishmanial strains isolated from cases of cutaneous leishmaniasis was determined. All four strains were identical and shown to be *Leishmania tropica* (formerly *L.t. minor*). The cases are described; two came from the Greek mainland and two from Greek islands, one of the latter being a case of leishmaniasis *recidivans*. The significance of the results is discussed, in particular the co-existence of strains of *L. tropica* and *L. donovani infantum*.

189. Psistakis, M., Miceli, M.D., Tringali, G., Occhino, C., Robberto, D., Librizzi, R., Mansueto, S., 1984. Indagini siero-epidemiologiche sulla leishmaniosi canina.VII. Risultati di un'inchiesta a Canea (Isola di Creta). *Acta Mediterranea di Patologia Infeciosa Tropicale* 31: 263-267.

Abstract: In the period February-April 1983 our research group tested the incidence of leishmaniasis among stray dogs from Crete, and more precisely from Hania. Of 72 samples tested by counterimmunoelectrophoresis (CIEP) only one resulted positive. This was confirmed by Indirect Immunofluorescence (IF).

190. Garifallou, A., Hadjiandoniou, M., Stratigos, J.D., Schnur, L.F., Sérié, C., 1984. Cutaneous leishmaniasis. Isolation and identification of the parasite. *Archives of "Andreas Sygros" Hospital* 4: 376-379 (in Greek).

Summary: Of 39 CL cases referred to Hellenic Pasteur Institute from the "A. Sygros" hospital, 14 strains of *Leishmania* are isolated by culturing biopsy material in NNN medium. Identification is based on the excreted factor and isoenzyme electrophoresis. Four stains type to serotype A2,4 to serotype A2B2 and 1 to serotype A1. Seven strains are identified as *L. tropica minor* on the basis of the excreted factor. The single case with serotype A1 is identified as *L. tropica major*; the patient, however, with this serotype lived in Arab countries for many years. The authors identify, also, 56 of 170 strains of *Leishmania* from dogs and show all of them to be *L. donovani*.

191. Pesson, B., Léger, N., Madulo-Leblond, G., 1984. La leishmaniose en Grèce: Les phlébotomes des Iles Ioniennes et de la mer Egée. *Annales de Parasitologie Humaine et Comparée* 59: 277-296.

Summary: In the summers of 1979, 1980 and 1982, three entomological investigations are carried out in the Ionian islands of Corfu, Cephalonia and Zakynthos, and in four Aegean Sea islands, western Andros and Tinos (Cyclades), and eastern Samos and Ikaria. Sampling with oiled paper traps produced 24,184 sandflies. The captures are analyzed for each species.

192. Lane, R.P., Boorman, J., Wilkinson, P., 1984. *Phlebotomus tobbi* on the Greek island of Lesbos. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 78:413.

Summary: The authors conducted a survey for vectors of blue tongue virus on the island of Lesbos in October 1982. They placed CDC light traps in houses and near animal shelters and collected biting diptera. Among those were 34 phlebotomine sandflies, of which 32 were keyed out to *P. tobbi*. Since VL is endemic on the island they suggest that this species should be considered a potential vector of the disease despite its reported rarity in this part of Greece.

193. Garifallou, A., Hadjiandoniou, M., Tselentis, Y., Pateraki, E., Stamatopoulos, S., Sérié, C., 1984. Les leishmanioses à Zante. Etude épidémiologique, Tenth Panhellenic Medical Congress, Athens, Abstract on p. 91.

Summary: The report concerns a study of leishmaniasis on the island of Zakynthos in 1983 done in collaboration with the Pasteur Institute in Athens (Prof. Sérié) and the WHO reference center in Jerusalem (Prof. Greenblat, Prof. Schlein, Dr. Schnur). The abstract refers to 2 preliminary communications.

194. Pateraki, E., Garifallou, A., Hadjiandoniou, M., Tselentis, Y., 1984. Etude séroépidémiologique de la leishmaniose à Zante. Tenth Panhellenic Medical Congress, Athens, Abstract on p. 35.

Summary: The study includes analysis of potential vectors and reservoirs of leishmaniasis, isolation of *Leishmania* strains, clinical work, and determination of frequency and distribution of immunity in the population. A total of 484 humans (ranging in age from 4 to 85 years), 196 dogs, 6500 sandflies and 61 rodents were examined and tested. The clinical examination revealed 11 cases of human and 9 cases of dog leishmaniasis. *L. donovani* was isolated from a dog and *L. tropica* from a human case. Immunologic testing by the Montenegro test showed 161 *L. donovani* and 145 *L. tropica* positive in humans and none in dogs.

195. Rodhain, F., Madulo-Leblond, G., Hannoun, C., Tesh, R.B., 1985. Le virus Corfou: un nouveau phlébovirus isolé de phlébotomes en Grèce. *Annales de l'Institut Pasteur E (Virologie)* 136: 161-166.

Abstract (taken from The Review of Applied Entomology, series B, 1986, v.74:129): Corfou virus is the name proposed for a new phlebovirus isolated from females of *P. major* collected from the external walls of a church on the island of Corfou, Greece at the end of August 1981. The virus is antigenically closely related to phleboviruses of the Sicilian type, from which it can be separated only by the plaque reduction test. A brief discussion on the transmission of the sandfly fever group of viruses in the eastern part of the Mediterranean basin is included.

196. Schlein, Y., Polacheck, I., Yuval, B., 1985. Mycoses, bacterial infections and antibacterial activities in sandflies (Psychodidae) and their possible role in the transmission of leishmaniasis. *Parasitology* 90: 57- 66.

Summary: High incidence of fungal and bacterial infections were found in the guts and Malpighian tubes of *Phlebotomus tobbi* from Zakynthos. The sandflies were collected in regions of endemic leishmaniasis and *P. tobbi* is a recognized vector of VL. The sandflies were collected in Muzaki (50 females, 50 males). Eighty-two percent of these flies were infected.

197. Léger, N., Pesson, B., Madulo-Leblond, G., 1986. Les phlébotomes de Grèce. *Biologia Gallo-Hellenica* 11(2): 165-192.

Summary: Taxonomic analysis of 12 species of sandflies in Greece. Criteria of identification with drawings of male genitalia, female spermathecae and pharynx are provided to facilitate identification. Distribution records also are cited for each of the nine species in the genus *Phlebotomus* and three in the genus *Sergentomyia*. A key for all species is included.

198. Léger, N., Pesson, B., Madulo-Leblond, G., 1986. Les phlébotomes de Grèce. 1ère partie. Historique. *Bulletin de la Société de Pathologie Exotique* 79: 386-397.

Summary: Phlebotomine sandflies in Greece are grouped into 2 genera, *Phlebotomus* and *Sergentomyia*. *Phlebotomus* consists of 9 species and *Sergentomyia* of 3 species. The genus *Phlebotomus* is subdivided into 4 subgenera as follows: *Phlebotomus* with *P. papatasi*; *Paraphlebotomus* with *P. alexandri* and *P. sergenti*; *Larroussius* with *P. major*, *P. perfiliewi*, and *P. tobbi*; and *Adlerius* with *P. balcanicus*, *P. mascittii* and *P. simici*. The genus *Sergentomyia* contains *S. dentata*, *S. minuta* and *S. theodori*.

199. Léger, N., Pesson, B., Madulo-Leblond, G., 1986. Les phlébotomes de Grèce. 2e partie. *Bulletin de la Société de Pathologie Exotique* 79: 514-524.

Summary: Continuation of the first part by the same authors. Species of the subgenus *Adlerius* and the genus *Sergentomyia* are described, and a key for all 12 species in Greece is provided in the end.

200. Kontos, V.I., 1986. A contribution to the study of canine leishmaniasis. Clinical, serological and experimental investigation. Ph.D. Dissertation, Department of Veterinary Science, University of Thessaloniki (in Greek).

Summary: The clinical signs and the laboratory findings in 52 naturally VL-infected dogs are studied. The dogs had clinical symptoms for periods of 1 to 8 (mean 3) months. Antibody titers in the sera of the 52 dogs are equal or higher than 1/160. Ten of the isolated strains are identified as *L. donovani infantum*. The follow up of 10 clinical cases, in which no treatment is given, shows death of dogs in 3 to 24 months from the onset of clinical symptoms. The death is mainly due to renal failure and severe epistaxis. In an attempt to reproduce the disease experimentally, 18 hamsters, 6 ground squirrels and 10 dogs are inoculated with promastigote and amastigote forms. Results of this experiment are cited. In an epizootiological study based on 305 dogs admitted to the clinic for reasons other than leishmaniasis, 33 (10.8%) are found positive for *L.d. infantum* by the IFA test.

201. Biocca, E., Constantini, R., 1986. I pozzi come possibili focolai larvali di flebotomi nell'isola di Zante. *Annali dell'Istituto Superiore di Sanita* 22:59-60.

Abstract: In June 1983, sandflies were collected in 16 different places in the island of Zante. The 1,467 specimens were identified as follows: *Phlebotomus tobbi* 640 males, *P. perfiliewi* 614 males, *P. major* 25 males, *P. sergenti* 6 males, *Sergentomyia* sp. 182 males. The presence of sandflies was observed inside many wells in Mousaki, where a case of canine leishmaniasis had previously been reported, sandflies were collected in four consecutive days. Three species of genus *Phlebotomus* were identified as follows: *P. tobbi*, *P. perfiliewi* was observed on the first day, while on the following days the situation changed; besides, males appeared more numerous than females. In October 1984 sandflies were collected inside the same well in three consecutive days; it could be noted, as above, the prevalence of males over females and a scanty presence of *P. major*; the specimens of *P. tobbi* were more consistent in number than *P. perfiliewi*.

202. Léger, N., Pesson, B., 1987. Sur la taxonomie et la répartition géographique de *Phlebotomus (Adlerius) chinensis* s.l. et de *P. (Larroussius) major* s.l. (*Psychodidae*, *Diptera*). Statut des espèces présentes en Grèce. *Bulletin de la Société de Pathologie Exotique* 80: 252-260.

Summary: The taxonomy and geographical distribution of the species cited in the title are revised. The species present in Greece are *P. neglectus* for *Larroussius* of the major group, and *P. simici* and *P. balcanicus* for *Adlerius*.

203. Soteriadou, K.P., Tzinia, A.K., Hadjiantoniou, M.G., Tzartos, S.J., 1988. Identification of monomeric and oligomeric forms of a major *Leishmania infantum* antigen by using monoclonal antibodies. *Infection and Immunity* 56: 1180-1186.

Summary: The study was aimed at identifying and characterizing *L. infantum* (isolated in Greece from person with VL) membrane antigens of potential pathophysiological significance by the use of Mabs. The authors were able to identify monomeric and oligomeric forms of a 58-KDa *L. infantum* antigen. The observed inhibition of *Leishmania* promastigote-macrophage binding caused by Mabs representative of the two groups suggested that the 58-KDa monomer and oligomer play an important role in promastigote-macrophage interaction. It is suggested that the 58-KDa is homologous to p63 identified by others.

204. Monjour, L., Lesco, G., Tselentis, Y., Mazier, O., Vouldoukis, I., Alfred, C., Daniel-Ribeiro, Frommel, D., 1988. A new apparatus suitable for the use of counterimmunoelectrophoresis in the field. Application for the diagnosis of malaria and leishmaniasis. *Acta Tropica* 45:95-96.

Summary: In this experimental study a new apparatus is described to perform counterimmunoelectrophoresis. The results of its application in an epidemiological study in humans and dogs in Attica are cited.

205. Léger, N., Gramiccia, M., Gradoni, L., Madulo-Leblond, G., Pesson, B., Ferte, H., Boulanger, N., Killick-Kendrick, R., Killick-Kendrick, M., 1988. Isolation and typing of *Leishmania infantum* from *Phlebotomus neglectus* on the island of Corfu, Greece. *Transactions of the Royal Society Tropical Medicine and Hygiene* 82: 419-420.

Summary: *Leishmania infantum* is isolated in 3/2470 *P. neglectus* on the island of Corfu.

206. Tzortzis, E., 1988. Leishmaniasis: Epidemiology, clinical picture, diagnosis. *Nosokomiaka Chronica* 50: 5-8 (in Greek).

Summary: General presentation of the subject of leishmaniasis during a seminar on protozoan infections. The author shows a map with the distribution of human VL cases in Greece based on a study made by another investigator in 1979. He also provides a table of 771 VL cases broken down by age and sex. No literature is cited.

207. Drosos, Th., 1988. Leishmaniasis: Therapy. *Nosokomiaka Chronica* 50: 9 (in Greek).

Summary: Nothing more than a brief description of treatment of kala-azar and preventive measures. No literature is cited.

208. Papaharisis, G., Paschaleris, G., Hadjiantoniou, F., 1988. Serum protein values from dogs with leishmaniasis. *Bulletin of the Hellenic Veterinary Medical Society* 39: 299-303 (in Greek).

Summary: Serum protein electrophoretic values from 36 dogs with kala-azar are presented. A very significant broad increase in gamma-globulin is observed with mean value of 29.07 g/lit. or 37.78% whereas in 50 clinically normal dogs the mean value is 4.16 g/lit. or 7.29%. At the same time, a significant decrease in albumin is observed with mean value of 19.84 g/lit. or 25.68% whereas the value of normal dogs is 30.98 g/lit. or 54.4%. Despite the decrease in albumin, the total serum protein is 78.89 g/lit. in the dogs with kala-azar and 56.42 g/lit. in the normal dogs. The authors think that this is due to the significant increase in gamma-globulins.

209. Killick-Kendrick, R., Killick-Kendrick, M., Léger, N., Pesson, B., Madulo-Leblond, G., Page, A.M., 1989. absence of outer caudal setae on all larval instars of *Phlebotomus tobbi* from the Ionian Greek islands. *Medical and Veterinary Entomology* 3: 131-135.

Summary: Larval instars 2,3 and 4 of *P. tobbi* from Corfu and Zakynthos are found to have 2 caudal setae instead of the usually 4. The authors conclude that 4 caudal setae in the 4th instar can no longer be considered as a constant character of the genus *Phlebotomus*.

210. Kontos, V.I., Spais, A.G., 1989. The incidence of canine leishmaniasis in Northern Greece. An epizootiological study of the decade 1977-1987. NATO ASI on leishmaniasis (Ed. D.T. Hart), Plenum Publ. Corp., New York, pp. 77-82.

Summary: Canine leishmaniasis in Northern Greece is caused by *L. infantum*. The incidence is 1.6% (185/11501). In the greater territory of Thessaloniki 10.8% (33/305) of dogs are positive for *Leishmania* by the IFAT.

211. Léger, N., 1989. How to catch sandflies in the Mediterranean area. NATO ASI on leishmaniasis (Ed. D.T. Hart), Plenum Publ. Corp., New York, pp. 1003-1006.

Summary: Oily traps, manual capture and light trapping are presented as techniques to collect sandflies on the island of Zakynthos and in the Mediterranean area as well. A small paragraph of the article is devoted to canine inquiry and the methods used to bleed the dogs and perform a lymph node puncture.

212. Kontos, V.I., Koptopoulos, G.S., Haralabidis, S., Spais, A.G., 1989. Studies on the role of the ground squirrel (*Citellus citellus*): In the epidemiology of leishmaniasis. NATO ASI on leishmaniasis (Ed. D.T. Hart), Plenum Publ. Corp., New York, pp. 83-87.

Summary: The role of the ground squirrel *Citellus citellus* in the epidemiology of leishmaniasis is presented. This animal is very sensitive to *L. infantum* experimental infection. It shows symptoms similar to those in dogs (hair loss, skin lesions, weight loss), but the disease takes several months to develop. When 260 wild-caught squirrels were tested for *L. infantum* by microscopy and culture in nutritional media all were negative. Three of these, however, were positive by serology (ELISA).

213. Schnur, L.F., Stamatopoulos, C., Garifallou, A., Patrikoussis, M., Jacobson, R.L., 1989. Feral reservoirs of leishmaniasis on the island of Zakynthos. NATO ASI on leishmaniasis (Ed. D.T. Hart), Plenum Publ. Corp., New York, pp. 1007-1010.

Summary: A search for feral hosts of *Leishmania* on the island of Zakynthos is undertaken. There are only 12 wild animal species known on the island. Of the 80 wild mammals caught on Zakynthos between 1983 and 1986 none was infected with *Leishmania*. However, the Stone Marten, *Martes foina*, had a positive titer of anti-leishmanial antibody.

214. Garifallou, A., Hadjiandoniou, M., Schnur, L.F., Yuval, B., Warburg, A., Jacobson, R.L., Pateraki, E., Patrikoussis, M., Schleim, Y., Sérié, C., 1989. Epidemiology of human and canine leishmaniasis on the island of Zakynthos, NATO ASI on leishmaniasis (Ed. D.T. Hart), Plenum Publ. Corp., New York, pp. 1011-1015.

Summary: For the first time ever a naturally infected *P. major* is found to harbor promastigotes of *L. donovani* s.l. on the island of Zakynthos.

215. Voyiatzaki, C.S., Soteriadou, K.P., 1990. Evidence of transferrin binding sites on the surface of *Leishmania* promastigotes. The Journal of Biological Chemistry 265: 2238-22385.

Summary: A glycoprotein of 78,000 molecular mass, associated with the membrane of *L. infantum* promastigotes (HOM-Gr78-L4) was identified and immunopurified by monoclonal antibody LD9 produced against isolated membrane preparations. The 78-Kda soluble form was characterized as an iron-containing protein, called transferrin, which binds to the surface of *Leishmania* promastigotes via a transferrin receptor.

216. World Health Organization, 1990. Control of the leishmaniasis. Technical Report Series, N° 793.

Summary: A comprehensive review of leishmaniasis with emphasis on control of the disease. Reference is made to Greece in Table 3 (pp. 72-73) as to species causing VL and CL, proven or suspected vectors, proven or suspected animal reservoirs, and public health aspects. Greece is likewise cited in paragraphs 5.1.3 and 5.2 (pp. 99-104) under the titles "Foci of visceral leishmaniasis caused by *L. infantum*" and "Anthroponotic cutaneous leishmaniasis caused by *L. tropica*".

217. Tzinia, A.K., Soteriadou, K.P., 1991. Substrate-dependent pH optima of gp63 purified from seven strains of *Leishmania*. *Molecular and Biochemical Parasitology* 47:83-90.

Summary: Seven strains of Old and New World *Leishmania*, including *L. infantum* and *L. tropica* from Greece, were used to purify and study gp63. It was demonstrated that the optimum pH of the enzyme is substrate-dependent. The purified gp63 from the different promastigote *Leishmania* strains were found to be structurally and immunologically related.

218. Voltz-Kristensen, A., Pesson, B., Léger, N., Madulo-Leblond, G., Killick-Kendrick, R., Killick-Kendrick, M., 1991. Phosphoglucomutase in phlebotomine sandflies of the subgenus *Larroussius* from Corfu island, Greece. *Medical and Veterinary Entomology* 5: 135-137.

Summary: Isoenzymatic analysis using phosphoglucomutase (PGM) is used to differentiate 3 species of sandflies in the subgenus *Larroussius*. These species are: *P. neglectus*, *P. perfiliewi*, and *P. tobbi*. Zymograms show single or double banding patterns characteristic of each species. It is concluded that PGM analysis is a useful method to interpret the taxonomy of Mediterranean populations of *P. major* complex.

219. Argyriadis, D., Litke, O., 1991. Epizootiological study of canine leishmaniasis in central and eastern Macedonia and in Thessaly. *Bulletin of the Hellenic Veterinary Medical Society* 42:30-34 (in Greek).

Summary: In this study sera of dogs are screened to detect leishmaniasis in Macedonia and Thessaly over a period of 2 years. In the first phase, the formaldehyde test is used as a screening test. The sera that test positive are then examined in the second phase by the indirect method of immunofluorescence. The results confirm the low reliability of the formaldehyde test. The epizootiological study shows endemic foci of canine leishmaniasis in the perimeter of Thessaloniki, and high prevalence of the disease in Drama and Kavala.

220. Iliopoulos, N., Georgiadis, G., 1991. New ideas on leishmaniasis. *Review of Recent Medical Literature* 5 (5-6): 419-421 (in Greek).

Abstract: In this study a brief review of leishmaniasis is presented with special emphasis given to the new ideas of clinical and laboratory features of the disease. Diagnosis and treatment are also included.

221. Marchais, R., 1992. Spéciation et vicariance chez les *Larroussius* du groupe "*perniciosus*" (Diptera: Psychodidae). Thèse de doctorat, Université de Reims, Pharmacie, pp. 198.

Summary: In this doctoral dissertation the author recognizes problems in defining species and phylogenetic relationships in sandflies. In this respect, she attempts to straighten out synonymies and gradations among a small group of species in the medically- important subgenus *Larroussius*. Morphological, biological and biochemical criteria are used to differentiate *P. tobbi* from *P. perniciosus* and to place the latter in a class with *P. longicuspis* and perhaps *P. langeroni*.

222. Voyiatzaki, C.S., Soteriadou, K.P., 1992. Identification and isolation of the *leishmania* transferrin receptor. *Journal of Biological Chemistry* 267: 9112-9117.

Summary: *Leishmania* transferrin receptor is isolated initially from *L. infantum* promastigotes and subsequently from *L. major* promastigotes and evidenced as an integral membrane glycoprotein of Mr 70,000 uniformly distributed on the surface of the parasite. The receptor is antigenically distinct from rat transferrin receptor.

223. Haralabidis, S., Daffas, G., Epivatianos, P., 1992. Detection of specific IgG, IgM and IgE immunoglobulins against parasites from inhabitants of Macedonia, Greece. *Acta Microbiologica Hellenica* 37:365-374 (in Greek).

Summary: The authors tested 87 sera of residents of different parts of Macedonia, Greece for specific immunoglobulins against 8 species of parasites. They detected immunoglobulins against *Leishmania infantum* in 8 (9,2%). The significance of the parasites detected for public health in Greece is discussed.

224. Frank, C., Hadjiandoniou, M., Pratloug, F., Garifallou, A., Rioux, J.A., 1993. *Leishmania tropica* and *Leishmania infantum* in Greece: sixteen autochthonous cases. Transactions of the Royal Society of Tropical medicine and Hygiene 87: 184-185.

Summary: Sixteen dermatropic *Leishmania* strains isolated from humans in different parts of Greece were typed by excreted factor serotyping and by electrophoretic analysis using 15 enzymes. 15 of the 16 strains were *L. tropica* (EF subserotype A2B2 and zymodeme MON-57 and MON-114). One strain from a patient living in Athens was *L. infantum* MON-1 with EF subserotype B2. It was the first report of dermatropic *L. infantum* from Greece.

225. Léger, N., Pesson, B., Madulo-Leblond, G., Ferte, H., Tselentis, Y., Antoniou, M., 1993. Les phlébotomes de Crète. *Biologia Gallo-hellenica* 20: 135-143.

Abstract: The authors undertook entomological investigations in Crete as part of a study of insular Mediterranean sandfly populations. Two surveys have been carried out during July 1988 and August 1989. Captures gave the following data: list of species collected with oiled paper traps in the central district of the island-seasonal occurrence and isoenzymatic characterization of Cretan populations of two known vectors of leishmaniasis, *Phlebotomus (Paraphlebotomus) sergenti* and *Phlebotomus (Larroussius) neglectus*.

226. Pesson, B., Léger, N., Madulo-Leblond, G., Ferte, H., Tselentis, Y., Papadopoulos, B., Perieres, J., 1994. Spéciation et vicariance chez les phlébotomes des îles grecques. *Biologia Gallo-hellenica* (in press).

Abstract: Since 1979, phlebotomine sandflies have been collected in ten Greek islands: Corfu, Cephalonia, Zante, Andros, Tinos, Ikaria, Samos, Crete, Karpathos and Rhodes. Morphological and isoenzymatic approaches were carried out. Qualitative and quantitative distributions of *Phlebotomus* were set out and affinities between *Larroussius* discussed at the specific level. Intraspecific variations were studied in five populations of *Phlebotomus neglectus* a proven vector of *Leishmania infantum*. In view of the results, the authors voiced hypotheses about *Larroussius* settlement in the Mediterranean Basin.

227. Tselentis, Y., Gikas, A., Chaniotis, B., 1994. Kala-azar in Athens basin. *The Lancet* 343: 1635.

Summary: From 1962 to 1992, 1005 cases of human kala-azar were recorded in the Athens basin. 90% of these occurred in the vicinity of quarries, which exist at the foothills of the mountains bordering the city and the hills in the metropolitan area. The presence of sandflies, stray dogs that act as reservoirs of *Leishmania infantum*, and a susceptible human population in and near the quarries provide favorable conditions for transmission.

228. Papadopoulos, B., Tselentis, Y., 1994. Sandflies in the Greater Athens Region, Greece. *Parasite* 1: 131-140.

Abstract: During the period from May to October 1992, a survey of phlebotomine sandflies was conducted in the Greater Athens region where cases of human and canine leishmaniasis occur. Using castor oil paper traps, a total of 3015 sandflies were caught. Of the identified specimens, 1002 (34.1%) were *Phlebotomus neglectus*, 541 (18.4%) were *P. papatasi*, 182 (6.2%) were *P. tobbi*, 50 (1.7%) were *P. simici*, 30 (1.0%) were *P. alexandri*, 13 (0.4%) were *P. sergenti* and 1122 (38.2%) were *Sergentomyia minuta*. The seasonal activity of most *Phlebotomus* species was bimodal, while that of *S. minuta* was unimodal. The population density of sandflies varied significantly in different localities; it was low in most of the stations and high in some stations in the outskirts. Among the potential vectors of *Leishmania* spp. *P. neglectus* and *P. papatasi* were the most widespread species. The former species showed high density in 12 of the 70 sampled stations, while the latter in only 4. Hence, the risk of transmission of sandfly-borne diseases is still present in the Greater Athens region.

229. Chaniotis, B., Gozalo-Garcia, G., Tselentis, Y., 1994. Leishmaniasis in the large urban area of Athens, Greece. Entomological studies. *Annals of Tropical Medicine and Parasitology* (in press).

Abstract: Greater Athens is the largest urban area in Greece (3.5 million people) and has most of the human and canine cases of kala-azar reported in the country annually. An entomological survey using light and sticky

traps conducted in 1993 identified 7 species of sandflies distributed in quarries, corrals, wells, special type walls, houses and animal shelters. Wooded areas and scrub were free of sandflies. There were small "island" populations in residential districts and moderate to high populations in quarries and corrals in the foothills of the mountains bordering the greater area and several hills in the central part of the city. *P. neglectus*, the putative vector of VL, was ubiquitous, predominated in quarries and also made a large part of the sandfly adult population in corrals, and residential habitats. The distribution, abundance and seasonal activity of all 7 species of sandflies is described and discussed.

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**Additional information on leishmaniasis
can be found in the following publications**

- a. Archives of the Hellenic Pasteur Institute, and specifically in the annual reports of the Parasitology Laboratory for the period 1979 to 1983 (In French).
- b. Archives of "Andreas Sygros" Hospital, starting as early as 1931, which contain case reports of Oriental sore without much detail. (*in Greek*).
- c. Archives of Hygiene. Quarterly journal published by the Health Education, Public and International Relations Division. It includes the number of reported VL and CL cases along with their geographic distribution (*in Greek*).
- d. Social Welfare and Health Statistics, issued by the National Statistical Service of Greece (number of leishmaniasis cases/year) (*in Greek*).
- e. Archives of Hellenic Pediatric Association contains brief reports of kala-azar cases. (*in Greek*).
- f. Medical Progress, monthly medical journal started in 1896. Brief reports of leishmaniasis cases (*in Greek*).

General discussions on the subjects of leishmaniasis and sandfly fever can be found in a number of medical textbooks published by Greek authors over the years. The most important ones are listed below.

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| Kokkolatos, N.C., | 1931, Pediatrics in Practice. |
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| Kallergis, D., | 1949, Elements of Clinical Pediatrics. |
| Pezopoulos, S.N., | 1952, Elements of Special Nosology and Therapeutics. |
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| Bambos, M.A., | 1957, Elementary Pediatrics. |
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| Daikos, G., | 1971, Nosology. |
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| Matsaniotis, N.S., | 1972, Pediatrics. |
| Doxiadis, S., | 1974, Pediatrics. |
| Gardikas, K.D., | 1977, Special Nosology. |