Medicine. — *The transport of the Javanese "endemic Dengue" to Amsterdam.* By J. M. HOFFMANN †, W. K. MERTENS and E. P. SNIJDERS. (Communicated by W. SCHÜFFNER).

(Communicated at the meeting of June 25, 1932).

After we had succeeded in transporting to Amsterdam the virus of the dengue, occurring in Sumatra, by way of Aëdes aegypti and Aëdes albopictus, which had been infected at Medan [1]), we also tried to procure the virus of cases of dengue occurring in Java for our experiments at Amsterdam.

At the first attempt in June 1931, one of us took some tubes with dried serum from the patients (volunteers) J. and v. D. at Tjimahi, to Amsterdam. These sera were taken on November 21, 1930 (J. 1st day of illness) and on January 20, 1931 (v. D. 1st day of illness) by the second of us, during his experiments at Tjimahi, and were dried in vacuo by Prof. OTTEN at the Pasteur Institute at Bandoeng. These two patients had both an attack of the typical "VAN DER SCHEER's fever" (5 days fever). The dried sera were dissolved on July 7 and 8, 1931 at Amsterdam, filtered through a Seitz-filter and then injected into 3 volunteers, viz. B., S., and G. B. received 1½ cc. serum of v. D., S. and G. received each 1 cc. serum of J. Only one showed a reaction, namely G., who had been injected with 1 cc. serum of J., which was then 229 days old. Eight days after this injection (July 16, 1931) G. felt out of sorts, he had a rise of temperature to 38.2°. The number of his leucocytes dropped from 6000—8000 to 4400, subsequently regaining its original value. The next day he was subjected to the bites of 10 Aëdes aegypti. The temperature was then normal again (even low: 36.5 at 5 p.m.; so was the pulse-rate: 60 per minute) and the patient felt better again. Rashes were not observed. The mosquitoes had died, before we had the opportunity to allow them to bite new volunteers. So this first attempt could not be carried on further. But as we thought it very probable that the fever of G. was a slight attack of dengue, we resolved to repeat the experiments.

As these first samples of sera containing virus were not brought from Java to Holland in a refrigator, we now decided to have the other samples transported at 4° C., in order to increase the chance of success.

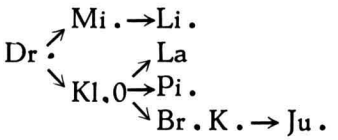
On February 25, 1932 the samples arrived at Amsterdam. For the first experiment we used the serum which had been stored for the shortest

---

[1]) Proceedings Kon. Acad. v. Wetensch. 1930. afd. Nat. Vol. XXXIX, no. 9; Geneesk. Tijdschr. v. N.I. 1931. Vol. **71** p. 241 en 345; Amer. Jrl. of Trop. Med. 1931. Vol. **XI** p. 171.

period: M. This serum had been taken on May 17, 1931 at Weltevreden on the 2nd day of the illness. It had been preserved in a refrigator for 20 days, and had been dried above P_2O_5 at a pressure of 1 mM mercury. The tube was sealed on June 12, 1931.

This serum M. was dissolved on February 26, 1932 to about its original volume, and was then injected subcutaneously, without having been filtered, into the left forearm of the volunteers Dr., P. and L, respectively ¼, ½ and ¾ cc. Only one of these persons got a typical attack, after an incubation of 4 days. (Dr. injected with ¼ cc.). His fever lasted 4 days (running as high as 39.2° C. during the first two days), accompanied by a decrease in the number of leucocytes. He showed the two types of rashes peculiar to dengue: a diffusely spread eruption of large, rather faint spots on the first day, and a slightly papular, brightly red second exanthema of small spots from the 4th to the 7th day. The subjective complaints were very characteristic also: headache, pain in the muscles of the eyeball and transient pains in the joints. With the serum of Dr., we have been able to transmit the disease to a further series of volunteers, as indicated in the following diagram



In all cases in which the inoculation was successful, the patients showed a clinical picture, which was much the same as that of Dr.

So we succeeded in bringing to Holland the virus of the Javanese endemic dengue, in a serum taken on the 2nd day of the disease, which serum was 285 days old (and had been kept during 260 days in a dried state) and to transmit the infection in a series of cases. The disease of the experimental subjects shows much resemblance with that of the volunteers infected with the Sumatran strain. Now that we have both kinds of dengue-virus at our disposal at Amsterdam, we will further be able to investigate whether there are slight differences between the two (in any case closely related) strains, or that we must look upon them as quite identical.