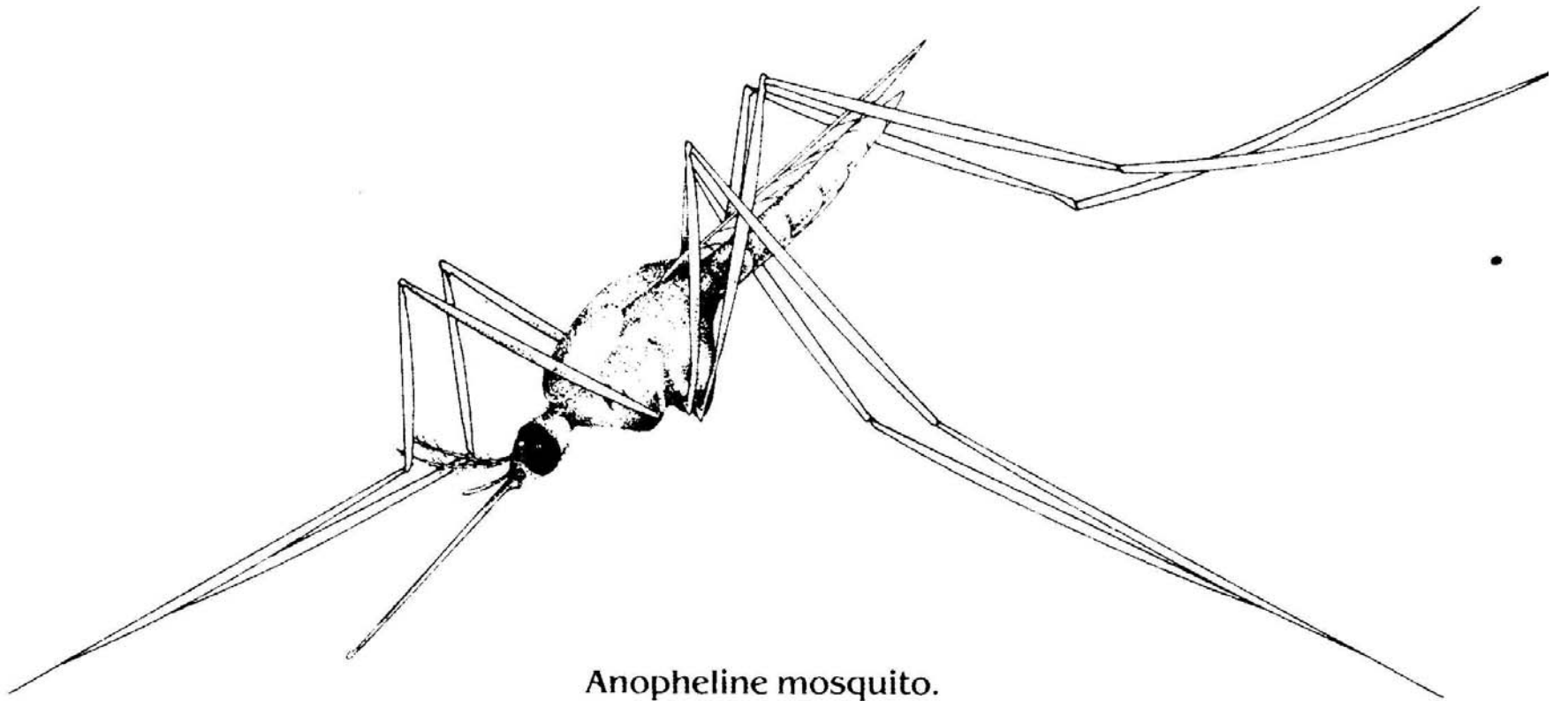


**PREDICTION OF HEALTH HAZARDS
IN
TROPICAL RESERVOIRS
AND
EVALUATION OF LOW-COST METHODS
FOR
DISEASE PREVENTION**

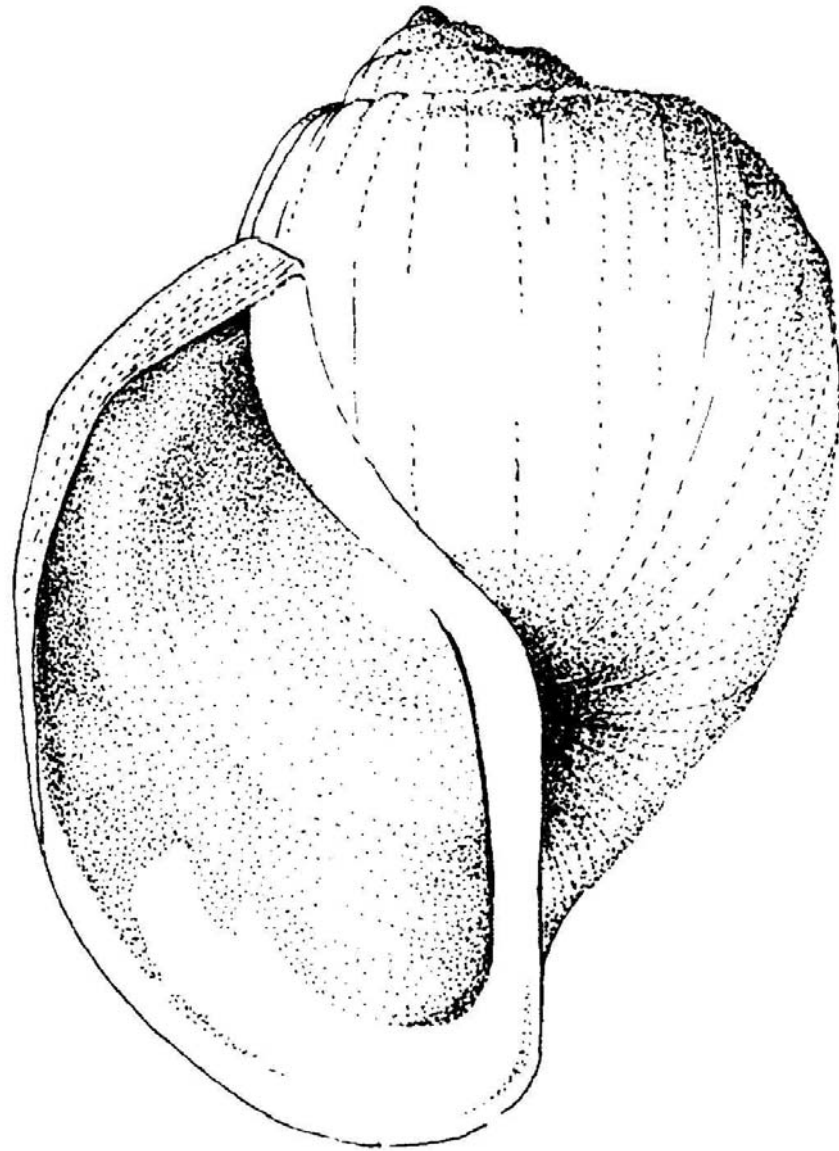
by
Dr. William Jobin
Director

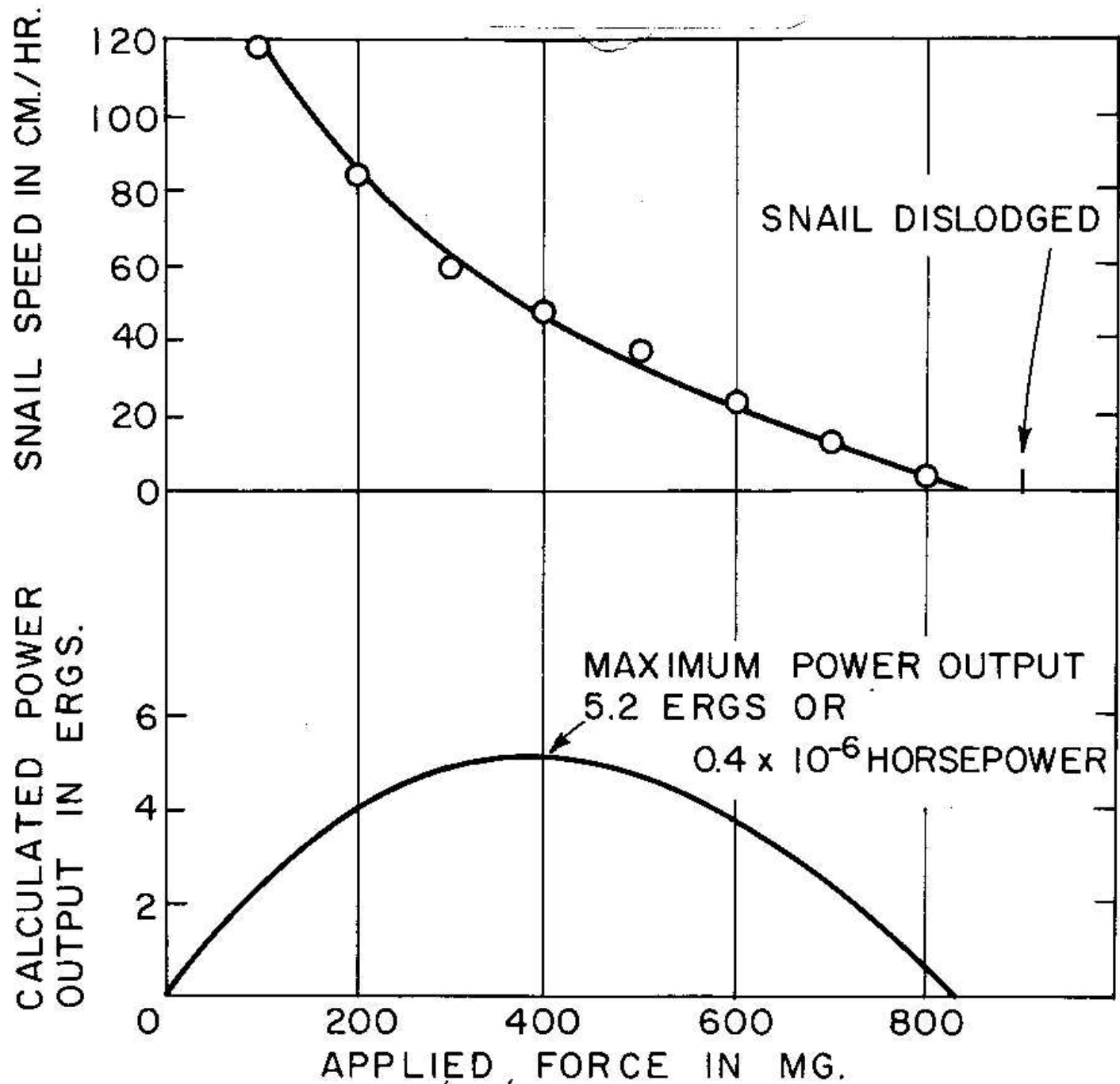
BLUE NILE ASSOCIATES

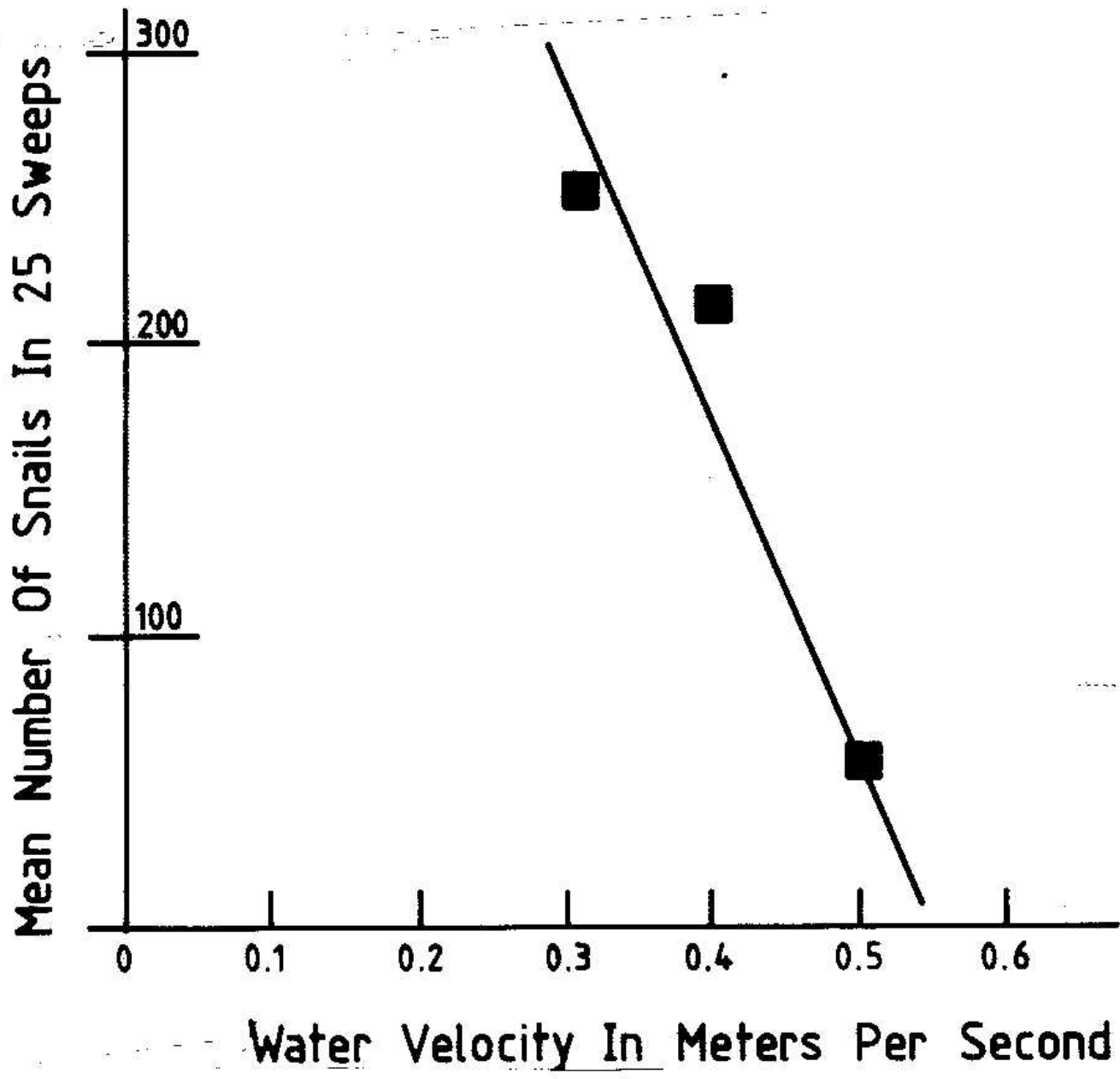
CORTEZ, COLORADO
US OF AMERICA

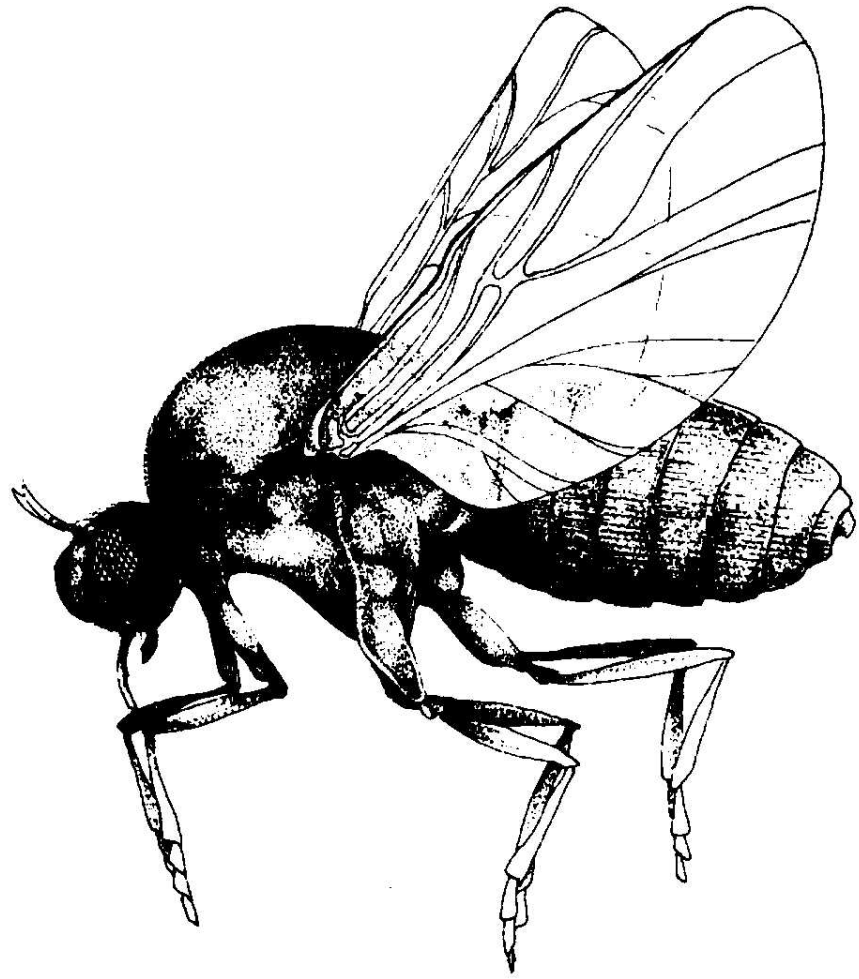


Anopheline mosquito.

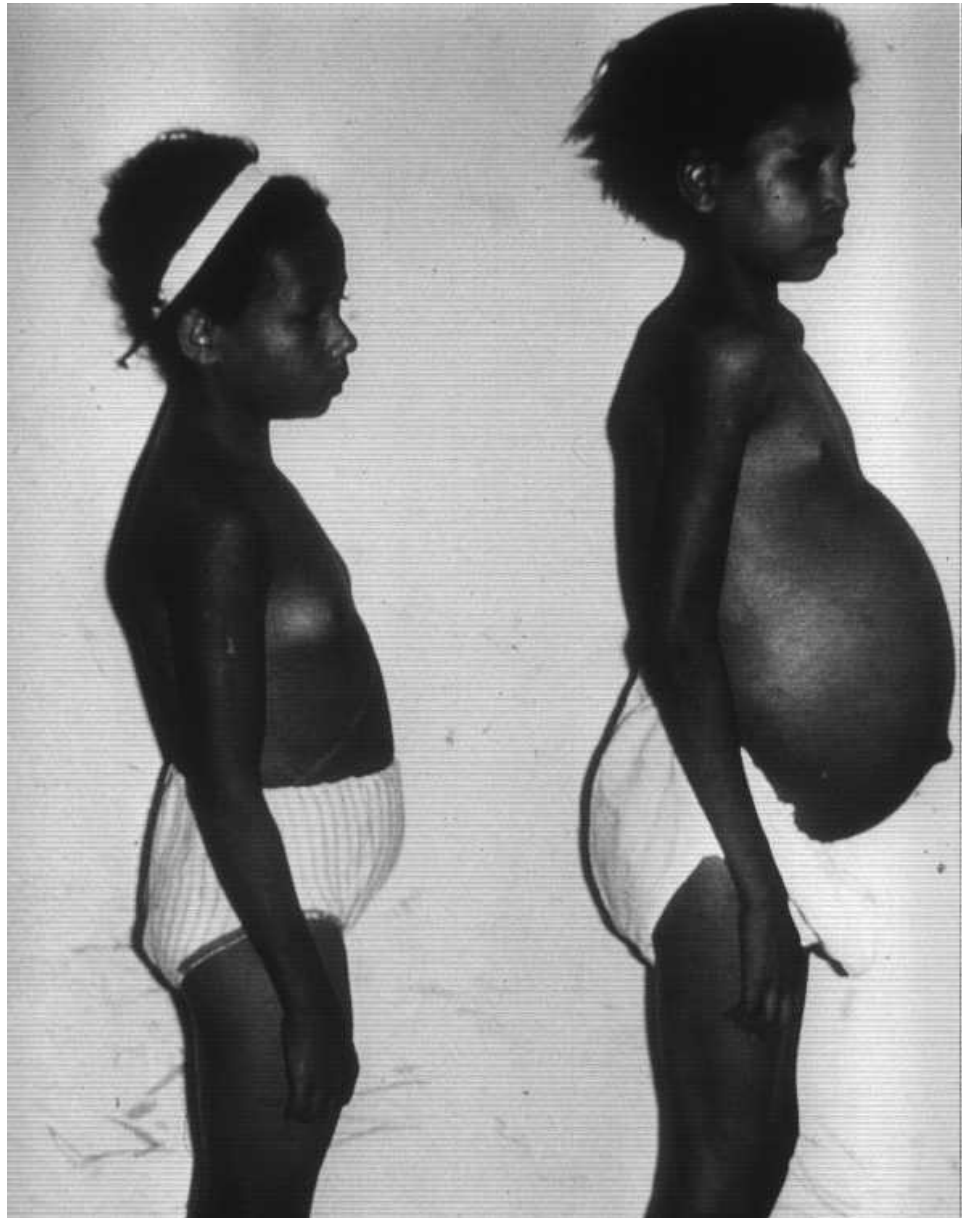






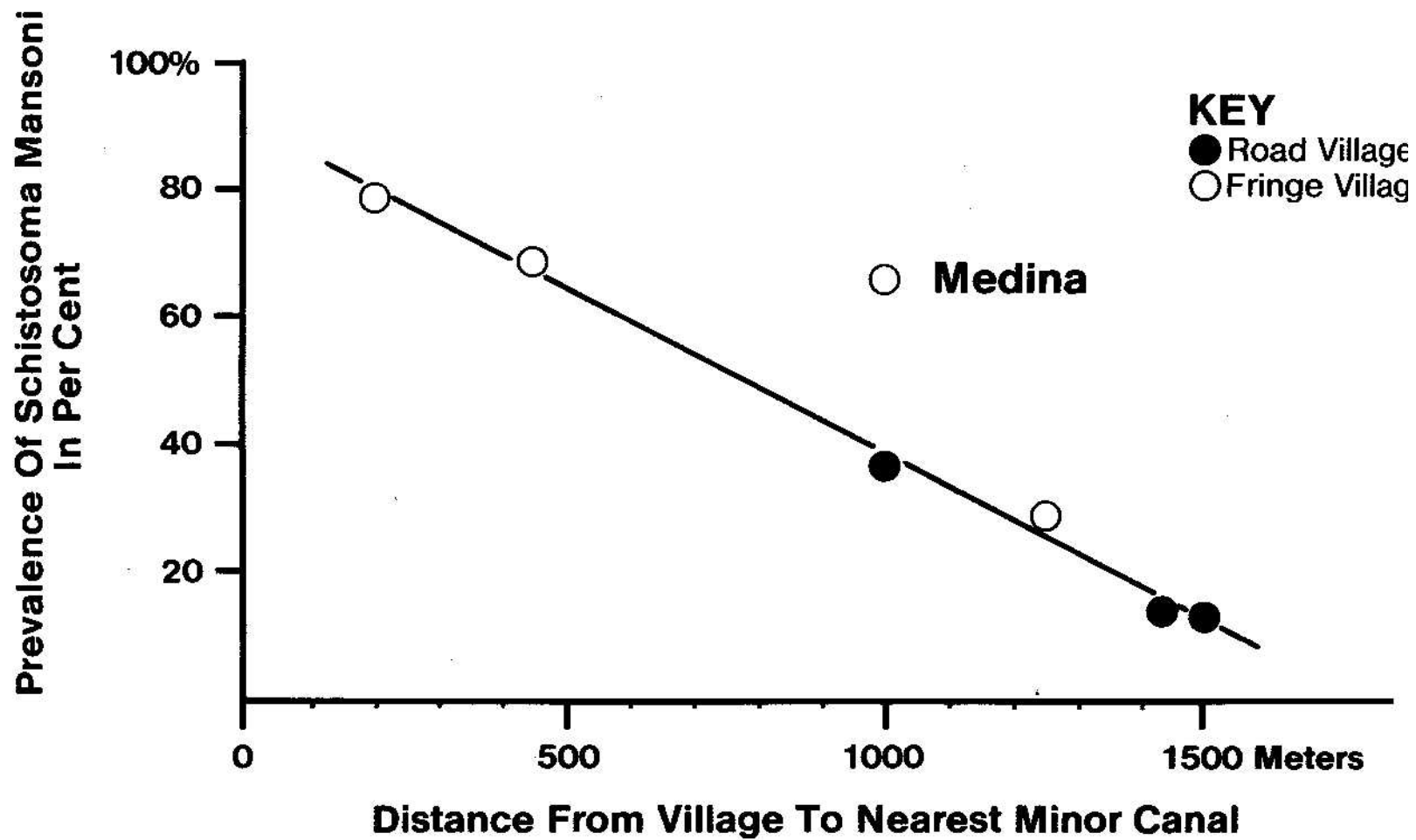
















DESIGN ALTERNATIVES

MALARIA AND SCHISTOSOMIASIS

- 1) Raise water velocities too high for snails or mosquitoes in canals
- 2) Provide safe drinking water to minimize schistosomiasis and diarrheal diseases
- 3) Locate housing for labor force far enough away from water to reduce mosquito biting
- 4) Screen sleeping areas to exclude mosquitoes

RIVER BLINDNESS

- 5) Design spillway with water velocities too high or too low for blackfly breeding

HIV/AIDS

- 6) Arrange housing for labor force dispersed in established communities, not in labor camps

OPERATIONAL ALTERNATIVES

MALARIA AND SCHISTOSOMIASIS

7. Dry canals, drains and rice fields periodically for mosquito and snail control
8. Fluctuate water-levels in reservoirs during critical seasons to reduce breeding of mosquitoes and snails.
9. Biological control of snails. Use Marisa snail or Grass Carp

RIVER BLINDNESS

10. Dry spillways periodically for control of blackfly breeding

HIV/AIDS

11. Organize relay system for long-distance transport of construction supplies and equipment

**Table 1 Human Impact Indices
for Ten Large Dams**

Dam	Country or River	Installed Power Capacity MW	People Displaced Thousands	Human Impact Index Displaced People/MW	
Owen Falls	Uganda	150	0.01	0.1	1
Grand Coulee	USA	6800	6	0.9	2
Itaipu	Brazil	12600	42	3.3	3
Ertan	China	3300	30	9.1	4
Kariba	Zambezi	1500	57	38	5
Manan-tali	Senegal	200	11	55	6
Aswan	Egypt	2100	120	57	7
Ako-sombo	Ghana	833	80	96	8
Three Gorges	China	13000	1600	123	9
Broko- pondo	Surinam	30	5	167	10

Table 2
Environmental Impact Indices for Ten Large Dams

Dam	Country or River	Installed Power Capacity in Megawatts	Reservoir Area in Thousand Hectares	Ecological Impact Index Hectares flooded/MW	Rank

Owen Falls	Uganda	150	0.01	0.1	1
Ertan	China	3300	10	3.0	2
Grand Coulee	USA	6809	26	3.8	3
Three Gorges	China	13000	110	8.5	4
Itaipu	Brazil	12600	135	11	5
Aswan	Egypt	2100	400	190	6
Manantali	Senegal	200	48	240	7
Kariba	Zambezi	1500	556	370	8
Akosombo	Ghana	833	848	1000	9
Brokopondo	Surinam	30	150	5000	10
