
ANTS AND MAN

BY JOHN LANGDON-DAVIES

THANKS TO Maeterlinck, Fabre, and others, the habits of social insects have for a long time been of interest to the general reader and general thinker; but it has usually been a patronizing sort of interest. We feel that it is clever and amazing of the little creatures to mimic in so many ways our societies and civilization; and we are duly astonished to find that ants make other ants slaves, keep pets and domesticated animals, plant crops and harvest them, make elaborate war, communicate with one another, and employ child labor to weave their homes: but we do not look to the ant for indications of our own possible development as social beings.

Our sense of superiority is no doubt partly due to our worship of mere size: Aristotle himself would not have cut much ice had he been only the size of an ant. Further, we regard insects as very low forms of life, whereas, actually, they are as far advanced in the evolutionary scale as we are ourselves. That is, we are the highest developed of those animals that put their money on a vertebral internal skeleton, while the ant is one of the most highly developed of those animals that banked on a segmented body covered with chitin. But both are an equal distance along the road from our original common ancestor, and if a stable and masterful relationship with the environment is a fair gauge of progress there are many ways in which the ant has made a better use of its time than man.

And from the point of view of social behavior there is an even stronger claim for the ant to be regarded as more advanced than the man. Social behavior is a matter of practice, or as we say, tradition. It is learned by the same process as that whereby water wears away a stone. The oftener an animal and its ancestors have had a chance of repeating a given social habit, the better, other things

being equal, will be its performance. Even in the restricted field of human social custom we find the truth of this, for it is certainly easier for an individual to be civilized in London, Paris, New England, or Virginia than in New York, Chicago, Moscow, or Johannesburg. But, apart from this, we breathe, and our hearts beat, without need of education because of the vast generations of practice we have had in those processes, but we still have to learn to speak because that is a later achievement of the race. The really important thing about ants from the point of view of our social problems is that there are many forms of social behavior which they can carry on as easily as we can breathe, because of the immense amount of practice they have had in doing them.

If we allow a thousand generations of human social behavior, we must allow at least from ten to twenty million generations of ant social behavior. And that is why the ant builds its community, guards it, divides the labor and rewards of maintaining it with as little need of conscious thought or decision as we need for breathing. Ants have done these things two thousand times oftener than human beings and therefore know how to do them "by heart." More than this, for nearly all this time ants have worked in a standardized environment, and their social reactions must have been exactly as at present, for ants preserved for millions of years in amber show the same physical modifications to social habit as ants alive to-day. Mankind has only just begun the toil of standardizing its environment, a necessary task completed by ant communities millions of years ago, and has hitherto had to unlearn all its social tricks every few generations, because the world around has changed.

It is not in the least extravagant, therefore, to regard the ants as in a far more advanced

social state than ourselves and to look to them for light on our own future experience as social creatures. But, the reader may say, ant societies are based on instinct, while we have intellect; and surely that makes comparisons useless! By no means. What we call instinct in the social behavior of an ant is merely the result of its having done things so often that it knows how to do them "by heart." Our use of intelligence in the same social functions may be merely temporary and due to our not yet having had enough practice to do things "instinctively." Our use of intellect is a lucky ability to use the technique of trial and error, until we have had enough experience as social beings to dispense with anything so cumbersome. Whatever its value as the parent of philosophy, art, religion, and science, thought is a confession of weakness and infantilism in the field of social behavior. And it may be that it is because he still has to think that man is not yet so certain of survival as a social animal as the ant.

The last decade or so has seen us entering into a partial realization of this. There has been a weakening of the democratic belief that free thought and *laissez faire* would equip societies with the weapons needed for survival. In Russia, Italy, Germany, and elsewhere this belief has been replaced by an insistence that all social conduct should be based, not on thought, but on reflexes conditioned in the interest of a "totalitarian" or ant-like state. A nazi child, a fascist youth, a young communist is not trained to think but to respond through his reflex arcs to flags, speeches, slogans, and formulae. There is, of course, nothing new in this, for in our own communities whenever social conduct is required we encourage individuals to stop thinking. Red and green traffic lights, advertising, organized forms of amusement, mass education, propaganda — in all these we hope that the stimulus will excite reflexes without permitting the higher brain centers to come in and confuse action. In short, we stretch forward to the ant community, but never more so than when we set up the "totalitarian" state.

Ants, then, may be regarded as object lessons in our own future development, and it is of great practical interest to see whither the social habit drives the individual animal who

has progressed farther than we have done so far. For these experiences will probably be repeated by the human race.

POLYMORPHISM

FIRST OF all there is the fascinating phenomenon of polymorphism. There are only two main forms of the human animal, the male and the female, and it is very interesting to observe, therefore, that the only kind of polymorphism practised by man is one that is just as valuable to a solitary animal. We, so young are we in our social habits, are no more polymorphous than the cat that walks by itself. Our individual physical bodies have not begun to show different physical shapes or to have their organs variously developed in response to the social functions performed.

With the ant it is quite different: polymorphism for the mere sake of sexual reproduction is relegated to the background; it is still there, but above and beyond it we find individuals whose forms have been modified and changed in order to fit them for some special economic work that they must do for the community. Reproduction is the task of a very few; the rest must work, and therefore have bodies unencumbered with sexual organs or sexual desires. There are males, or drones, and there are fully developed females, but only a very few; the rest of the potential females are socialized to their finger tips, so to say, into neuter workers. Compare this with the social parvenu, man, who has recently socialized more and more women into workers, but without altering their bodies. We have left them reproductive machines and turned them into industrial machines as well. All the social evils coming from a clash between the family and the job are a result.

If we had had the social sense — better put, the social experience — of the ant, we would have begun by making physiological changes first, in order that the desired psychological changes might have followed. And this is what we shall do in the future: we shall avoid the clash between sex and work by making those individuals who are needed for work physically free from sexual hunger. We need not wait ten million years like the ants for these individuals to learn to be neuters so thoroughly that they are neuters through force of habit. We shall

make the necessary physical changes as part of the orthodox child training that they will undergo. Among the ants the originally female individual becomes a neuter through the effect of constant overwork on the ovaries, which suffer from malnutrition and so do not develop. Precisely the same thing can of course be observed in contemporary human societies, since the effect of much work upon the female seems in many cases to produce a like physiological degeneracy. But this process alone will prove too slow, and in the "totalitarian" state it will be supplemented by applied endocrinology and surgery.

When man takes to social, as distinct from mere sexual, polymorphism, he can choose between the solution of the ants and that of the termites, two very different families of social insects which adopted the social habit quite independently and yet progressed along similar lines. Whereas among ants it is only the female that has been socialized into the neuter worker, among the termites the male has been socialized also. Here you find queen termites, drone termites, neutralized female workers, and neutralized female termites. Professor Morton Wheeler, always a good humanist though never a naughty anthropomorphist, says that he for one would rather we followed the ant way than the termite way; but it must be confessed that with man the chief source of sexually wasteful energy is in the unproductive sexual activity of males. Many people, including Tolstoy, have pointed out that nine-tenths of the world's enslavement to work is caused by this purely non-social trait, and a cursory glance at the shop windows of Fifth Avenue reveals that most of the goods are needed for no other purpose than to arouse sex feeling.

ANT SOLDIERS

BUT ANT polymorphism goes farther than the production of a third or worker caste. There are also individuals with very large heads or powerful jaws that take no part in the sexual labors nor in the industrial activities of the community. They are the soldiers, and they concern themselves almost entirely with war, defensive and sometimes offensive. Sometimes there are two types of military ants, a division of labor not unlike our light and heavy infantry. These forms are all of them a response to

the social habit and as ingrained as our two sexes. In fact early observers were so used to the idea that polymorphism was with us a matter of male and female that they talked of the worker "sex" and the soldier "sex." There is a great deal to be learned from the existence of these soldier ants that is relevant to our future history. These heavy-headed individuals are from birth interested only in fighting, because their psychology is unalterably conditioned by their physiology. Once animals become experienced in the social habit, they find that such conditioning is essential to the economic working of the community. If we can imagine the human animal progressing naturally for thirty million years, it is to be expected that certain individuals will be born soldiers just as at present some individuals are born males; but we shall not wait for that; the "totalitarian" state will hasten this, too, with the practical application of endocrinology, and education based on conditioned reflexes.

Further, as we learned from Caesar, war is a seasonal occupation. After the campaign one must go into winter quarters. The immense social experience of the ants has taught them that you cannot run a community if for a large part of the year a considerable proportion of the citizens are worthless to it. Certain species of ants have therefore adopted the following social technique towards the soldier problem: in the fall when the fighting season is over, temporary employment is found for them as harvest hands; the grass seed is collected and the powerful heads of the soldiers used to crush it; that task done, the workers snip off the heads of all soldiers and drop their remains out of the nest. Thus the community is not burdened with a standing army in peacetime.

It is not enough to read these facts as isolated wonders of nature, for they are for us the writing on the wall. The existence of worker and soldier forms, while we have only sexual forms, the treatment of the soldiers in the case quoted are examples of how animals behave when their social experience is far greater than ours, and it is also an indication of what humanity will do if it is ever to make a success of the social habit. Every social being, man, insect, or other animal, will, after sufficient social experience, learn that specialized labors in the community require specialized bodies,

and that no community can afford these specialized individuals alive once their social purpose has been achieved. To let them live once their work is over is not only uneconomic but psychologically dangerous to social stability, which depends on all the emotions of all individuals being adequately satisfied.

The extent to which this has been learned by the animals with the longest social experience is illustrated by the treatment of soldiers by another group of ants. When there is no fighting to be done the soldier ant is used as a living door with which the exit from the nest is closed. The large head makes these individuals admirably fitted for the duty. When a small worker wants to get by, it strokes the soldier's abdomen, and at once the door swings back and, after the worker has passed, closes to. A judicious tapping on the head opens the door to the returning wanderer. This interesting arrangement is possible because the soldier is so delighted by the strokings and tap-pings that it feels itself adequately repaid. Unlike Bottom it does not want to be Pyramus, Thysbe, Lion, and Wall, but just Door, and Door only. We see that sooner or later the social habit requires that every individual shall be contented with his job and yearn for no other, and that can be brought about only by incapacitating it psychologically from any desires for other occupation. Such a state of affairs is possible in the "totalitarian" state.

THE LAWS OF SOCIAL HABIT

FOR THE benefit of those who still feel that ants and men are so different psychologically that comparisons are worthless, it is worth while adding that modern psychology has reduced these apparent differences in at least one very important particular. It used to be thought that certain ingrained altruisms and nobilities explained some of human conduct, as for example the devotion that comes from the ant maternal instinct. Ant observers were struck by what they felt was a like nobility when they saw the selfless care bestowed by the workers on eggs and young at times of general disaster, such as an earthquake induced by an intruder's boot. Modern psychology has shown up the human mother and proved that there is an emotional *quid pro quo* without which she will not show the slightest fragment

of mother love; that indeed she eats her child emotionally just as much as she feeds it. Exactly the same is true of the ant, which serves the young because it derives its supreme joy from licking the various secretions of its charges. In short, the social habit in the end brings about a state of affairs wherein every individual is irrevocably conditioned to want to behave in a given way and then is satisfied by being allowed to do nothing else. The socially wisest animals accept the inalienable right of the individual to the pursuit of happiness, but have learned that this pursuit can have meaning only if the individual is physiologically conditioned to enjoy a given social niche and no other.

Probably many social animals have become extinct because they did not perfect their social behavior; for example many ants may be dead without descendants because they did not execute their soldiers at the right moment. The whole evolution of human society must follow the same course. The laws of the social habit are laws in the same way as the law of gravity is a law. Democratic ideas are due to an interesting stage during which the whole question is whether man as an animal will or will not adopt the social habit in its entirety. All sorts of atavism from the times of his solitary, prehuman ancestors flourish alongside the incompatible imperatives of the alternative mode of life.

At the moment it looks as if mankind is finally doomed to the natural evolution of the social habit, but whatever form of economically "totalitarian" state we may adopt, we should remember that that is but a step along the road already traversed by the social insects. The social way of life requires not only a political and economic dictatorship, but the socialization of the individual, physiologically and psychologically. Those who dislike the feeling that Russia or communism in general is the last word in the field of social thought, a dull eliminating of controversy by the discovery of ultimate truth, may take heart when they consider how far beyond this quite primitive stage the ants got long ago. And they may read the human future in the insect past, and see that Lenin, Hitler, and Mussolini are merely preparing the ground for man to catch up with the ant.

THIS HEAVY LOAD

A Short Story

BY WILLIAM MARCH



Drawings by Raymond Bishop

IT WAS a dilapidated brick house with sagging balconies and rusty iron grillwork. Mrs. Southworth, the landlady, who was intended by nature to be a bos'n on some sailing vessel, but who by mistake had become a woman instead, showed me her vacant room and stood with her hands folded under her apron, her iron jaw clamped down. . . . "All right, find fault with it and see what happens to you, my fine sailor man!" I imagined her thinking. But when I told her the room would suit very well and paid her for a week in advance, she became more cordial.

Later she invited me downstairs for a drink. We had three together, and by that time we were excellent friends. She began to tell me about the other people in the house. Across the hall from my room lived a man named Downey,

and Mrs. Southworth didn't quite know what to do about him; he hadn't paid her a cent of rent for the past two weeks, since he lost his job, and why she let him stay on was a mystery to her! . . . Only there was something about him, something she couldn't quite understand. . . . But what he ate, or how he managed to keep alive was what she couldn't figure out. He spent all his time sitting by his window, carving on a block of wood or looking at the river, deep in thought. . . . "If it was *you*, now," she continued, "I'd have you out in the street bag and baggage before you knew it, but *this* fellow. . . ." She paused and shook her head, as if puzzled.

That night I saw Downey for the first time. He came out of his room as I was coming up the stairs, in his hand a paper parcel from which minute shavings were spilling. His skin was like porcelain in its dry brittleness, and his eyes were sunken; the lines in his cheeks and in his forehead were so deep they seemed cut there with a knife. When I passed him on the stairs he stopped and held on to the banisters for support. Then I spoke to him, and he looked up quickly and stared into my eyes, and I understood why even a realist as hard and as unimaginative as Mrs. Southworth couldn't throw him out. There was the same eagerness in his eyes that you see occasionally in the eyes of a dog mourning for his lost master. I looked at his lined face and his full, sensuous mouth for a moment. I said: "I understand we are neighbors. I've just taken the room across the hall, until my ship is ready. I'll be glad to have you come in and talk to me sometimes."

"Thanks very much," he said gravely. That's all there was; he didn't commit himself one way or the other. As I went to my room, I saw him still standing there by the banisters, watching me. . . .

A few nights later he did come to my room.