

Cats, Tigers, and Scientists

By ONE OF THEM.

THE ordinary tolerant householder has no particular objection to seeing a cat about the house ; apart from any possible personal liking for cats, he may readily be persuaded that they serve a useful purpose in that they keep down rats and mice, and thus protect his peace of mind and store cupboard, and also keep certain diseases at a distance. But he likes the cat to be entirely subordinate to himself, and reserves the right to kick the cat when he wants to. If it should turn out that a slight mistake had been made, and that his children had inadvertently received a present of a tiger cub instead of a kitten, he might be doubtful as to the advisability of keeping it as a pet ; he would certainly have no doubts on the subject when subsequently, having grown, the animal tended rather to dominate the household, and possibly at a later stage objected strenuously to the ceremony of being kicked.

There has always been a big body of people, which has generally included the social leaders, who have regarded the scientist as the cat. One is not speaking only of today, of course, as we can observe that attitude of mind right back to the earliest times of which we have record. Also, we now find a very large body of thoughtful householders pensively observing the cat, and wondering if it is a tiger cub after all, and growing rather rapidly.

Science and scientists can either be of the greatest service to humanity, or the biggest menace. What have they been in the past ?

Looking backwards to our first records, we see that the scientist has practically always been interested in the investigation for the sake of the study itself ; he has grown up with the small boy's " why ? " peculiarity, and very strongly developed ; not satisfied with a detached acceptance of the situation that certain things " are ", he demands to know *why* those things are, and what would be the consequences of making changes.

Even today probably a big percentage of the older people do not know even in general terms what a science covers. Take the fundamental science, physics : One knows that there are still lots of people who say " Physics—physics are things chemists put in bottles—something to do with medicine". Physics answers the eternal " why " and " what would happen if ", and goes back as a science, with people devoted to its study, to thousands of years B.C., though it is only within the last few hundred years that we have insisted that everything shall be put to the test of measurement—measurements as precise as we may make them. Speculation is still encouraged, but it is based on precise experimental results, and is checked by further experiments.

Just as the physicist makes use of the methods of attack made available by the mathematician, so workers in other sciences, applied or pure, take up the results of the physicists' investigations and apply them to their own problems. Until our fathers' times, other sciences tended to be " classification " studies only—chemicals

were sorted out according to their reactions with other chemicals, and lists of such reactions were memorised; the physicist has enabled the chemist to advance far beyond this stage.

Botanists and geologists were purely "classificationist" for many years; zoologists and physiologists put their studies on a scientific basis and applied physical principles at an earlier date; the rapid development of that general science, biology, has caused an even more rapid development in an applied science dependent on it—that of agriculture.

The applied science engineering—civil, mechanical, electrical, radio—has always watched fresh developments in physics and hastened to apply them, so much so that whereas the other sciences, pure or applied, use the advances in physics to develop their own particular studies, engineering is the direct application of physics to everyday life. The modern professional engineer has to be a trained scientist; competition is too fierce for the mediocre man to succeed, and failure is too costly. The medical practitioner is also becoming a scientist; with the decrease in the size of families, human lives are becoming valuable.

The medical statisticians tell us that in the last three generations the average expectation of life of a new arrival to this world has been extended by nearly twenty years; although your local practitioner may justifiably pat himself on the back for this, he is no more *directly* responsible for it than is the milkman for the supply of milk to your house. The first credit rests with the research workers in medicine, anatomy, physiology, biology—down to the other workers who supply them in turn with their methods of attack. To enable the invaluable results of the specialised student in medicine to be passed on, the medical practitioner requires to be educated to understand and to apply them—hence the recognised urgent modern necessity for a sound preliminary training in the underlying principles of modern science. One foresees that medicine, which has quite recently passed from the control of the barber and the astrologer, will, within a few generations, become a more precise quantitative science, and that our children's children will look back to the early 20th century in which we lived, as we now look back to the old days of "Bleed him twice daily, and give him this powder made from the left hind leg of a speckled toad, killed when the moon was at its full".

Are we dealing with the tiger, or with the cat? Not only can our discoveries be misapplied, so that we may be preparing to control or to wipe out a city or a civilisation instead of to give it greater happiness or extended useful life, but is science a nuisance? Do we want to live another twenty years? Do we want to travel at many hundreds of miles per hour? Or do we wish to revert to earlier, less complicated times?

Probably the schoolboy who now studies, as one of his most necessary subjects, that science of physics, yearns for a deserted island; he thinks of the joys of merely being—a pleasant surf beach, shady coconut palms, wild pigs provided, rippling streams (preferably of ice-cold water from the snow melting on the hills behind), and a few well baked yams to accompany the grilled pig. No worries—no cares—certainly no work. There are times when the picture rises before us older people also, and we wonder if we have not made life too complicated; if the student dislikes studying, we certainly dislike marking large numbers of bulky examination papers.

But we would retire to our own deserted islands with the accumulated knowledge of thousands of years, so far as we have acquired it, at our disposal. And we would in a few days once again start doing things—manufacturing fish-hooks, and trying to make better ones; spearing fish; studying the subject of flotation, and making and then improving our boats; the only hope would lie in the fact that if the islands were really deserted, our discoveries would die with us. In a short time the one-time student might be spurred on to make a trustworthy vessel to take him to an island which was not *quite* so deserted; and we might be regretting that we could not listen-in to a ball-by-ball description of a test match, accompanied by a bottle of something iced from the electric refrigerator.

We have always been studying and applying science; we always will. There is no doubt that this study has given us great possibilities of increased health, happiness, and comfort, if we care to use its discoveries rationally, and do not employ them to kill one another or cause unhappiness.

The kitten has not grown into a tiger; the scientist is still as useful and faithful a servant of mankind as ever he was, and probably just as disinterested. It is the intelligent person who misuses or exploits wrongly the discoveries of the scientist who is and has been the menace or nuisance, and requires to be dealt with severely. When the cat kills a rat, encourage it with a pat and some cream; when your small boy, then, places the dead rat in your bed, don't spank the cat.

THE EARLY HOME OF MAN.

Most people are familiar with the general ideas underlying the theory of evolution, and acknowledge that, judging by the evidence available, unsatisfactory though it may be, there sprang in successive periods from the common primate stock branches which today are recognised in the new world monkeys, the old world monkeys, apes, and men.

There have apparently been many attempts in the development of man before *homo sapiens* came on the scene and developed to the stage that is us, modern man. Those earlier types have gone, are extinct.

Sir Arthur Smith Woodward, a distinguished anthropologist, in a recent lecture considered the evidence as to where man had first evolved and differentiated himself from the ape stock of today. He considers that the best proposition yet put forward is that man arose in Central Asia from ground apes driven from their forests by the upheavals of the Himalayas.

"Men" had come and "men" had gone, and the *homo sapiens* stage had been reached long before the crossing to Australia from Asia was made by the forefathers of our aborigines; we can make no claim at all, on account of the geological age of our continent, to have been the cradle of the human race.

Sir Arthur Woodward considers that the discoveries of fossil mammals in the caves of Palestine and of Syria show that Asia and North Africa were much more closely connected during the earlier half of the Pleistocene period than they since have been, and that a similarity between the remains of Pleistocene mammals of Africa and Europe is probably due to the fact that they also have a common source in Asia.