having an approximate length of 140 inches each is given in Table II.

TABLE II

*Percentage proportions of fresh animal*

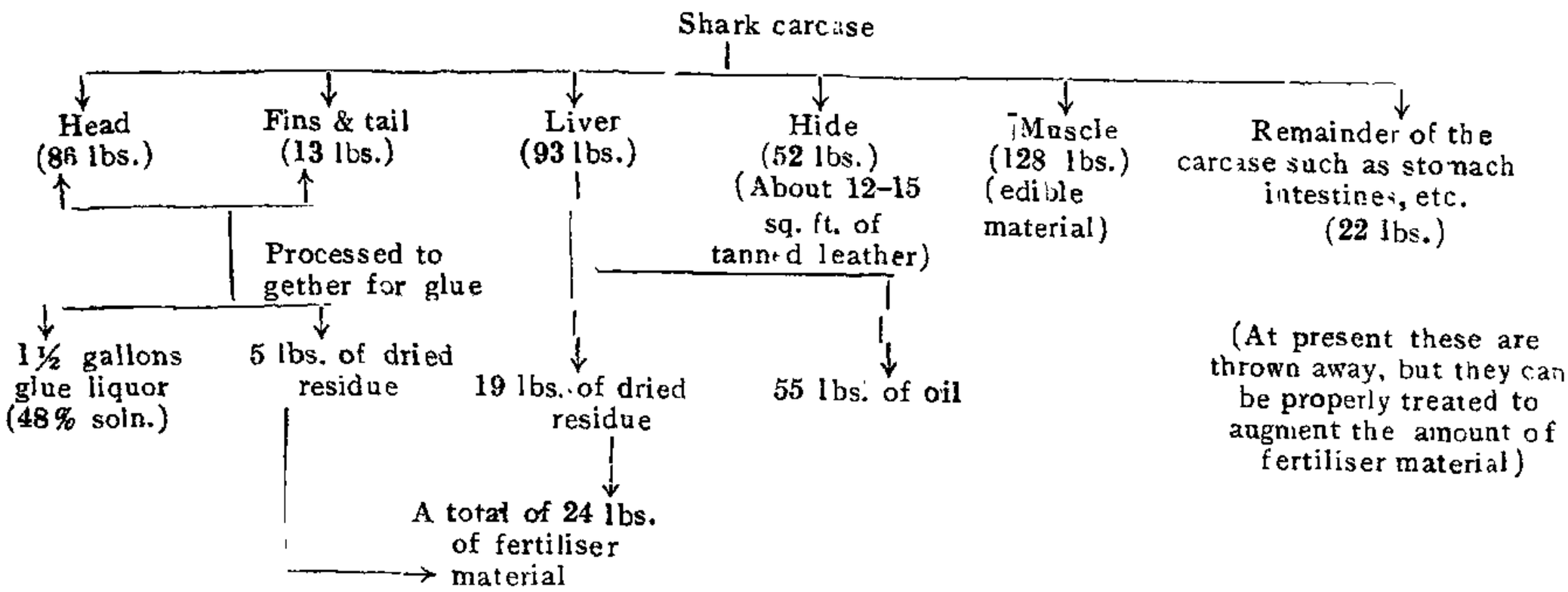
| | Per cent. |
|---|---|
| Liver | .. 23·3 |
| Head and skeletal cartilage | .. 21·5 |
| Hide | .. 13·8 |
| Fins and tail | .. 3·2 |
| Heart, stomach, gills, intestines, etc. | .. 5·7 |
| Blood | .. 0·8 |
| Muscle, etc. | .. 31·7 |

Sharks of the *Carcharias* variety which form about 20 per cent. of the sharks landed on the Madras coast are smaller, measuring on the average 80-90 inches in length, and weighing approximately 230 lbs. The average weight of the liver in these animals does not exceed 26 lbs., *i.e.*, approximately 11 per cent. of the total weight of the animal. The yield of the oil in both these species is, however, nearly the same, *viz.*, 55-65 per cent. of the weight of the liver.

The following table showing the amounts of the main products which may be obtained from a shark weighing 400 lbs. is based on the results of the preliminary work which has been carried out so far in these laboratories.

It will be evident from the table that from a shark of average weight of the *Galeocerdo tigrinus* species it would be possible to obtain 55 lbs. of liver oil rich in vitamin A, about 15 sq. feet of tanned leather, 128 lbs. (fresh weight) of edible flesh which may be filleted and smoked, 1½ gallons of good glue liquor containing 5-6 lbs. of solid matter and 24-30 lbs. of dry material of high calcium, phosphorus and nitrogen content suitable for use as fertiliser apart from the hormones of the pancreas, the thyroid and the liver residues on which work is in progress.

TABLE III




This investigation has been carried out with a grant provided by the Council of Scientific and Industrial Research to whom our thanks are due. We are also thankful to the Deep-Sea Fishing Department, Madras, for their co-operation during the course of this investigation.

1. Gajjar and Sreenivasaya, *Curr. Sci.*, 1945, **14**, 220,

## THE URGE FOR WHOLENESS*

WHAT is the most basic urge or trend of human nature? Contemporary psychology gives many answers; sex, will or power, behaviour, reflex action, purpose and some other similar concepts. The variety of voices of these answers, so different and exclusive as they are, constitute the well-known crisis in the science of psychology to-day.

The question, What is really the first or fundamental urge of human nature, therefore, becomes an acute issue.

The author of this address would contend that an answer to this question can only be formulated by considering the whole phenomena of human nature in all its ranges of experience, conscious, subconscious and the super-conscious. Most of the existing answers are based upon an exclusive consideration of the nature of the subconscious or a bit of bodily behaviour or some other particular fact. The super-conscious experience testified to by vast yogic, mystic and religious literature of the world and the modern yogic practice have so far not been seriously considered by the psychologist in evolving his view of human nature. And while evolution is recognised as a fact we do not seem fully to recognise that for the understanding and explaining of a particular stage of the process the stages antecedent to it alone cannot be sufficient. McDougall affirmed "purpose" or "goal seeking" as the essential characteristic of mind, but yet resorted to searching for the antecedent facts of "structural dispositions" to explain instinctive behaviour. The natural science habit of looking for antecedents as causes seems to have influenced unconsciously even a deliberate purposivist like him.

* A popular summary of Dr. Indra Sen's Presidential Address to the Section of Psychology and Educational Science, Indian Science Congresss, Bangalore, 1946.

Indian psychology, in the opinion of the author, has been thoroughly purposivistic. To it the next higher form of consciousness possible to man has been the matter of the first importance. The end towards which an evolutionary process moves is by far the most important single factor to explain the nature of the process. The antecedents come only next to it. Indian psychology discovered and ascertained the reality of a form of consciousness, possessed of the quality of wholeness, a consciousness in which knowing, feeling and willing operate not through mutual stresses and strains and an economic balance of the whole, but through an essential unity and harmony. If such a consciousness is a reality then obviously our present view of mental action needs a radical re-orientation.

The author feels strongly persuaded to affirm that an evolving "wholeness—a tendency to a progressive perfection of organisation—is the principal trend not only of human nature but of organic evolution as a whole. This progressive perfection of organisation of life is more easily noticeable in the sub-human species, from amœba to the ape, in an increasing adaptation to and mastery of, an ever more complex environment on the whole. In man, however, the situation becomes changed. Through his power of thought he rises to an immensely greater capacity of dealing with his environment. But through the development of self-consciousness, which makes thinking possible, he becomes conscious of deep inner discords whose harmonisation becomes the new direction of evolution. Simultaneously he becomes conscious of the mechanism of projection, as a fact ingrained in his animal nature, and begins to recognise the true causes of happenings as belonging to the forces within the personality rather than to things outside. Now the yogic fact of a fulfilled consciousness, a consciousness, whole, harmonious and balanced, called by Sri Aurobindo the Psychic Consciousness, experienced and enjoyed by many individuals in the past (to that the yogic, mystic and religious literature bears wide evidence) and which to-day is equally well experienceable by pursuing an intensive inner discipline of life, comes closely in line with the fact of general human consciousness. The fact, no doubt, occurs under rather exacting conditions of life, but when once its character is definitely ascertained, its effects for general consciousness, which are tremendous, will become easier to determine. But even otherwise the quality of the fact, so distinct and unique, representing a form of consciousness, in which the so-called fundamental polarities and dualities of the general human consciousness are made good, must irresistibly draw our attention. Further the fact coming as it does in the wake of the divided general human consciousness, obviously becomes the more powerful single consideration in support of the hypothesis that human nature as also organised evolution generally present a picture of a self-evolving wholeness. In other words, what is basic to human nature and towards which it is tending is a form and status of fully organised consciousness in which its present polarities are harmonised and reconciled. But this tendency to wholeness appears to be marked by the experimental procedure, so that within the framework of general progression it becomes possible for individual men or species in the sub-human level to show signs of fixation, regression or any other form of deviation from the normal behaviour.

Among contemporary psychologists, it is interesting, we discover many direct and indirect recognition of the fact of a whole and a harmonised consciousness. Even in Freud, who picked up polarities after polarities in human nature and made most of them ultimate to human nature, we read such a sentence as this: "It can be easily imagined that certain practices of mystics may succeed in upsetting the normal relation between the different regions of the mind, so that for example, the perceptual system becomes able to grasp relations in the deeper layers of the ego and in the id, which would be otherwise inaccessible to it." Dr. Bose, the most eminent psychoanalyst of our country, while carrying the idea of polarity to the extent of posting a counter-wish to every wish, affirms himself to be a believer in "pure consciousness as distinguished from consciousness of this or that." Further in his theory of mind he finds it necessary to admit a principle of unity as the "guiding principle" of all mental action. This principle according to him, reconciles the last polarity of subject and object.

Dr. Mitra's hypothesis regarding the nature of mind possesses an obvious similarity to the view here defended, as he assumes that mind, to start with, is "in a state of perfectly stable equilibrium quite content and at harmony with itself. However, for us, such equilibrium is the evolutional goal, not the starting point.

McDougall too contemplates a fully integrated personality under a single master sentiment.

However Jung stands above all in having perceived clearly and distinctly the force and the power of the psychic consciousness. He finds the ordinary psychological explanation of personality as "inappropriate" and guided by his principles of analytical psychology discovers a truly unique fact in personality. This he calls, the "centre" or "self". To activate the centre and live in the consciousness of the self is to live the life of wholeness. This consciousness is creatively synthetic, as it assimilates the disparate materials of our mental nature and reshapes them into the picture of wholeness. All this perception is superb. Yogic practice too, at its best, aims at nothing else but the activation of the psychic centre or the soul in its dynamic aspect.

But while the recognition of a unique centre is fine, Jung did not see that the consciousness of the centre, marked by a sense of wholeness, constitutes a higher plane than the ordinary mental consciousness. In consequence he mixed up the super-conscious with the sub-conscious and declared the *Samadhi* state a state of unconsciousness.

The hypothesis here presented thus commands an appreciable direct and indirect support from contemporary psychology. But it

primarily relies upon its own strength and merit. It offers a theory of mind based upon the widest data of conscious phenomena, since it takes into consideration the evolutional progress as a whole from the earliest beginnings to the stages, which yet set the goal to the present human consciousness. It gives a coherent explanation of the normal and the abnormal consciousness. Above all, it gives a clear scientific meaning to the concept "normal" and saves the term from being a changing social average. Lastly, affording a fuller perspective of mental life, it is capable of reconciling the conflicting standpoints of the schools of contemporary psychology. The fact of psychic consciousness is a supreme fact for psychology as it presents a form of consciousness higher than the mental and is, therefore, capable of showing the true sphere of validity of the terms of our ordinary consciousness. Sex, will power, etc., cease to have the validity they ordinarily possess for the psychic consciousness. The urge for wholeness, the trend. towards a fuller organisation and harmony of life, as shown by the psychic consciousness, therefore, is the most basic trend of human nature. The other answers, possessing a partial validity as they do, can be accommodated as particular instrumentations of the trend towards wholeness.

Indian psychology has indeed a great promise but the value of its peculiar standpoint and the facts discovered by it have yet to be appraised by us for the benefit of our modern psychological knowledge.

## SOYA BEAN*

SOYA BEAN as a foodstuff holding high promise has received wide attention in India, but mostly at the hands of well meaning social workers imbued with more spirit than knowledge. To them soya bean appeared to be the panacea for all evils in India arising out of underfeeding and malnourishment. They have been encouraged in this belief by a certain section of scientific workers who took every article published in scientific, semi-scientific or popular journals outside India as gospel truth.

Soya bean was already an established article of diet in China and some other countries of the Far East before its introduction to Europe and America. The Americans have been particularly responsible for bringing its nutritive value to the notice of the rest of the world during recent years. Its high protein and fat content formed the bedrock on which nutritive value of soya bean was based. It was naturally thought that the deficiencies of Indian dietaries could be made good by soya bean. Humanitarian enthusiasts have tried to bring its good points before the public and the authorities with a view to initiating and encouraging cultivation and popularisation of the soya bean in India.

Although some varieties of soya bean grow along the northern border of India, it cannot strictly be called indigenous in the sense that the pulses and other beans are. Sporadic attempts have been made to grow it as a food (or cash) crop in India. The Agricultural Department of the Government of India also had to consider whether the production of soya bean in this country deserved encouragement for purposes of human consumption.

In the meantime soya bean was engaging the attention of scientific workers in this country. Unfortunately there were two irreconcilable schools of thought holding divergent views. In 1941 the Nutrition Advisory Committee of the Indian Research Fund Association (which is also the National Nutrition Advisory Committee with the Government of India) finding itself unable to compose the differences by discussion across the table appointed a Sub-Committee consisting of Dr. W. R. Aykroyd, Dr. K. P. Basu, Prof. B. C. Guha, Dr. V. N. Patwardhan and Dr. K. C. K. E. Raja, to suggest lines on which further experiments on soya bean might be carried out by different laboratories, with a view to provide an answer to the question, "Whether the nutritive value of soya bean in comparison with those of common Indian pulses is such as to justify from the standpoint of human nutrition, the encouragement of the production and consumption of soya bean on a wide scale in India".

The results of the co-ordinated investigations carried out in the four laboratories at Bombay, Coonoor, Dacca and Lahore under the auspices of the Sub-Committee have recently been published as a Special Report (I.R.F.A. No. 13). The investigations mainly dealt with (*a*) the biological value of soya bean and pulse proteins, (*b*) the effect of heat treatment on the nutritive value and (*c*) the supplementary value of soya bean and pulses to the so-called poor *Madrasi diet*. Although most of the work was done on albino rats some experiments on human beings were conducted as well. An account of most of the earlier work on soya bean has also been included in the report.

The biological value and digestibility coefficient of the soya bean protein by growth and metabolic studies on albino rats and in human beings were found to be of the same order as those of the other pulses. In spite of its high available protein content (1½ to 2 times that of pulses) soya bean did not prove any better than the common Indian pulses as a supplement to the poor rice diet. In most experiments Bengal gram seems to have given better results than even soya bean. Incidentally it has been found that the so-called "poor Madrasi" diet suffers more from a lack of minerals and vitamins than from that of proteins.

After four years of work the Soya Bean Sub-Committee came to the conclusion "that as a supplement to typical Indian diets based on

* "Report on Soya Bean," by the Soya Bean Sub-Committee of the Nutrition Advisory Committee, Indian Research Fund Association, Jan. 1946, p. 35. Price As. 8 only.