



Dr. James Means, Chief of Medicine at Massachusetts General Hospital, examines a patient with a pronounced hyperthyroid condition. New revolutionary treatment may abate her troublesome ailment.

James Howard Means, professor of clinical medicine at Harvard and one of the world's leading authorities on thyroid conditions, regards the gland as one of a number of weak links in the body, any one of which may give way as we jounce along over the bumps of life—disappointment, grief, financial loss, accidents and narrow escapes. Some people react to these jolts with nothing more serious than a temporary case of jitters. Others are jarred into a neurosis or psychosis. Many acquire a stomach ulcer. Still others—and they are among the principal figures of this story—get it in the neck and flare up with hyperthyroidism. These individuals are, according to Doctor Means' theory, probably constitutionally prone to thyroid disease, and the emotional episode simply triggers off the explosion.

While psychic upsets are probably the most frequent and important single class of thyroid disturbers, they are not the only ones. The thyroid is subject to more pressures than a Brooklyn subway rider and is much more easily joggled off balance. It can be pushed into overactivity by an acute infection, the stresses of puberty or pregnancy, or overzealous reducing with thyroid extract.

In the past the main hope of these harried victims of an agitated thyroid has been iodine therapy, established in 1923 by Dr. Henry S. Plummer, of the Mayo Clinic, or in surgical removal of about seven eighths of the gland. Today they can call upon either of the two new medicines. The chemical "brake" was developed chiefly by Dr. Edwin B. Astwood, professor of research medicine at Tufts

Medical School. Use of radioactive iodine in thyroid cases was begun almost simultaneously by two groups of scientists, one in Boston—Drs. Saul Hertz and Arthur Roberts, of Harvard Medical School—and one at the University of California—Drs. J. G. Hamilton, M. H. Soley and John H. Lawrence.

The new antithyroid weapons are not only potent therapeutics, they are also ingenious tools with which researchers are gaining a clearer understanding of some of the gland's puzzling antics. Determining the basal metabolic rate, a measure of oxygen consumed and carbon dioxide given off when the body is at rest, has been a highly useful procedure. But it gives only an indirect and general estimate of thyroid activity. More direct and specific information in this field will have far-reaching consequences. For the thyroid occupies a key position in health and disease. It does so by virtue of its function as a combination thermostat and blower for the millions of tiny metabolic furnaces, the body cells, where energy is generated. The draft it blows, in the form of the potent thyroid hormone, is regulated to meet the widely varying demands of human activity. It is the device, in other words, which permits us to live a fast life or a slow one, a choice which some of the lower animals, less generously endowed with thyroid tissue, cannot make.

The thyroid thermostat-blower is important in the business of producing enough body heat to keep us warm in many kinds of weather. Unfortunately,

it gets rusty in old age, the draft slows down, the fires of life burn lower, and grandpa moves closer to the radiator—or to St. Petersburg. If the gland blows too strong a draft, that is, pours too much hormone into the blood stream, the metabolic flames get out of hand and consume not only the food eaten but the person's own body tissues. This is hyperthyroidism or, to use another term, toxic goiter.

Now toxic goiter is not to be confused with simple, or endemic, goiter, a result of iodine deficiency in the food or water of certain areas, such as our own Great Lakes and Rocky Mountain regions. Simple goiter is much less common now that iodized salt is in general use throughout the goiter belt. In simple goiter the thyroid apparently grows larger because more glandular tissue is needed to trap the thinly distributed iodine in the blood and build it into hormone. Such compensation is so effective that these patients usually have a normal thyroid hormone output and a normal metabolic rate, although the goiter may become so large that it presses on the throat and windpipe and may have to be removed for that reason. The thyroid is swollen in toxic goiter also, but not always to a noticeable degree. It deserves the term "toxic" because its overproduction of hormone is harmful to the patient.

All thyroid troubles are more common in women than in men; the ratio in toxic goiter is about four or five to one. And as you might expect, the worries that assail the women and trigger off their thyroids are often concerned with family troubles.

Sometimes the thyroid absorbs a succession of emotional shocks before it finally explodes. Such was the case with twenty-seven-year-old, Russian-born Mrs. K., who sustained the first blow when her husband, a New York taxi driver, was injured in an accident. From that time on she worried about his daily exposure to Manhattan traffic. Then came, in 1939, the news of the German invasion of Poland, where her mother and uncle lived. For the remainder of the war Mrs. K. lived in nerve-racking uncertainty. By the spring of 1944 she had begun to lose weight. Her heart thumped fast and hard, and she became increasingly nervous and irritable. She was always too warm, no matter how cool the room or how lightly she was dressed. In July her husband took her to visit friends in Hartford, Connecticut, hoping a vacation would do her good. They went to the circus. As they were leaving the grounds they heard a crackling sound, turned and saw people falling over one another in a mad scramble to escape the flames, saw others "burned like roast pigs."

The horror of that experience rapidly aggravated the New York woman's symptoms. Her eyes began to protrude in the peculiar hyperthyroid stare which has been described as an expression of frozen fright. In spite of her worries Mrs. K. had a ravenous appetite. But she couldn't satisfy the voracious metabolic fires burning within her, and her flesh continued to melt away until she resembled a trembling, perspiring skeleton strung together with high-tension nerves.

The diagnosis of hyperthyroidism was evident to the doctors at New York Hospital-Cornell University Medical Center even before they took the distressed woman's basal metabolic rate. What had happened here, as in all hyperthyroid cases, was that the thyroid had failed as a regulating thermostat and had overdone the draft-blowing job.

To slow down this body-wasting thyroid hormone production, the New York Hospital doctors gave Mrs. K. one of the new chemical "brakes," a compound known as thiouracil. She took the small, white, slightly bitter pills every day, and within ten days her nerves began to calm down, her heart became quieter, her metabolic rate began to fall and she put on weight. After six months Mrs. K. discontinued the medicine, and for two and a half years now she has been perfectly well, except for the fact that the eye symptoms have not entirely subsided.

Many other cases of toxic goiter were set off by the anxieties and shocks of the war. A University of Copenhagen professor visiting Boston recently said that during the German occupation hyperthyroidism in Denmark increased 500 or 600 per cent. Curiously, the Danish necks held up under the Nazi yoke pretty well for (Continued on Page 66)