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COMMUNICATIONS

IRITIS BOECK (SARKOID OF BOECK IN IRIS)

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WHEN Caesar Boeck described the benign dermal sarkoid in 1899, he advanced the supposition that the same disease might affect other tissues besides the skin. That he was right in his surmise has been confirmed by a great number of publications; the material has recently been reviewed historically by Waldenström.⁴² The conception: "Boeck's sarkoid" has been extended very much. I use the term Boeck's disease because it prejudices nothing as to the nature of the disease, and because the most proper denomination of the disease is still a matter of debate.

Boeck, then, gave a description of a skin disease; in 1914 Schaumann showed that the same affection, with or without dermal symptoms, may occur in the whole system of lymphatic tissue including the tonsils, as also in the marrow of bones, lungs, spleen and liver. He therefore took it to be a systemic disturbance of the lymphatic tissue and named it "lymphogranulomatosis benigna."

In 1933 Pautrier and Oberling set up the hypothesis that the affection might be a systemic disease of the reticulo-endothelial tissue (dermatological congress in Strasbourg). Fresh reports of

Boeck's disease being localised outside the lymphatic tissue are constantly appearing, and such points of resemblance have been pointed out between Boeck's disease and a series of other pathological pictures, most recently Heerfordt's uveoparotid fever, that perhaps it should be classed among a larger group of diseases. Even now the conception of a systemic disease can only be kept up by the supplementary hypothesis that some system is affected primarily and a secondary haematogenous dissemination to other organs follows. There is an increasing tendency to look upon Boeck's disease as a universal disturbance which affects all the organic systems (Waldenström⁴²). Thus the proportion (or disproportion) of the diffusion through the organism to its clinical manifestations becomes one of the most striking features of this peculiar affection.

Clinically Boeck's disease is characterised by following a more or less symptomless, torpid course, with a progressive tendency and spontaneous remissions and generally a favourable prognosis. Its *histological* picture is uniform all through the organism, and therefore is a chief diagnostic point: In the affected tissue there are found heaps of epithelioid cells surrounded by a sparse hedging of lymphocytes; in the midst of the epithelioid cells a few giant cells of the Langhans' type are found, but no hyaline degeneration, necrosis or sclerosis. These are the chief histological features. The epithelioid groups of cells are often, especially in the skin, placed quite close to minor vessels (Kissmeyer¹⁷); according to Pautrier and Oberling²⁵⁻²⁶ they often contain reticulocytes, which is the basis for the theory of Boeck's sarkoid being a reticulo-endothelial systemic disease. Wahlgren⁴¹ observes that sometimes there appear Langhans' giant cells which contain round or oval calcifications, and that "there has been an attempt to ascribe to them a certain diagnostic import."

Finally *the relations between Boeck's disease and tuberculosis* are of the greatest diagnostic and clinical importance, though as yet they remain theoretically unelucidated and are interpreted in widely different ways. In strikingly frequent cases patients with Boeck's disease belong to non-tuberculous families and are personally unaffected with clinical tuberculosis (Nordin²⁴). Tubercle bacilli have never been unquestionably demonstrable in Boeck's sarkoid, and inoculation of guinea-pigs does not take effect. Furthermore, it has been established beyond question by different authors (Schaumann, Bonnevie and With) that patients with clinical manifestations of Boeck's disease have a *negative or extremely feeble cutaneous tuberculin reaction*. These patients, however, seem to be taken with tuberculosis rather often; when this happens, the symptoms of Boeck's disease disappear, and the negative tuberculin reaction changes into becoming positive.

Whether Boeck patients have a special predisposition to tuberculosis is an open question. Sundelin³⁹ thinks that the patients are often exposed to contagion because—owing to the difficulty of diagnosis—they are often sent to tubercle-hospitals and sanatoria. In about half of the clinically established cases of Boeck's disease in which a post-mortem has been performed, the cause of death has been intercurrent tuberculosis in lungs, peritoneum or elsewhere.

In the literature four or five cases of Boeck's disease are reported (see Schaumann,³⁴ and Wahlgren⁴¹), in which the patients have died of this disease; in these cases the cause of death was cardiac debility. One case, described by Watz,⁴³ gives an impression of the prognosis of the uncomplicated Boeck's disease. In one case, in which there were large hilus shadows and the patient had difficulty in breathing, 605 grammes of glandules, coalescing with aorta, the capital veins and trachea, were removed by operation. The patient died 16 years after the operation of cardiac insufficiency; nodules the size of a clenched hand had then developed afresh in the mediastinum.

The sectional cases show that the specifically Boeckean alterations occur extensively in organs which during life did not even convey an impression of being affected, and form an interesting background to Schaumann's contention: that the tonsils and the lymphatic glandular system are invariably affected in Boeck's disease, symptoms or no symptoms.

Boeck's disease is found localised with particular frequency in certain organs. It is possible that these organs are attacked electively; it is also conceivable that they react through symptoms which are most likely to attract the patient's attention and make him seek medical advice (skin), or that the diagnostic faculties are specially effective in certain localities (bones, lungs).

I shall give a brief account of the most common manifestations of Boeck's disease.

The *dermic alterations* I think are prevalent. The start of the disease as a dermatological affection may have turned the attention to them preferentially. Most often they are localised in the face, shoulders, and extensor sides of the extremities. Three forms are distinguished: (1) a relatively rare, knotty form with nodules of from 1 mm. to the size of peas, yellow or red, which gradually turn bluish, their central portion at the same time caving in, while the edge keeps yellow. (2) "The nodular sarkoid"—the most frequent form: larger nodes, issuing from the deeper strata of the skin, indolent, hard, never ulcerous; reddish in colour, changing into brownish, dwindling by degrees, leaving a pigmentation with teleangiectatic edge. (3) "Lupus pernio"-form: doughy, bluish red, cutaneous or subcutaneous tumours without

sharply defined outlines. (4) Furthermore Schaumann has described a "forme érythrodermique," which is extremely rare, but theoretically interesting, its existence constituting a morphological accordance between the dermic symptoms in "lymphogranulomatosis benigna" (Boeck-Schaumann) and lymphogranulomatosis maligna (Hodgkin).

In the bones of the hand and foot not infrequently cystic rarefied areas are found (osteitis cystica Jüngling,¹⁶ from Danish hand especially studied by Jens Nielsen²³), which are demonstrable by Roentgen rays, but need not give any clinical symptoms at all. In contrast with the tuberculous spina ventosa, the osteitis cystica is said to give no periosteal reaction, and therefore less thickening of the bone. It has been established pathologico-anatomically that the marrow of the bones may be affected, though this fact does not come out in Roentgenograms.

Boeckean alterations in the lungs appear in skiagrams as enlarged hilus-shadows, reticular or irradiating striation or woolly spots. The apex of the lung is comparatively seldom affected, and caverns are not seen; the picture is not a specific one; it may remind one of tuberculosis, silicosis or stasis.

Descriptions have been given of Boeck's disease in the lacrymal and salivary glands, epididymis, mamma, in striated and cardiac muscles, in the mucous membrane of the lacrymal duct, the nose, the sheaths of peripheral nerves, and the hypophysis (Sundelin,³⁹ Waldenström,⁴² Salvesen²⁹). As regards the eye, Boeck's sarkoid has been described as occurring in the conjunctiva, cornea, iris, choroid and the optic nerve.

In the *conjunctiva* Boeck's disease takes a rather characteristic shape: it forms rows or groups of clear, hyaloid or yellowish nodules, which do not bother the patient noticeably, there is a moderate mucous discharge, the cornea is not invaded, and there is no swelling of the preauricular glands. The diagnosis is easy, because the nodules present the typical histological structure. (Strandberg, Lehrfeld, Schoeppe, Lütz, Igersheimer, Blegvad.)

The *corneal* affection is rare. Only in one case, Stumpke,³⁸ has keratitis been described as the only ophthalmic symptom: in a patient with Boeck's sarkoid as a dermal affection small superficial opacities of the cornea were found; in six other cases (Weidmann,⁴⁵ Favauge-Bruyel,⁹ Plancherel,²⁷ Schoeppe,³⁵ Mylius,²¹ Nordin²⁴), the question is about parenchymatous processes which set in late in the course of the disease, together with nodular iritis. Plancherel and Schoeppe give strikingly uniform descriptions of a downward process in the cornea, deep, fusiform with down-turned basis.

Iritis in Boeck's disease has during latter years been brought to the front owing to the discussion of the relations between Boeck's disease and uveoparotid fever. When iritis is alleged

to be of quite common occurrence in Boeck's disease, this is probably drawn from Bloch, who in 1915 counted up 5 cases of iritis among 20 with Boeck's disease. In the Table on page 156 I have tabulated 27 cases of iritis in Boeck's disease, which is all I have been able to find among about 500 cases in the literature on this disease. The table, then, seems to me to show that iritis in Boeck's disease is rare, and that it may occur as part of a clinical picture which cannot be compared and far less identified with uveoparotid fever.

On one point all authors agree, however different their points of view; that *clinically, iritis Boeck closely resembles tuberculous iritis*. Schumacher and Bering, who made the first observations, did not doubt at all that the iritis must be tuberculous, Favauge-Bruyel even thought that the apparently tuberculous character of the iritis furnished a proof that Boeck's disease was a special form of tuberculosis. That a distinct form of iritis exists which must be characterised as Boeck's disease, has been proved histologically by Mylius and Schürmann.²² The curious clinical points of contact between morbus Boeck and tuberculosis have been briefly mentioned above; the relations between the two diseases have been investigated experimentally and discussed theoretically by numerous researchers (Jadassohn, Martenstein, Kyrle, Schaumann, etc., etc.); an interesting contribution has recently been put in by Lemming.¹⁹ How important the distinction between iritis Boeck and tuberculosis may be, and how difficult the differential diagnosis, is illustrated by the following case history:

The patient is a young girl, R. J., born April, 1921. No cases of tuberculosis in the family. A brother died of cerebro-spinal meningitis in connection with vaccination, the patient herself was very ill with meningeal symptoms when she herself was inoculated at 7 years of age, otherwise in perfect health.

On October 20th, 1935, she went to a practising ophthalmologist in Copenhagen. The right eye was found to be normal, V.6/6, emm. (unaltered all along), left eye, V.6/9, emm., slight kerato-iritis. Atropine was prescribed.

10th day of illness: A round nodule, size 1 mm., in the angle of the anterior chamber at "10 o'clock." Depth of chamber: normal. Ophthalmoscopy normal. The keratitis cured. Slight ciliary injection. No pain.

21st day: The nodule at "10 o'clock" grown into 2 mm. in diameter, 2 other nodules developing between "10 and 6 o'clock," $\frac{1}{2}$ -1 mm. in size. The nasal half of the chamber deeper. V.6/9.

37th day: Admitted to a hospital. State of nutrition: middling, weight 53.900 (height 168). Temperature: normal. No tiredness or perspiration. Sedimentation rate 7 mm. 1 hour, Mantoux + (0.1-1 mgr.), Wassermann Reaction +, hæmoglobin 82 per cent. (Sahli). No swelling of the jugular, salivary or lacrymal glands. Steth. card., natural. Steth. pulmon., slight dullness in left infrascapula, towards spine, but no bronchial breathing or râles. Abdomen: natural. Roentgenogram of the lungs: enlarged hilus-shadow, scattered woolly spots—described as mediastinitis with small peripheral infiltrations. Left eye: Cornea hypæsthetic, tension normal. Nodules round, not granulated, grey, nacreous, slightly vascularised, covered in part with exudates. Treatment, Finsen rays, avital injections.

67th day: Continuously apyretic, general health unaffected. Left eye, V.6/36 unimproved by glasses, cornea anæsthetic. The chamber ever deepening, 2 fresh

nodules developing in the angle and one in pupillary zone of the iris. No precipitates. Aqueous flare (measured a.m. Rönne) 2.00 that is, slightly increased.

158th day: Finsen ray treatment continued ambulatorily. The patient is fit for work (shop assistant, 8 hours daily), afebrile, without pulmonary symptoms. The affected eye causes the patient very little annoyance, the vision, however, has declined, V.: hand movements at 1 metre. The chamber infundibularly retracted. Numerous synechiae, the anterior surface of the lens covered with exudates. A few precipitates (Fig. 1a).

218th day: A nodule, situated at "8.30 o'clock," has encroached upon the sclera (Fig. 1b).

275th day: Wide ingrowth into sclera from 4 nodules (Fig. 1c).

349th day: Though the left eye is almost indolent, and the nodules do not increase further in number or size, the aspect keeps growing still more alarming, the sclera becoming thinner over the nodules and seeming to threaten perforation. The general health still continues good. The patient's family and the patient herself have been gradually reconciled to the thought that the eye is lost, and she is once more removed to a hospital expressly *with a view to enucleation*. Weight, 59.000. Temp., normal. Sedimentation rate 7 mm. an hour. Mantoux: $\pm$ 0.01—0.1—1 mgr. Hgb. 69 per cent. (Haldane). Steth. pulmon., unchanged as when first admitted. Left eye, V.2/60. Cornea hypæsthetic, tension, normal. A few precipitates. Depth of chamber, 4 mm. The nodules described much as on the 37th day as regards appearance, spec. note: they do not show any sign of necrosis. At "7 and 9 o'clock" they bulge out the sclera very much, in these places it is very thin, almost pellucid (Figs. 1c and 2).

FIG. 2. (Drawing by the Author)

Slit-lamp appearance on 349th day. Cornea normal, aqueous flare normal. A few precipitates. Enormous nodules. Synechiae and thin coating of the anterior surface of the lens.

Ophthalmoscopy: impossible owing to exudate on the anterior surface of the lens.

X-ray of lungs: Besides an enlarged hilar shadow, both lungs packed with disseminated woolly flecks so closely that there is reason for suspecting miliary tuberculosis, possibly, but on the face of it with less probability, Boeck's sarkoid (Fig. 3a).

Therefore the patient was dismissed without operation. Before discharge she was examined with special regard to symptoms of Boeck's sarkoid. The skin, the lacrymal and salivary glands, as also all palpable lymphoid glands

FIG. 3a.

Roentgenogram of lungs, 349th day. Description: see text.

were normal, radiograms of the long tubular bones and the bones of the hands and feet revealed nothing abnormal.

407th day: Since leaving hospital she has been performing her usual work, without feeling any tiredness. The temperature has been normal (measured twice a day). No cough, no shortness of breath. Weight 62.000. Left eye, V.2/60. The ciliary injection is decreasing, *all of the nodules are absorbing*, at "6 o'clock" a few fresh small granulations in the angle of the chamber (Fig. 1d).

534th day: Mantoux: $\div$ 0.1—1 mgr.

540th day: Left eye: V.6/36 + 2.00 cyl. 120°. *The nodules have disappeared with the exception of one at "9 o'clock" in the angle of the chamber, in this place the sclera is bulging, but not cystic. Renewed general examination,*

FIG. 3b
Roentgenogram of lungs, 708th day.

medical and dermatological: nothing new. Radiogram; a considerable clearing of the peripheral patchy consolidations. The bones of the extremities keep normal.

640th day: General condition unaltered. Weight: 63.500. Left eye: V.6/18 + 2.0D. cyl. $120^{\circ} + 1.0D.$ sph. All the nodules disappeared. At "6 o'clock" a whitish cicatrix in the angle of the chamber; the depth of the chamber keeps slightly increased. A few precipitates.

708th day: The temperature still ascertained at intervals, and it is always normal. Weight: 63.500. Left eye: V.6/12 + 2.0D. cyl. $120^{\circ} + 1.0D.$ sph. A few pigmented precipitates. Depth of chamber: 3.8 mm. In the angle of the chamber a small white cicatrix, at "9 o'clock" a slight thickening of the sclera and an atrophic and pellucid spot in the iris. *Otherwise the stroma of the iris is normal* throughout, without cicatrices from nodules. The pupil is irregular as a consequence of numerous synechiae. A thin coating of the anterior surface of the lens. Ophthalmoscopy: The fundus is seen blurred, but is normal. Field of vision: normal. General examination, medical and dermatological: nothing abnormal. X-ray of lungs: Left hilus shadow still enlarged. Only in the lower portion of both lungs are found remnants of the consolidations and opacities mentioned above, the upper part of the lungs is now normal (Fig. 3b).

From the left tonsil (perfectly normal in appearance) a probatory excision was made, and sections showed Boeck's sarkoid. I quote at length a histological opinion given by the University Institute for pathological anatomy.

A histological examination of the submitted specimen from the tonsil shows the surface covered with naturally structured stratified epithelium. Under this the usual lymphoid stroma with germ centres is seen, and in places a slight increase of the collagenous connective tissue. In the outer layers which are situated nearest to the epithelium, the stroma is the seat of focal, productive, inflammatory processes with formation of rather closely packed, light heaps of cells, which show out in rather sharp contrast with the lymphoid surroundings. The borderline is not circular, as in germ centres, but scalloped or lobate. The dimensions of the foci in question are supposedly a little below the average size of germ centres. In shape and size the elements are like epithelioid cells, with rather large, but scantily chromatinized nuclei. In a few places plurinuclear formations are seen, one at least of which looks much like a Langhans' giant cell. In other places pre-capillary vessels are found which are continued all the way into the epithelioid heaps, and here there is a gradual transition between the adventitious vascular elements and the large light cells of the infiltrations. No signs of caseation are found at all, typical elementary tubercles have not been traced, nor any sign of syphilitic processes; no tumefaction observed. Histological diagnosis: alterations of tissue corresponding to what is found in the so-called Boeck's sarkoid.

FIG. 4a.

Tissue from tonsil, just under the epithelium. Specific infiltrates with light cells whose structure in places resembles that of epithelioid elements, in other places are more like fibroblasts. A giant-cell is seen in such a focus. Just outside the lymphoid border medium-sized arterioles with fibrous thickened adventitia are found. (70 $\times$.)

Summary: In a 14 year old female, who reacted meningeally to cow-pox vaccine at 7 years of age, but has otherwise always been of good health previously, there developed a torpid, indolent, monocular nodular iritis, which in the course of a year or so reduced the vision to 2/60 and threatened perforation. Though the patient showed no pulmonary symptoms at all, an enlarged hilus shadow has developed during the same period into miliary, universal Roentgen shadows. Mantoux, $\div$ (1 mgr.). Spontaneous recovery of the eye in the course of 3 or 4 years, ending in acuity of vision: 6/12. Considerable spontaneous healing of the

pulmonary alterations—all this not influencing general condition and tuberculin reaction. Diagnosis: Boeck's disease proved histologically on tissue taken from an apparently sound tonsil.

FIG. 4b.

Photograph showing the close connection between vessels and epithelioid foci. (156 $\times$.)

FIG. 4c.

Further magnification of minute portion of the same focus as shown in Fig. 1. The little vessels are seen almost to reach the giant-cell. (280 $\times$.)

In the eye department of the Kommunehospital of Copenhagen a case has been observed which offers points of resemblance with the above-mentioned so striking that I have asked the permission of the chief physician, Dr. E. Holm, to mention it in this connection.

A man, aged 21 years, previously in good health, of a sound family, suddenly develops an iritis in the right eye, with one single hyaloid nodule, large precipitates, opacities and a slightly blurred optic disc. Stethoscopy: slight dullness and bronchial breathing, no râles, which seems strange, as compared with X-Rays of lungs, which exhibit extensive exudative processes in both lungs. Mantoux: + up to 1 mgr. No tubercle-bacilli in ventricle rinsing found by microscopy, cultivation or inoculation on guinea-pigs. Sedimentation rate: 10 mm. (1 hour). Though the patient feels perfectly well, is increasing in weight and apyretic, more nodules develop—after 70 days' illness there are 7, the visual acuity is 6/18—the same as 3 weeks after the outbreak of the disease.

After the iritis has persisted for about 120 days a sudden dissemination of numerous fresh nodules, and reduction of vision to counting of fingers at 1 metre. Steth. and X-ray of lungs: unchanged, X-ray of the skeleton of hands and feet: nothing abnormal: *repeated test excisions from the tonsils: nothing abnormal.* On the 120th day of illness: perfectly comfortable, absolutely fit (the patient is a music-hall artist). Left eye: perfectly natural. Right eye: acuity of vision, counting fingers 1 m. More peripheral corneal opacities with thickening of the parenchyma and ingrowth of deep vessels. Numerous large precipitates. Aqueous flare: 2.75. Scores of small hyaloid iridian nodules, with a localisation quite different from the one formerly described. The previously existing nodules, now vanished, have not left any atrophy of the stroma of the iris. Ophthalmoscopy: diffuse reflex of fundus.

In this case there is found: an interstitial keratitis, an iridocyclitis and possibly an optic neuritis in the right eye and a pulmonary affection, demonstrable by Roentgenology. The disproportion of the subjective disturbances to the objective findings is very striking both as regards the eyes and the lungs. Mantoux: + 1 mgr.

The case of iritis Boeck here reported is peculiar in several respects. Only Plancherel's and Weidmann's cases, both of which are reported very briefly, have been monocular iritis. One would expect that universal diseases such as tuberculosis and morbus Boeck would be most likely to affect both eyes, and indeed, as seen by the table, this is the predominating fact.

Further, in the reported case there are strikingly few symptoms. Nevertheless the diagnosis could be made by microscopy of a clinically quite normal tonsil, and the case thus supports the emphasis which Schaumann lays on the value of this method of investigation (even though the case of the Kommunehospital raises the question whether the tonsils are *always* affected).

Finally, there is reason for calling attention to the patient's hypersensitivity to cow-pox vaccine and her brother's death in connection with vaccination. Very little is known about the deeper causes of vaccination deaths, but a constitutional hypersensitivity is suspected to be at the bottom. Boeck's disease is considered by such investigators as Kissmeyer and Lemming, etc., to be a special, constitutionally conditioned tissue reaction, a theory which shall not be further discussed here. In the present

TABLE

AUTHOR				Age, sex	Skin	Parotid	Submaxillaris	Conjunctiva	Cornea	Iris		Choroid	Lens	Tension
1	1909	Schumacher	- -	42 ♀	+	++	++	..	..	++	nod.	..	..	..
2	1910	Bering -	- -	37 ♀	+	++	++	..	..	++	nod.	..	..	..
3	1912	Unna -	- -	34 ♂	+	..	..	..	..	++	..	..	..	..
4	1913	Broers -	- -	—	+	..	..	..	..	++	..	..	..	..
5	1914	Plancherel -	- -	—	+	..	..	..	+	+	serous	..	..	..
6	1915	Bloch -	- -	67 ♀	+	..	..	..	..	++	..	..	..	..
7	1915	Ehrmann -	- -	—	+	..	..	..	..	++	..	..	..	..
8	1919	van Husen -	- -	—	+	..	+	..	..	++	..	..	..	..
9	1920	Schoeppe -	- -	—	+	..	..	..	++	++	..	..	++	..
10	1922	Weidmann -	- -	21 ♂	+	..	..	..	..	+	..	..	..	..
11	1923	Favaugue-Bruyel -	- -	16?	+	..	..	..	..	++	nod.	..	++	+
12		„ -	- -	18?	+	..	..	..	..	++	serous	++	..	..
13		„ -	- -	48?	+	..	..	..	..	++	nod.	..	..	..
14		„ -	- -	65?	+	..	..	..	..	++	nod.	..	..	+
15		„ -	- -	19?	+	..	..	..	++	++	nod.	..	..	..
16	1924	Savatard -	- -	—	+	..	..	..	..	++	..	..	..	..
17	1924	Martenstein -	- -	—	+	..	..	..	..	++	..	..	..	..
18	1925	Hudelo and Rabut -	- -	—	+	..	..	..	..	++	..	++	..	..
19	1927	Habermann -	- -	21 ♂	+	..	..	..	..	++	..	..	..	..
20	1928	Mylius -	- -	24 ♂	..	..	..	..	..	++	nod.	..	..	..
21	1933	Funk -	- -	—	+	..	..	..	..	++	..	..	..	..
22	1934	Ramel -	- -	—	+	..	..	..	..	++	..	..	..	..
23	1936	Sandbacka-Holmström		39 ♀	+	++	++	..	..	++	..	..	..	+
24	1936	Grönblad -	- -	25 ♀	+	++	++	+	..	++	nod.	..	..	..
25		„ -	- -	53 ♂	..	++	..	..	..	..	..	..	..	..
26	1937	Nordin -	- -	26 ♀	+	..	..	..	+	++	nod.	..	..	+
27	1937	Own case -	- -	15 ♀	..	..	..	..	..	+	nod.	..	..	..

TABLE—continued

	Neuritis optica	Lungs	Liver	Spleen	Bones	Allergy	Histological diagnosis	Complications, Course
1	...	...	...	...	...	+ +	+	
2	...	...	...	...	...	+ +	+	
3	...	...	...	...	...	+	+	
4	...	...	...	...	...		...	Peritoneal tuberculosis
5	...	...	...	...	...		+	Spontaneous recovery— $\frac{1}{2}$ year
6	...	...	...	...	...	+ (Pirquet)	...	
7	...	...	...	...	...		...	
8	...	...	...	...	...	+ (Pirquet)	...	Phthisis bulbi, o.u.—2 years
9	...	+	...	...	...		+	
10	...	...	...	...	...		+	+ W. R.
11	...	...	+	+	...	+ (Pirquet)	...	Progressive spinal atrophy
12	++	...	+	+	...	+ (Pirquet)	...	
13	...	...	...	...	...		...	
14	...	+	...	...	...	+ (Pirquet)	...	
15	++	+	...	...	...	+ (Mantoux 0,7)	...	
16	...	...	...	...	+		...	
17	...	...	...	...	...	+ (Moro)	...	
18	...	...	...	...	...		...	
19	...	+	...	...	...	+ (Pirquet)	...	
20	...	+	...	...	+	+ (Pirquet)	+	Left eye: phthisis—1 year. Right eye: remission—2 years, new dissemination. phthisis 2 years
21	...	+	...	...	+		...	Skin and eyes recovered simul- taneously with outbreak of pulmonary tuberculosis
22	...	...	+	...	...	+ (Moro, Pirquet)	+	9 years after. V. perception of light
23	...	...	...	...	+	+ (Mantoux 1,0)	+	
24	...	...	...	...	...	+	+	
25	...	...	...	...	...		...	Parotid and uvea: Total recov- ery in few months. Dermal affection 6 years afterwards
26	...	+	...	...	+	+ (Mantoux 0,1)	+	
27	...	+	...	...	+	+ (Mantoux 1,0)	+	

state of research no kind of evidence is forthcoming for the existence of a connection between these phenomena, but it appears to me that such a connection is very possible. Bering tells us that the patient observed by him had a sister who died suddenly at 7 years of age from "Gehirnschlag."

To tell an iritis Boeck from an iritis tuberculosa by the look of it is hardly possible. The differential diagnosis must be based on the general condition of the patient, tuberculin reaction, Roentgenograms and probatory excisions.

The Boeckean iritis is peculiarly painless, it may remit and disappear, so to say, into space; on the other hand, it may also destroy the eye through new attacks. Further, Boeck's disease seems to affect the iris itself preferentially, and to involve the choroid and optic nerve less frequently than tuberculosis.

It has been alleged that iritis or iridocyclitis is of common occurrence in Boeck's disease. This is of some moment with a view to the relations, much disputed at the present day, between Boeck's disease and uveo-parotid fever (Heerfordt). Exact statements, however, are sparse.

Duke-Elder⁷ asserts that Kissmeyer has found iritis in 5 out of 20 cases of Boeck's disease. This, however, is due to a misunderstanding: in Kissmeyer's paper cited, the author remarks that Bloch³ has collected 5 cases of iritis among 20 cases of morbus Boeck; but states expressly that he himself has not observed a single case of iritis (18, p. 71: "Nous n'avons observé aucun cas d'iritis"). Blegvad² mentions the cases which are noted in the table on p. 156 under Nos. 1, 7, 17, 18, 19 and 9, and asserts that in going through the literature one finds iritis or iridocyclitis in about 10 per cent. of all the cases of Boeck's disease. In my list 27 cases of iritis in Boeck's disease are tabulated. These cases, as may be seen from the references, have been drawn mostly from dermatological publications. I have not aimed at an exhaustive review of the literature; and to a critical classification of the dermatologic symptoms I have not felt competent. But in the portion of literature I have managed to go through, I have found about 400 cases of certain or supposed Boeck's sarkoid without eye symptoms. If to this we add that the ophthalmological symptoms are described very briefly and vaguely in several of the tabulated cases, that a number of the patients have had tuberculosis or other diseases in combination with Boeck's disease, that some of the cases have not been histologically verified, and that others are included because histologically they have been classified as Boeck's sarkoid though clinically the designation uveo-parotid fever (Heerfordt) would seem obvious, I think we may reasonably consider the previous estimates as having been too high. On the basis of an ampler material iritis must be said to be a relatively

rare symptom in Boeck's disease, the rate of frequency being between 5 and 10 per cent. of the cases, probably nearest the 5 per cent.

Iritis Boeck, like tuberculous iritis, is a torpid inflammatory condition with a tendency towards nodulation. No doubt it is true that the two diseases are not differentiable morphologically. In the case described above the nodules grew into a quite unusual size (Fig. 2). Also the slight disturbance caused to the patient was strange. As the lack of reaction from the tissues and necrosis are characteristic of Boeck's disease, it is probable that the said peculiarities have not been accidental, but are characteristics of iritis Boeck. (Bering, Favauge-Bruyel and Nordin describe the nodules as very large.)

Iritis Boeck seems little liable to such complications as choroiditis or neuritis optica. The few cases in which such complications have been described, are somewhat briefly reported—that the complications *may* occur, cannot reasonably be doubted, and besides they have been histologically demonstrated in Mylius and Schürmann's case.

The course of iritis Boeck, it seems, may be either (1), as in the above case and those of Plancherel²⁷ and Grönblad,¹¹ rapid spontaneous recovery, so that even very large nodules disappear without leaving any scars, which would hardly be conceivable in tuberculous iritis; or (2), as in van Husen's and Mylius's cases: a dissemination of iridian nodules, after which the condition remains stationary or improves during a long period of time, then a new seeding out of nodules takes place, after which the eye becomes phthisic. No perforation has been described in contrast with cases of iridian tuberculosis.

It seems to me that the available material is extensive enough to justify the following inferences: A distinct iritis Boeck exists which is not identical with tuberculous iritis. Iritis Boeck is less painful, less destructive and more proliferative than the latter disease. Morphologically the individual case cannot be distinguished from tuberculous iritis; the differential diagnosis can only be made clinically by observation of the general condition, allergic reaction, contingently by biopsy or Roentgenography of such organs which are found most frequently to be affected by Boeck's disease.

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